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UNIVERSITY OF LONDON
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-9 JUL 1953

VOLUME 1

INSTITUTE OF ADVANCED
LEGAL STUDIES

In the Privy Council

121

ON APPEAL
FROM THE COURT OF APPEAL FOR ONTARIO

BETWEEN:

THE MCKINNON INDUSTRIES LIMITED (Defendant).....*Appellant*

— AND —

WILLIAM WALLACE WALKER (Plaintiff).....*Respondent*

Record of Proceedings

L. BINGHAM & CO.,
1 Budge Row, E. C. 4.
Solicitors for the Appellant

HANCOCK & SCOTT,
222-225 Strand, W. C. 2,
Solicitors for the Respondent

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— AND —

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LEGAL STUDIES

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In the Supreme Court of Ontario

BETWEEN :

WILLIAM WALLACE WALKER,

Plaintiff;

—AND—

THE MCKINNON INDUSTRIES LIMITED,

Defendant.

*In the
Supreme
Court
of Ontario
No. 1
Statement
of Claim
2nd of May,
1947
(as amended)*

STATEMENT OF CLAIM (Writ issued 19th March, 1946)

10 1. The Plaintiff is a florist and grower carrying on business under the firm name and style of W. W. Walker & Sons at the City of St. Catharines, in the County of Lincoln, and the Defendant is a corporation having its head office at the said City of St. Catharines and is a subsidiary of General Motors Corporation.

2. The Plaintiff has carried on business as a florist grower at his present premises for the past forty-five years, specializing in orchids and maintaining several large greenhouses and in addition the Plaintiff maintains a dwelling house on his said premises.

20 3. The said lands and buildings of the Plaintiff are located on the north side of Carlton Street, in the said City of St. Catharines and are described as: Part of Lot 21, in the 4th Concession of the Township of Grantham, in the County of Lincoln and known as part of Lot 7, the whole of Lot 8 and part of Lot 9, shown on a map or plan of that portion of the said Lot filed by Edwin C. Graves in the Registry Office for the County of Lincoln on the 4th day of August, 1902 as Number 78, and which may be more particularly described as follows: Firstly — Being a part of Lot 7 on said Plan, commencing at a point on Carlton Street distant 12 feet from where the Easterly boundary of Lot 6 meets Carlton Street; Thence northerly parallel with the easterly boundary of said Lot 6 to the rear of Lot 7; Thence Easterly along the rear of Lot 7 to the Westerly boundary of Lot 8; Thence along the westerly boundary of Lot 8 to Carlton Street; Thence westerly along the northerly boundary of Carlton Street, 70 feet more or less to the place of beginning.

40 Lot 8 and part of Lot 9 — Commencing at a point on the northerly side of Carlton Street where the boundary line between Lots 8 and 9 meets Carlton Street; Thence easterly along Carlton Street 2 feet; Thence northerly parallel with the easterly boundary of Lot 8 to the rear of Lot 9; Thence westerly along the rear of said Lot 9 to the Easterly boundary of Lot 8; Thence along the Easterly boundary of Lot 8 to Carlton Street to the place of beginning.

*In the
Supreme
Court
of Ontario
No. 1
Statement
of Claim
2nd of May,
1947
(as amended)
Continued*

Secondly — Being part of Lot 21 in Concession 4: Commencing at a point in the rear of Lot 7, distant 12 feet from the easterly boundary of Lot 6; Thence northerly 115 feet to a point; Thence in an easterly direction 108 feet to a point; Thence southerly 115 feet to a point; Thence westerly 108 feet to the place of beginning.

10 Thirdly — Being composed of Lots Numbers 20, 21 and 22 as shown on registered Plan Number 95 of Ontario Gardens, being a subdivision of part of Lot 21 in the 4th Concession of the Township of Grantham, and of a re-subdivision of Lots Numbers 15 and 16 of the Graves Plot, said lots fronting on the easterly side of Manchester Avenue.

20 4. The Defendant carries on the business of a foundry forge and machine shop, manufacturing automobile engines and other heavy equipment in a large manufacturing plant located within 200 yards westerly and south westerly and southerly of the Plaintiff's greenhouses, and as part of the said foundry and south west of Plaintiff's greenhouses now stand four large smoke stacks and to the south of the Plaintiff's lands the Defendant maintains a large heating plant in connection with which they have erected a large smoke stack.

30 5. Some years prior to the first of January, 1942, and since the said date, the Defendant has wrongfully caused to issue from the said smoke stacks and otherwise from the buildings comprising its manufacturing plant, forge shop and foundry, offensive, poisonous and unwholesome smoke vapours and noxious matter including constituent parts and ingredients thereof, oil smudge, ash gases, vapours and other substance, the names of which are unknown at this time to the Plaintiff which spread and are diffused into the Plaintiff's said house and over his said lands and greenhouses and settle and are deposited in and upon the same respectively, whereby the said house and greenhouses and the flowers growing therein and thereabout have been rendered unwholesome, dirty and uncomfortable and the trees, hedges, herbage, crops and shrubs and the flowers growing on the Plaintiff's land and in his greenhouses are damaged or killed or are made to sicken and die and are covered with oil smudge, dirt, dust and ashes.

40 6. By reason of the foregoing the Plaintiff is compelled to clean the glass in the greenhouses more frequently and at greater expense and is compelled to clean his flowers, shrubs and plants individually so as to rid them of oil, dirt and ashes before offering the same for sale to the discriminating public of the City of St. Catharines and the surrounding districts or before despatching his orchids to various cities in Canada in response to orders therefor.

7. During the year 1945 the Plaintiff suffered the following damages particulars of which are as follows:

	3,600	Gladioli Bloom @ 8c	\$ 288.00	<i>In the Supreme Court of Ontario No. 1 Statement of Claim 2nd of May, 1947 (as amended) Continued</i>
	4,000	Gladioli Bulbs, large size @ \$28.00 per thousand	112.00	
	6,000	Daffodils and tulips at 6c	360.00	
	4,000	Tulips No. 1 stock @ 8c	320.00	
	10,000	Bulbs @ \$40.00 per thousand	400.00	
		Perennials in upper lot 90% loss	100.00	
10	500	Carnation plants @ \$18.00 per hundred	90.00	
	2,100	Outside Mums 50% loss at 40c per plant	420.00	
		Outside Sweetpeas, snapdragon	100.00	
		Outside Onions and other small budding plants	100.00	
		Extra cleaning of Greenhouses and puttying and repairing glass	350.00	
		Loss on Orchid plants	500.00	
		Loss on production 20% of \$10,000.	2,000.00	
20		Total loss of plants and production of flowers for 1945	<u>\$5,140.00</u>	

8. The particulars of the Plaintiff's loss in the year 1946 are as follows:

	2,000	Carnation plants @ \$175.00 per thousand	\$ 350.00
	2,000	Gladioli @ 5c	160.00
		Assorted Perennials and loss of parent plants	400.00
30	1,400	Mums grown in cloth house @ 40c each	560.00
		2 Benches of Sweetpeas, Carnations, Snap- dragon and other plants in cloth house	350.00
		20% loss of inside flowers (20% of \$13,000.00)	2,600.00
		Broken glass and extra cleaning	350.00
			<u>\$4,770.00</u>

9. The Plaintiff has suffered or will suffer in the year 1947 the sum of \$4,500.00 damages.

10. For some years past the Defendant has operated drop hammers in its manufacturing plant and foundry and when the same are operated they cause the lands and buildings belonging to the Plaintiff, as well as adjoining lands and buildings, to vibrate and shake as in an earth quake, causing the plaster in the Plaintiff's house to crack and fall and the walls and foundation of the

*In the
Supreme
Court
of Ontario
No. 1
Statement
of Claim
2nd of May,
1947
(as amended)
Continued*

house to crack and causing the glass in the Plaintiff's greenhouses to break and shatter, thereby causing the Plaintiff damages.

11. By reason of the said noxious smoke, vapours, gases and other offensive fumes being deposited on the Plaintiff's lands, buildings and greenhouses as hereinbefore set out and by reason of the shaking caused by the said drop hammers, the Plaintiff's house, greenhouses and lands and business have deteriorated in value to the extent of \$35,000.00 at least.

12. The Plaintiff therefore claims:

10 “(a) Damages for loss incurred by reason of the matters set out in paragraphs numbered 5 to 11 inclusive in such Amended Statement of Claim for the years 1945, 1946 and 1947 and from and after such years down to the date of the assessment of damages in this action.”

20 (b) A permanent injunction restraining the Defendant from issuing smoke, offensive poisonous and unwholesome smoke, vapours, noxious matter, oil smudge, ash, gases, vapour or other substances, causing loss or damage to the Plaintiff or from carrying on their business so as to injure the Plaintiff by any smoke, offensive, poisonous or unwholesome smoke, vapours, noxious matter, oil smudge, ash, gases, vapour or other deliterious substances and restraining the Defendant from causing vibration to the Plaintiff's greenhouses and buildings by dropping hammers in their forge or in any other place or by any other means.

 (c) In the alternative to item (b) damages for loss by reason of deterioration to Plaintiff's premises and business \$50,000.00.

30 (d) Such further and other relief as to this Honourable Court may seem just.

 (e) His costs of this action.

THE PLAINTIFF proposes that this action be tried at the City of St. Catharines, in the County of Lincoln.

DELIVERED at St. Catharines, Ontario, this second day of May, A.D. 1947, by MESSRS. COLLIER & SCHILLER, 27 Queen Street, St. Catharines, Solicitors for the Plaintiff.

Amended pursuant to the Order of The Honourable
The Chief Justice of the High Court dated 11/4/49
“J. N. Marquis”
Local Registrar, S.C.O.

In the Supreme Court of Ontario

BETWEEN:

WILLIAM WALLACE WALKER,

Plaintiff;

—AND—

THE MCKINNON INDUSTRIES LIMITED,

Defendant.

*In the
Supreme
Court
of Ontario
No. 2
Statement
of Defence
23rd Sept.,
1947
(as amended)*

STATEMENT OF DEFENCE

1. The defendant admits the allegations in paragraphs 1, 2
10 and 3 of the Statement of Claim.
2. The defendant does not admit any of the other allegations
therein contained and puts the plaintiff to the strict proof thereof.
3. The defendant pleads that at all material times it operated
its foundry, forge and machine shop, its heating plant and the
smoke stacks and drop hammers thereof in a reasonable, careful
and proper manner, with the most modern machinery and equip-
ment, in accordance with the best modern practice and without
any actionable nuisance or breach of any legal duty on its part.
4. The plaintiff's greenhouses and florist business were estab-
20 lished and continued by him in a manufacturing and industrial
district and locality.
5. If any smoke, oil smudge, ash, gases or other substances
issued from the defendant's smoke stacks as alleged in paragraph
5 of the Statement of Claim (which the defendant does not admit)
the defendant pleads that the same did not issue in excessive or
harmful quantities, having regard to the standard of the locality,
did not damage or unreasonably interfere with the plaintiff's
flowers, greenhouses, dwelling-house, business or property or his
reasonable operation or enjoyment of the same, and did not cause
30 the same to deteriorate.
6. If there were vibrations from the defendant's drop ham-
mers as alleged in paragraph 10 of the Statement of Claim (which
the defendant does not admit) the defendant pleads that such
vibrations (if any) did not issue in excessive or harmful quanti-
ties, having regard to the standard of the locality, did not cause
the damages alleged in the said paragraph, or any of them and
did not cause the plaintiff's house, greenhouses, lands and business
to deteriorate.
7. The defendant pleads that such deterioration and damages
40 as claimed by the plaintiff are excessive and too remote in law to
be legally recoverable.

In the
Supreme
Court
of Ontario
No. 2
Statement
of Defence
23rd Sept.,
1947
(as amended)
Continued

8. The defendant further pleads that the smoke from its smoke stacks did not, at any material time, contain quantities of any harmful substance sufficient to cause the damages claimed by the plaintiff.

9. The Plaintiff's greenhouses and florist business were established by him while he was employed in or shortly after he ceased to be employed in the defendant's predecessor's foundry and the defendant pleads that the plaintiff's claim (if any) is barred by laches, acquiescence and delay.

10 10. The defendant pleads that the plaintiff's claim (if any) is barred by The Limitations Act, Revised Statutes of Ontario, 1937, Chapter 118 and particularly Sections 2, 34, 35, 36 and 48 (1) (g) thereof. (Continued as amended:)

* If the Defendant caused to issue from its smoke stacks and buildings the smoke vapours, oil smudge, ash, gases, and other substances alleged in Paragraph 5 of the Statement of Claim, and if the Defendant caused the lands and buildings of the Plaintiff to vibrate and shake as alleged in Paragraph 10 of the Statement of Claim, (all of which the Defendant does not admit), the Defendant pleads, in the alternative, that under Section 34 of The Limitations Act hereinbefore pleaded, and at common law, and by reason of the Plaintiff's laches, acquiescence and delay hereinbefore pleaded, the Defendant and its predecessors in title acquired a prescriptive right and easement over the lands and buildings of the Plaintiff, and over surrounding lands and buildings, to do the acts and things complained of in the aforesaid paragraphs of the Statement of Claim by reason of the doing of the said acts and things by the Defendant and its predecessors in title, and the exercise by them of the aforesaid prescriptive right and easement for a period of twenty years or more prior to the commencement of this action by the Plaintiff on the 19th day of March, 1946; and further pleads such prescriptive right and easement as a further answer to any and all claims of the Plaintiff in this action.

11. Alternatively the defendant pleads that it is entitled to an implied easement over the plaintiff's lands in respect of the matters alleged in the Statement of Claim arising out of the com-

11/9/49 Amended pursuant to the Order of the Honourable
the Chief Justice of the High Court dated 11/4/49
"J. N. Marquis",
Local Registrar, S.C.O. at St. Catharines

mon ownership by Edwin C. Graves in the years 1907 and 1908 of portions of the lands now owned by the plaintiff and by the defendant.

12. The defendant therefore asks that the plaintiff's claim be dismissed with costs.

DELIVERED at the City of St. Catharines, in the County of Lincoln, this twenty-third day of September, 1947, by BENCH, KEOGH, ROGERS & GRASS, 3 James Street, St. Catharines, Ontario, Solicitors for the Defendant.

*In the
Supreme
Court
of Ontario
No. 2
Statement
of Defence
23rd Sept.,
1947
(as amended)
Continued*

*In the
Supreme
Court
of Ontario
No. 3
Particulars
for Trial
(as ordered
by Master)
30th March,
1948*

In the Supreme Court of Ontario

BETWEEN :

WILLIAM WALLACE WALKER,

Plaintiff;

—AND—

THE MCKINNON INDUSTRIES LIMITED,

Defendant.

PARTICULARS FOR TRIAL

Pursuant to Order of Master of March 20, 1948.

- 10 1. The following are the particulars of the acquiescence referred to in paragraph 9 of the Statement of Defence:

The plaintiff was employed by the McKinnon Dash & Metal Works Ltd., the defendant's predecessor during the years 1905, 1906, 1907 and 1908 in the foundry as a moulder and the plaintiff was so employed prior to commencing business as a florist. By reason of such employment the plaintiff became familiar with the defendant's operations and with the emission of smoke from its furnaces. In building greenhouses and commencing the business of a florist across the street from the defendant's plant, while
20 employed therein and with knowledge of such of its operations, the plaintiff has impliedly acquiesced in the carrying on by the defendant of its operations.

2. The following are the particulars of the implied easement referred to in paragraph 11 of the Statement of Defence:

Edwin C. Graves of the City of St. Catharines, commercial traveller, was on the 15th day of April, 1907, and thereafter the registered owner of

- 30 (a) ALL AND SINGULAR that certain parcel or tract of land and premises situate, lying and being in the Township of Grantham, in the County of Lincoln and Province of Ontario, and being composed of part of Lot 21 in the 4th Concession of the said Township of Grantham and known as the whole of Lot Number 7, except the westerly 12 feet thereof, the whole of Lot Number 8 and the westerly 2 feet from front to rear of Lot Number 9, according to a plan filed by the said Edwin C. Graves in the Registry Office for the County of Lincoln on the 4th day of August, 1902 as No. 78, which said lands are more particularly described in instrument registered in the said Registry Office on the 21st day of March, 1911, as No. 7521 for the Township of Grantham.

(b) ALL AND SINGULAR that certain parcel or tract of land and premises, situate, lying and being in the City of St. Catharines, in the County of Lincoln, and being composed of part of Lots Numbers 20 and 21 in the 5th Concession of the Township of Grantham in the said City of St. Catharines, which lands are more particularly described in instrument registered in the said Registry Office on the 15th day of April, 1907, as No. 10422 for the City of St. Catharines.

*In the
Supreme
Court of
Ontario
No. 3
Particulars
for Trial
(as ordered
by Master)
30th March,
1948
Continued*

10 On the 30th day of April, 1908, the said Edwin C. Graves conveyed to one, Chaplin, the last mentioned lands, the said Chaplin being a predecessor in title of the defendant and the said lands being part of those now owned by the defendant on the south side of Carlton Street, directly across from the lands owned and operated by the plaintiff.

The said Edwin C. Graves conveyed to the plaintiff the lands firstly above described by instrument registered in the said Registry Office on the 21st day of March, 1911, as No. 7521 for the Township of Grantham.

20 By reason of the said Graves' common ownership of the lands above referred to, the defendant claims that it is entitled to an implied easement over the plaintiff's lands in respect of the matters alleged in the Statement of Claim.

DATED at St. Catharines, this 30th day of March, A.D. 1948.

Bench, Keogh, Rogers & Grass,
51 James Street,
St. Catharines, Ontario,
Solicitors for the Defendant.

30 TO:
Messrs. Ross & Howard,
2 Queen Street,
St. Catharines, Ontario,
Solicitors for the plaintiff.

In the Supreme Court of Ontario

*In the
Supreme
Court of
Ontario
No. 4
First Reply
and Joinder
of Issue
4th March,
1948*

BETWEEN:

WILLIAM WALLACE WALKER,

Plaintiff;

—AND—

THE MCKINNON INDUSTRIES LIMITED,

Defendant.

REPLY AND JOINDER OF ISSUE

10 1. The Plaintiff denies the allegations of the Defendant in Paragraphs 3, 4, 5, 6, 7 and 8 of the Defendant's Statement of Defence and, by way of reply thereto, repeats the allegations contained in the Plaintiff's Statement of Claim.

20 2. The Plaintiff denies the laches, acquiescence and delay alleged in Paragraph 9 of the Defendant's Statement of Defence, and the Plaintiff says that at the time he established his greenhouse business at its present site, the foundry referred to was not located at its present site, nor was the one then in use by the predecessors in title of the Defendant comparable in size to the present foundry, and the Plaintiff further says that there was not
30 at the date the Plaintiff established his greenhouse business anything to indicate to the Plaintiff that the foundry was likely to cause damage to the Plaintiff.

3. The Plaintiff denies the applicability of the provisions of the Limitations Act as pleaded by the Defendant in Paragraph 10 of the Defendant's Statement of Defence, and puts the Defendant to the strict proof that the said enactment is in any way a bar to the Plaintiff's claim.

4. The Plaintiff denies the applicability of the common law doctrine of an implied easement as invoked by the Defendant in
30 Paragraph 11 of the Defendant's Statement of Defence.

5. The Plaintiff joins issue upon the Defendant's Statement of Defence.

DELIVERED at St. Catharines, Ontario, this 4th day of May, A.D. 1948, by Ross & Howard, 1 Queen Street, St. Catharines, Ontario, Solicitors for the Plaintiff.

In the Supreme Court of Ontario

*In the
Supreme
Court of
Ontario
No. 5
Second
Reply
11th April,
1949*

BETWEEN:

WILLIAM WALLACE WALKER,

Plaintiff;

—AND—

THE MCKINNON INDUSTRIES LIMITED,

Defendant.

REPLY

10

filed pursuant to order of the Honourable the Chief Justice of the High Court, dated April 11th, 1949.

20

1. The plaintiff specifically denies all the allegations contained in the amendments made by the defendant to its statement of defence pursuant to order of the Honourable the Chief Justice of the High Court dated 11th April, 1949, and denies that he has been guilty of laches or has acquiesced in the defendant emitting smoke, gases, iron, oil, soot and their constituent parts as alleged by the defendant's amended statement of defence, the fact being that at all relevant times the plaintiff objected to the defendant's acts complained of and made demands on the defendant to desist and for compensation for injury, and as a result of the plaintiff's demands the defendants, without admitting liability so to do and in pursuant to a written agreement dated 1st January, 1942, and a release dated the same day, paid the plaintiff various sums of money in connection with the plaintiff's claim for damages.

DELIVERED this 11th day of April, 1949, by Messrs. Ross and Howard, St. Catharines, Ontario, Solicitors for the Plaintiff.

In the Supreme Court of Ontario

*In the
Supreme
Court of
Ontario
No. 6
Notice of
Appeal to
the Court of
Appeal
27th June,
1949*

BETWEEN :

WILLIAM WALLACE WALKER,

Plaintiff;

—AND—

THE MCKINNON INDUSTRIES LIMITED,

Defendant.

NOTICE OF APPEAL

10 TAKE NOTICE that the defendant appeals to the Court of Appeal from the judgment pronounced by the Honourable the Chief Justice of the High Court on the 15th day of June, 1949, and asks that the said judgment may be reversed and that judgment should be entered dismissing the plaintiff's action with costs, or that a new trial may be had, or that the said judgment may be varied by setting aside the injunction pronounced therein, and for such further and other relief as the nature of this case may require and as to the Court of Appeal may seem just upon the grounds that the learned trial judge erred in the following respects:

- 20 1. In giving judgment against the evidence and the weight of the evidence.
2. In admitting in evidence in chief on behalf of the plaintiff, the release and agreement between the plaintiff and the defendant dated respectively January 2nd and 1st, 1942, exhibits 8 and 9.
3. In granting leave to the plaintiff, during the trial, to serve and file an amended reply pleading (inter alia) the said release and agreement, when a plea of the same documents had previously been struck out of the Statement of Claim by an order of the Local Judge at St. Catharines, which order was affirmed on appeal by
- 30 an order of the Honourable Mr. Justice Genest.
4. In awarding any injunction against the defendant having regard to the said release and agreement, and all the other circumstances of the case.
5. Alternatively, in awarding an injunction in such wide terms as to be oppressive to the defendant and likely to put it out of business.
6. In giving no weight to the tabulations of the recordings of the sulphur dioxide automatic recorder and dust and organic matter measuring machines and automatic wind recorder machine
- 40 filed on behalf of the defendant; while at the same time criticizing the defendant for not making more recordings and dust measurements at other locations.

7. In admitting in evidence diaries kept by the plaintiff and his son.
8. In giving no weight to any of the scientific expert testimony adduced on behalf of the defendant, except where the same supported the plaintiff's claim, while at the same time accepting all of the expert testimony adduced on behalf of the plaintiff, and criticizing the defendant for not having adduced additional scientific testimony by having a plant pathologist inspect the growing plants.
- 10 9. In cross-examining most of the defendant's experts at great length, with very little or no cross-examination of the plaintiff's experts.
10. In asking leading questions of the plaintiff's experts, especially Jarvis, particularly when he was recalled in reply, after the defendant's cross-examination of Jarvis had been completed, at the end of the trial.
11. In finding that the water curtain smoke and soot control system in the defendant's cupolas was defective and inefficient.
- 20 12. In finding that the oily soot on the plaintiff's greenhouses and flowers constituted a serious or substantial nuisance.
13. In finding that the evidence indicated that other sources of atmospheric pollution were inconsequential, while during the trial indicating that he considered evidence concerning other sources irrelevant and a waste of time; thereby inducing the defendant to refrain from calling witnesses from five other foundries in St. Catharines.
14. In finding that the defendant was adding "substantial concentrations" of sulphur dioxide gas to the normal atmosphere.
- 30 15. In finding that the plaintiff's plants were subjected to "chronic injury" from sulphur dioxide gas from the defendant's works.
16. In finding that certain of the plaintiff's plants were subjected to "acute injury" from sulphur dioxide gas from the defendant's works.
17. In finding that the location of the defendant's recorder station was unsatisfactory and not properly explained.
18. In finding that the plaintiff's smoke stack was not a source of some of the smoke and soot of which he complained.
- 40 19. In accepting the evidence of Jarvis, although contradicted in many respects by four eminent scientists called on behalf of the defendant, one of whom, Dr. Katz, was referred to as an authority by Jarvis himself.

*In the
Supreme
Court of
Ontario
No. 6
Notice of
Appeal to
the Court of
Appeal
27th June,
1949
Continued*

*In the
Supreme
Court of
Ontario
No. 6
Notice of
Appeal to
the Court of
Appeal
27th June,
1949*

20. In classifying Dwyer as an independent witness.
21. In accepting the evidence of employees of the plaintiff as reliable witnesses and giving no weight to the evidence of employees of the defendant, notwithstanding the discrediting of the evidence of the former as to alleged vibration damage by the evidence called for the defence on this point, and the later abandonment of any claim for vibration damage by counsel for the plaintiff during the argument following the trial.
22. In suggesting, in effect, that alterations be made in the defendant's plant without specifying them.
23. In such other respects as appear in the reasons for judgment, the evidence and exhibits at the trial, and in the pleadings and proceedings in this action.

10

DATED the 27th day of June, 1949.

BENCH, KEOGH, ROGERS & GRASS,
51 James Street,
St. Catharines, Ontario.
Solicitors for the Defendant.

- 20 To:
MESSRS. ROSS & HOWARD,
1 Queen Street,
St. Catharines, Ontario.
Solicitors for the Plaintiff.

In the Supreme Court of Ontario

LAW STAMPS
CANCELLED
\$2.40

*In the
Supreme
Court of
Ontario
No. 7
Order of the
Honourable
Mr. Justice
Roach
suspending
injunction
pending
appeal to the
Court of
Appeal
17th October,
1949*

The Honourable Mr. Justice Roach } Monday, the 17th day of
In Chambers } October, A.D. 1949.

BETWEEN:

WILLIAM WALLACE WALKER,

Plaintiff;

10

—AND—

THE MCKINNON INDUSTRIES LIMITED,
Defendant.

S.C.O.
SEAL

UPON the application of counsel for the defendant and upon reading the affidavits of Joseph Lucius Gabriel Keogh, William Wallace Walker, Tennyson Delbert Jarvis and Kenneth Langrill McAlpine, filed, and upon hearing counsel for the plaintiff,

20

1. IT IS ORDERED that the operation of the injunction contained in paragraph 1 of the judgment of the Honourable The Chief Justice of the High Court herein, dated the 15th day of June, 1949, be and the same is hereby stayed until the final disposition of the appeal by the defendant to the Court of Appeal for Ontario from the said judgment of the Honourable The Chief Justice of the High Court.

30

2. AND IT IS FURTHER ORDERED that the said appeal be expedited and be made ready for argument when the Court Reporter has delivered and filed the copies of the evidence taken at the trial of the action before the Honourable The Chief Justice of the High Court.

3. AND IT IS FURTHER ORDERED that the reference to enquire and assess the amount of damages sustained by the plaintiff referred to in paragraph 2 of the said judgment of the Honourable The Chief Justice of the High Court be extended to cover the period to the date of the commencement of the reference.

4. AND IT IS FURTHER ORDERED that the costs of this application be costs in the appeal to the Court of Appeal for Ontario.

40

“Chas. W. Smyth”
Registrar S.C.O.

Entered O.B. 205, page 398
November 1st, 1949
M.D.

In the
Supreme
Court of
Ontario
No. 8
Plaintiff's
Opening
11th April,
1949

16
EVIDENCE AT THE TRIAL
In the Supreme Court of Ontario

BETWEEN:
WILLIAM WALLACE WALKER,
Plaintiff,
—AND—
THE MCKINNON INDUSTRIES LIMITED,
Defendants.

10 TRIED before The Honourable Chief Justice McRuer, at St. Catharines, commencing April 11th, 1949, et seq. without a jury.

APPEARANCES:

A. G. SLAGHT, Esq., K.C.,
R. I. FERGUSON, Esq., K.C.,
R. K. ROSS, Esq., K.C.

Appeared for the Plaintiff.

J. L. G. KEOGH, Esq., K.C.,
J. L. POND, Esq.,

Appeared for the Defendant.

20 F. CLITHEROE, Official Reporter, S.C.O.

HIS LORDSHIP: There are two motions.

MR. SLAGHT: Yes, my lord. Your lordship perhaps has counsel noted?

HIS LORDSHIP: Yes.

MR. SLAGHT: I am moving to amend. The Registrar has given your lordship the Notice of Motion. We are asking to amend by permitting an amendment to our Statement of Claim by substituting a clause, (a), which follows paragraph 12 of our amended Statement of Claim, and your lordship will find the proposed amendment reads:-

30 "Damages for loss incurred by reason of the matters set out
"in paragraphs numbered 5 to 11 inclusive in such Amended
"Statement of Claim for the years 1945, 1946 and 1947 and
"from and after such years down to the date of the assess-
"ment of damages in this action."

Our motion is supported by a short affidavit of the plaintiff to paragraphs 5 to 11, setting out the different types of damage that we claim and, in our statement of claim we have already mentioned the damage in some detail for the years 1945 and 1946 and
40 said that in the year 1947 it is estimated.

I might say that my friend has a motion to amend and this morning we both decided that he would not oppose the amendment that I make, and I thought I should not oppose the amendment made by my friend, Mr. Keogh, so that the action might be exhaustively dealt with and all matters cleared up. So if your lordship thinks the amendments are reasonable — I did not read you my friend's proposed amendment, but it reads as follows:-

*In the
Supreme
Court of
Ontario
No. 8
Plaintiff's
Opening
11th April,
1949
Continued*

10 "If the Defendant caused to issue from its smoke stacks and
"buildings the smoke vapours, oil smudge, ash, gases, and
"other substances alleged in Paragraph 5 of the Statement
"of Claim, and if the Defendant caused the lands and build-
"ings of the Plaintiff to vibrate and shake as alleged in Para-
"graph 10 of the Statement of Claim, (all of which the De-
"fendant does not admit), the Defendant pleads, in the
"alternative, that under Section 34 of The Limitations Act
"hereinbefore pleaded, and at common law, and by reason
"of the Plaintiff's laches, acquiescence and delay hereinbefore
"pleaded, the Defendant and its predecessors in title acquired
20 "a prescriptive right and easement over the lands and build-
"ings of the Plaintiff, and over surrounding lands and build-
"ings," —

I don't know what that has to do with this action, but I have no objection to it —

30 "to do the acts and things complained of in the aforesaid
"paragraphs of the Statement of Claim by reason of the
"doing of the said acts and things by the Defendant and its
"predecessors in title, and the exercise by them of the afore-
"said prescriptive right and easement for a period of twenty
"years or more prior to the commencement of this action by
"the Plaintiff on the 19th day of March, 1946; and further
"pleads such prescriptive right and easement as a further
"answer to any and all claims of the Plaintiff in this action."

There is no supporting affidavit of counsel and I submit, subject to your approval, it would not be opposition to the two proposed amendments.

40 HIS LORDSHIP: Very well. An order will go permitting the amendment to the plaintiff's statement of claim as asked and an amendment of the defendant's statement of defence as asked. I will ask counsel, however, by to-morrow morning at any rate, to have the record properly amended.

MR. SLAGHT: Thank you, my lord.

HIS LORDSHIP: So that we will proceed with the record in order.

MR. SLAGHT: We will accomplish that and have it turned in to-morrow morning for your lordship, I mean, with the proper red ink interlineations.

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HIS LORDSHIP: Yes.

MR. SLAGHT: I should say, my lord, that it may be that, having regard to my friend's amendment, it might be proper that we should file a brief reply to his amended statement of defence. If so, we will deliver it to him and see that that amendment, if your lordship pleases, is included in his reply.

HIS LORDSHIP: You may do that.

MR. SLAGHT: Thank you, my lord.

10 Now then, my lord, there is another preliminary matter. My friend has indicated to me that he desires to apply for more than three experts that he may call, and we desire to apply for more than three experts that the plaintiff may call, and if your lordship pleases, and that is so indicated, we conceive that it is a proper matter to be taken up at the outset of the trial rather than wait till later on.

HIS LORDSHIP: The order will go permitting either side to call more than three experts.

MR. SLAGHT: Thank you, my lord.

20 Now, the Registrar informs me that your lordship has not had an opportunity of heretofore reading the pleadings.

HIS LORDSHIP: No. I know nothing of the case at all.

MR. SLAGHT: And if your lordship pleases I will very briefly state the action that you are to try.

30 The plaintiff is William Wallace Walker and is a florist and grower, who has carried on his business at his present premises in the township of Grantham. That property of his is immediately adjoining on the north of the city of St. Catharines and there is a street which is between the township and the city; he immediately adjoins the city. For the past 45 years he has conducted this business and has particularly, during part of that time, grown orchids and has maintained and is maintaining several large greenhouses.

There is also a dwelling house on his premises which are located on the north side of Carlton Street, in the township of Grantham; that is the street which separates the city and the township, and immediately adjoins the city.

Mr. Walker is not presently occupying it, but has a tenant who lives in the house on the premises.

40 Mr. Walker also has a florist shop in the city of St. Catharines on St. Paul Street, where he has a retail florist shop and he furnishes from his greenhouse business his own shop on a basis of charging against the shop, although he owns both businesses

himself in their entirety, but he charges against the shop in the city the wholesale price which the greenhouses furnish to his florist shop, to keep track of it.

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He also sells wholesale, as a grower, to various florists and others in the Province of Ontario, and ships wholesale his products to Toronto and other communities.

10 He lives about midway between his greenhouses in Grantham Township and his downtown shop and at his own home he has a small greenhouse where he raises a limited number of plants, but no claim appears in this action for injury to that greenhouse or the contents. I comment on it because there may be some evidence as to the condition of that greenhouse and the flowers that he raises there differ materially from those that we say are in the greenhouses near the McKinnon plant and suffered from damage.

20 The defendant corporation came into existence — you may know that they are the McKinnon Industries, Limited — by Ontario Charter in 1925, which will be put in, and, since that time, the defendant corporation have carried on business there which has been greatly enlarged, we will show, in scope, and the character of their business has been entirely changed from the character of a business known as the McKinnon Dash Metal Manufacturing Company Limited, who operated on part of the premises the defendants now occupy back in 1903, at the time Mr. Walker acquired his greenhouse premises and built and set up his business in the year 1904.

30 The defendant company, we will show, and the evidence will disclose that, in 1937, 12 years ago, built a new and enlarged foundry premises and built an entirely new system of melting metal. They also built a large double-barrelled, I call it, forge shop at the same time and, since the construction of those new premises, the Walker business and greenhouses has suffered from the fumes, the heavy hammers, the oily substances from the forge and the operation carried on from 1937 down to the present time has caused, as we say, damage to our property and our plants.

40 In 1937 a new process involving the installation of furnaces that were used for the melting of the two raw materials, which are scrap iron and pig iron; that process was the installation of four cupolas, which have large stacks. At the bottom a fire is started and they have an opening at the side. They dump in these two types of raw material, the pig and the scrap, and they have blowers that fan from below the coke oven fire at first and then they drop in the cold slag and that is melted. The very intense heat reduces the raw material to a red hot molten mass, the iron from which mass sinks to the bottom, whereas the impurities lighter

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than iron float to the top of the molten mass. The air goes up and carries the smoke from the process through and out the top of the four cupolas which are situate very close together and they are in a southwest direction from the greenhouse properties of Mr. Walker, of which there are seven different greenhouse buildings. We have a plan that I think will make clear to your lordship as to our plant. The prevailing winds, we suggest, come from the southwest and blow northeast, and the smoke and fumes coming out of the cupolas (of which usually only three operate; one is used as a spare, sometimes only two operate) and the winds that come from the outlets of the forge shop carry when the wind is from the southwest, directly over, but sometimes only partly over the Walker greenhouse plants and deposit an oily soot. They deposit noxious gases, including sulphur dioxide and other poisonous gases, and they gather on the roofs of the various greenhouses and form a sticky substance which keeps the sunshine from getting at our flowers as they ought to get, we will suggest, and it is very difficult to remove it from time to time.

10

Before I leave the coke fires which are fanned by a blower system upwards, heavy gases, soot, smoke and fumes are generated by this process and they escape through chimneys at the top of each cupola, being blown up there with great force from the fan and blowers installed for the purpose. A separate fan creates this terrific air force in force in each cupola which I suggest the evidence will disclose to you travels at the rate of 8,000 cubic feet per minute.

20

Installed towards the top of each cupola is a device which has been altered from time to time by the defendants, but which presently consists, (we had an inspection some two weeks ago under an Order of the Court) of what is known as a "scrubber," replacing their earlier installation of what was known as a "spark arrester." This device brings water through a tube to the top or apex of a triangle-shaped affair, and the water is dropped down so as to run down both sides of the triangle from the apex. In 1903-1904 when Mr. Walker bought and built and began his present business as a grower and florist, a small company known as the McKinnon Dash Limited made harness and saddlery, hames and also metal parts of harness.

30

Then there are in the forge shop some lighter steel hammers which are used to pound the red hot molten metal which comes from ovens, of which there are some sixty. They are somewhat like a blacksmith's forge and, instead of the blower below burning coke or coal, as in the old-fashioned blacksmith days, these sixty furnaces in the forge shop burn crude oil and bunker oil at times,

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and the axles and other pieces are heated in there and are then passed to enormous hammers, some of which weigh I think only three or four hundred, but two of which weigh four and five thousand pounds respectively; the five thousand pound hammer being installed in 1947, but very recently.

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10 One matter we complain of, as pleaded, is that the vibration from the enormous weight of the two heavier hammers, the four thousand and five thousand pound hammers, when they are operated (and they are operated in shifts of eight or nine hours and then a cessation, and so on,) that vibration is felt keenly within the greenhouses and the glass of the greenhouses, the floors, and is felt keenly by the plants and bulbs and orchids and flowers, and we will produce evidence as to the effect of the vibration on our plants and business.

20 Then, my lord, I have told you the raw materials are scrap and pig. The cupola is a few feet away and the fires are fanned by a blower system, which will be described in evidence, and then, installed towards the top of each of the four cupolas is a device known as a "cone" and it is built in there by the defendants in order to lessen, in part at least, the noxious fumes that come out as a result of the intense burning of the metal below. The metal runs off through the coke and runs off in molten form to another place, and this cone-shaped device is built somewhat like a triangle of metal, the apex of which is towards the top of the cupola and a water-pipe is brought into the cupola and has an exit of some two inches in diameter, I think, an exit of water which drops down on what is the apex of the cone and runs down in a stream on each side of the cone, the purpose being that when the blast from below shoots the very great heated air and fumes towards the outlet, that the flow of water on the sides of the cone will help to reduce the fumes of the raw material that we say is carried upward with the smoke and fumes, so as to prevent the outlet sending out to the open world as a great mass the objectionable smoke and soot and fumes and particles of material, as it otherwise would. Your lordship will hear a discussion and an inspection of the operations of that cone installed for that purpose.

30 Under a Court Order we were permitted, as I mentioned before, to inspect, counsel and Mr. Walker, to inspect the plant of the defendant on the 14th of March last, somewhat less than 40 a month ago, and your lordship will hear of that inspection.

Now, my friend reminds me that the evidence will show that the old McKinnon Dash Company in 1903 and 1904 manufactured saddlery and harnesses, old fashioned hames and metal parts connected with the making of harness, and that they had a small air furnace in their plant, which was not on the cupola principle, but was an air furnace on a lateral basis and no blast fumes went up the chimney, but there was a pressure of air put upon the bed

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of the fire in the bottom of the furnace, and then the smoke and soot passed out, or the air passed out, and then went up the chimney and the present company at the present time, we say, operate or create three different types of product. They are a subsidiary of General Motors and they manufacture automobile parts of various kinds. They manufacture the motors themselves, known as frequency horse power motors. The second type of product is anti-friction bearings and we expect to produce evidence to show that, when Walker installed his business and began business on his present premises in 1904, that the then company manufactured none of the products that the present company now manufacture, and that there has been an entirely new product and new processes brought into existence. Your lordship may feel, or my friend may feel that is important to show whether he can say that, when Walker started his business, the present type of business that we complain of was being carried on at the time we started. There may be legal argument as to what effect that would have, but I state that to your lordship because you may find it something of importance as the case proceeds.

10

20

The writ was issued on the 19th March, 1946, by the then Mr. Schiller, of Collier & Schiller. Mr. Schiller has passed away since. He became ill and died in 1947. The statement of claim, owing to negotiations, was delivered in May, 1947, and, under the pleading, the business of the plaintiff as a florist and grower carried on for 45 years, and the location from which it carried on is admitted in the statement of defence — and that is somewhat important in my view. If your lordship pleases, without reading the pleadings through (unless your lordship so wishes me to) and looking at the statement of claim, you will find in paragraphs of the amended statement of claim, 1, 2 and 3, allege that the plaintiff is a florist and grower carrying on business under the name, firm and style of W. W. Walker & Sons at the city of St. Catharines.

30

The defendant is a corporation having its head office at St. Catharines, carrying on its business under the name and style of The McKinnon Industries Limited.

The plaintiff has carried on his business as a florist and grower at his present premises for the past 45 years, specializing particularly in orchids and maintaining several large greenhouses and, in addition, the plaintiff maintains a dwelling house on his said premises.

40

No. 3: "The said lands and premises of the plaintiff are located on the north side of Carlton Street in the City of St. Catharines and are described as —" — well, I will not read the detailed description.

Now, if your lordship will be good enough to look at their defence in the record, your lordship will find that the defendant

in his first paragraph admits the allegations in paragraphs 1, 2 and 3 of the statement of claim, and we regard that as an important admission having regard to the matter which your lordship will ultimately have to determine.

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10 Then, I should tell your lordship that, in addition to the four cupolas and the forge shop, there is a very tall smoke stack: I am not sure whether it is 150 feet, or something in that neighbourhood, out of which issue fumes from a large heating plant operated by the defendants, in which they burn coal. This smoke stack is directly south of the plaintiff's property and is shown on the plan, and the cupolas in this large stack are both referred to in paragraph 4 of our claim, and it makes its contribution when the wind comes our way of sending an amount of soot, which is troublesome, and creates damage.

20 Then, our statement of claim delivered as I have indicated, sets out in detail the damages complained of for the years 1945 and 1946, and we have alleged an estimated damage to us for the year 1947, because we all expected that this action would be tried at an earlier sittings, and therefore through no fault of either the defendant or ourselves, but owing to the volume of work at the St. Catharines sittings, we have not been able to get this heretofore tried and both sides feel indebted to your lordship for creating a special sittings whereat it will now be tried.

Both sides examined for discovery. We examined one of their officials and they examined Walker, and the other side during examination asked us — this did not occur until 1948 — and they asked us to furnish them with a statement of damage for the year 1948 because our statement of claim was delivered before we were into 1948. We did so, and my friend has that.

30 Then, we will seek damage to the date of the assessment of damages, whether your lordship assesses the damages or whether there should be a reference for the assessment of the damages.

40 My suggestion to the Court is that a course which is frequently followed in cases of this kind, noxious gases and other interference with business, that the learned trial judge frequently tries the question of whether or not the plaintiff has made a case constituting a nuisance and is entitled to damages therefor and entitled to an injunction or not entitled to an injunction in addition to damages and then, in a case where the finding is that the plaintiff has established his right to damage, reference to the Local Master is frequently made to determine the amount of the damage.

The investigation of the various types of damages from gases, and then from the prevention of sunshine, and then from the vibration of the hammers, and then the damage that occurs to some 1500 hundred types of other plants, including orchids, is an investigation that, in my estimate, would take some three days,

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and this case, on the record, will be a lengthy one on the question of liability, and it occurred to me to suggest to your lordship that you may feel that the task of determining the legal question of liability for damage and an injunction or no injunction might be solved by your lordship and then, if we succeed in making a case for damage, that a reference of the amounts — because it means going into an account of the various plants, different months, those that were injured and those that were not and bearing that view in mind, I suggested to my friend when I met him this morning I would make that suggestion to the Court that perhaps he would concur in it, because our general estimate of time for this case is that it will occupy all the time that your lordship has been kind enough to be able to assign to it so far, and that it would be a pity that in a case of this kind to go over all the details of the amounts of the damage in each of the years down to the present time, instead of having it done by an officer of the Court as is so frequently done in these cases. If my friend does not concur in my view, he may desire to tell you why, but I still make that suggestion for the consideration of the Court; and whether your lordship will need to determine that now or perhaps hear Mr. Walker's evidence — I propose to call him first, after I prove the plan by the surveyor, but that is my suggestion, and I venture to predict that it would be a timely one because of the detail that both sides have to go into on the problem of the cause of this damage and the operation of this plant and the injury to us.

Now then, I propose, and I ought perhaps to give your lordship what we claim in paragraphs 5 to 11, which are a legal description of the damage we complain of, and if I may read paragraph 5 of the amended statement of claim, which reads: "The Defendant has wrongfully caused to issue from the said smoke stacks and otherwise from the buildings —"

HIS LORDSHIP: Just a moment. Five, as I have it, commences "Some years prior to the first of January, 1942, —"

MR. SLAGHT: Oh! Is that entitled "Amended Statement of Claim," my lord?

MR. KEOGH: It is the same one, my lord. You started a line down. You did not start at the top.

HIS LORDSHIP: Oh, I beg your pardon. You did not start at the beginning, that is all.

MR. SLAGHT: Oh, I am sorry, my lord. I was reading from notes and not from the document, but the important part is paragraph 5,

"The Defendant has wrongfully caused to issue from the said smoke stacks and otherwise from the buildings comprising its manufacturing plant, forge shop and foundry,

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10 “offensive, poisonous and unwholesome smoke vapours and
“noxious matter including constituent parts and ingredients
“thereof, oil smudge, ash gases, vapours and other substance,
“the names of which are unknown at this time to the Plain-
“tiff which spread and are diffused into the Plaintiff’s said
“house and over his said lands and greenhouses and settle
“and are deposited in and upon the same respectively, where-
“by the said house and greenhouses and the flowers growing
“therein and thereabout have been rendered unwholesome,
“dirty and uncomfortable and the trees, hedges, herbage,
“crops and shrubs and the flowers growing on the Plaintiff’s
“land and in his greenhouses are damaged or killed or are
“made to sicken and die and are covered with oil smudge,
“dirt, dust and ashes.”

Then, Paragraph 6:

20 “By reason of the foregoing the Plaintiff is compelled
“to clean the glass in the greenhouses more frequently and
“at greater expense and is compelled to clean his flowers,
“shrubs and plants individually so as to rid them of oil, dirt
“and ashes before offering the same for sale to the discrim-
“inating public of the City of St. Catharines and the surround-
“ing districts or before despatching his orchids to various
“cities in Canada in response to orders therefor.”

Then, paragraph 7:

“During the year 1945 the Plaintiff suffered the follow-
“ing damages, particulars of which are as follows:
“3600 Gladioli Bloom @ .8c\$ 288.00
“4000 Gladioli Bulbs, large size
“@ \$28.00 per thousand 112.00
30 “6000 Daffodils and tulips at 6c 360.00
“4000 Tulips No. 1 stock @ 8c 320.00
“10,000 Bulbs @ \$40.00 per thousand 400.00
“Perennials in upper lot 90% loss 100.00
“500 Carnation plants @ \$18.00 per hundred 90.00
“2,100 Outside Mums 50% loss at .40c per plant ... 420.00
“Outside Sweetpeas, snapdragon 100.00
“Outside Onions and other small budding plants ... 100.00
“Extra cleaning of Greenhouses and puttying
and repairing glass 350.00
40 “Loss on Orchid plants 500.00
“Loss on production 20% of \$10,000 2,000.00
“Total loss of plants and production of flowers
for 1945
\$5,140.00”

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Then, paragraph 8 contains the particulars of the plaintiff's loss in the year 1946, which are as follows, and we similarly detail the various flowers and then a 20% loss on inside flowers:

“The particulars of the Plaintiff's loss in the year 1946
“are as follows:

“2000 Carnation plants @ \$175.00 per thousand ...\$	350.00
“2000 Gladioli @ 5c	160.00
“Assorted perennials and loss of parent plants	400.00
“1400 Mums grown in cloth house @ 40c each	560.00
“2 benches of Sweetpeas, Carnations, Snapdragon and other plants in cloth house	350.00
“20% loss of inside flowers (20% of \$13,000.00)	2,600.00
“Broken glass and extra cleaning	350.00
	\$4,770.00

Then paragraph 9:

20 “The Plaintiff has suffered or will suffer in the year
“1947 the sum of \$4,500.00 damages.”

Then paragraph 10:

30 “For some years past the defendant has operated drop
“hammers in its manufacturing plant and foundry and
“when the same are operated they cause the lands and build-
“ings belonging to the Plaintiff, as well as adjoining lands
“and buildings, to vibrate and shake as in an earth quake,
“causing the plaster in the Plaintiff's house to crack and
“fall and the walls and foundation of the house to crack and
“causing the glass in the Plaintiff's greenhouses to break and
“shatter, thereby causing the Plaintiff damages.”

Then paragraph 11:

“By reason of the said noxious smoke, vapours, gases
“and other offensive fumes being deposited on the Plaintiff's
“lands, buildings and greenhouses as hereinbefore set out
“and by reason of the shaking caused by the said drop ham-
“mers, the Plaintiff's house, greenhouses and lands and busi-
“ness have deteriorated in value to the extent of \$35,000.00
“at least.”

And paragraph 12:

40 “The Plaintiff therefore claims:
“(a) Damages for loss to flowers in the years 1945, 1946
“and 1947, \$14,410.00.”

“(b) A permanent injunction restraining the Defendant
 “ from issuing smoke, offensive poisonous and unwhole-
 “ some smoke, vapours, noxious matter, oil smudge, ash,
 “ gases, vapour or other substances, causing loss or dam-
 “ age to the Plaintiff or from carrying on their business
 “ so as to injure the Plaintiff by any smoke, offensive,
 “ poisonous or unwholesome smoke, vapours, noxious
 “ matter, oil smudge, ash, gases, vapour or other deleter-
 “ ious substances and restraining the Defendant from
 10 “ causing vibration to the Plaintiff’s greenhouses and
 “ buildings by dropping hammers in their forge or in
 “ any other place or by any other means.”

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Then, I may say, as I indicated to my friend, he examined for discovery in 1948, the examination coming in the fall, and asked us to furnish details, and those have been furnished and with your lordship’s permission, I will hand a copy to the Court and perhaps we ought to include that in the record.

20 HIS LORDSHIP: Well, if it is in the nature of particulars of the allegation in the statement of claim, it should be attached to the record.

MR. SLAGHT: Well, it is in the nature of particulars, my lord, and we will do so.

30 In addition to damages which we will ask to be assessed to the date of assessment, we seek in paragraph 12, clause (b) of our prayer for relief, a permanent injunction restraining the defendants from carrying on their business so as to injure the plaintiff in the manner hereinbefore described, and in paragraph 12 (c) in our prayer for relief, we ask damages for loss by reason of deterioration to our premises and business. In paragraph 12 (d) we insert the usual clause asking such further and other relief as to the Court may seem just, and we, of course, ask for the costs of the action.

40 Your lordship will recall, because you have tried some of the cases of this type, that the form of injunction, once relief is granted, usually takes the form of restraint so as to carry on their business without injury to the plaintiff, and our prayer is based on authorities in that regard, or some of them, and then we repeat the substances that are there and the hammer drops in the forge.

Then, in the alternative, loss by reason of deterioration of the plaintiff’s premises and business and for such relief as to the Court may seem just. I think I dealt with that before.

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I may perhaps relieve your lordship's mind on one aspect, and also that of my friend, by saying there have not been any offers by the plaintiff of his business for sale and no inference of the sale of it because of the trouble caused to him. I have considered that and, in our view, the Court would be unable to comply with a request for damage because of deterioration of the price of the property. The authorities seem to indicate that even though there has been such, which the Court might otherwise grant, that unless it has been a direct cause of failure to sell, that the plaintiff cannot recover even though he showed that a \$50,000 property was deteriorated down to \$25,000, and therefore we shall not put forward evidence of deteriorations in value. I trust our view of the law has been correct, because it relieves —

HIS LORDSHIP: I think that it just a common sense view. You obtain damages up to the date of the assessment of damages and an injunction. Then, you start from there and your business will continue to be worth what it would have been worth if there had been no injury.

MR. SLAGHT: Quite. Your lordship has put two just such cases that I have in mind and, of course, if that were so that an injunction is granted, presumably our property will bob back to its market value. But I am explaining now to my friend and the Court, that I am not pressing a case of that type in this action.

Then, just a word. I do not want to go into too much detail, but we expect to offer in addition to the evidence of actual occurrences of damage and, unlike some of the cases where this type of injury is complained of, we do not have much of that, but we shall produce expert evidence dealing with the damages, and we have exhibits of plants and the injury which was done, which will be put in from men of long experience who will deal with the technical problems involved. Some of those are:

- (a) Plant life and its need for light and the effect of deposits of soot and other foreign substances including fumes and gases;
- (b) Dealing with the chemistry of gases in the air and the chemical analysis of such deposits;
- (c) The poisoning of plants and the chemistry of poisons and plants;
- (d) Plant pathology;
Plant histology, and plant physiology;
- (e) Expert florists on the growth of plants and flowers and on deterioration and gases;
- (f) Operation of cupolas and forges in melting operations and the type of machinery used and gases produced.

The defences pleaded are, I think, the usual defences in nuisance actions. The defendants say first that they conducted their operations in a careful and proper manner and in accordance with the best practice. (2) That our greenhouses and business were established and continued in a manufacturing and industrial district. (3) That if any smoke, gases or other substances issued from their smoke stacks, that the same did not issue in excessive or harmful quantities and did not damage our flowers, greenhouses, etc. (4) That if there were vibrations from their drop hammers, such vibrations, if any, did not issue in excessive or harmful quantities and did not cause us any damage. (5) They add a plea that such deterioration and damages claimed by us are excessive and too remote in law. (6) That the smoke from their stacks did not contain quantities of any harmful substances sufficient to cause the damages claimed by us. (7) That our greenhouses and business were established while the plaintiff was employed or shortly after he ceased to be employed in the defendant's foundry, and that the plaintiff's claim, if any, is therefore barred by laches, acquiescence and delay. (8) They plead the Statute of Limitations. (9) They plead that alternatively the defendant is entitled to an implied easement over our land arising out of the common ownership by one Edwin C. Graves in the years 1907 and 1908 of portions of the lands now owned by the plaintiff and defendant.

And then the amendment which I read to your lordship, which has been added by leave of the Court and they constitute the several defences they have put forward.

I do not think there is anything else I can usefully add unless there are any matters your lordship would like me to explain briefly, and I have tried to keep within the facts as we expect them to develop in evidence and not discuss too much controversy between the defendant and ourselves.

I should say to your lordship that there will be evidence of an offer of settlement and payment made in the year 1941, covering damage up to the end of 1941, but which settlement — it is in writing — we gave a release for the amount they paid us and provided in the release they are settling with us up to December, 1941, and it shall not be taken to be an admission of their liability to us. Then, in the years 1942, 1943 and 1944, up to December 31st, 1944, the war was on at that time and they were engaged on war production and my client made a settlement with them whereby they paid him a lump sum for each of those years, and they paid that by instalments up to December, 1944, your lordship will note, and the reason I mention that is because they have a protective clause that, making those payments to us, is not to be

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taken as an admission of legal liability to make those payments. That is also in writing. The reason I mention that is this; your lordship will note that our pleading began with a claim for damages for the year 1945. The war ended in May, 1945, and we negotiated, the evidence will show, for a few months and finally could not make a settlement, so it is important in their plea against us of laches and acquiescence. Our evidence will be that we displayed no laches and no acquiescence in those years, because our evidence will be that we began to notice some damage in 1938, 1939 and greater in 1940, and then on through to the end of 1940. That, as I explained to the Court, might look as though we had not complained of the loss of plants in that period. This settlement will be placed before the Court. Then, from 1945 on, there has been no settlement and that is the problem that the Court will now try.

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HIS LORDSHIP: Mr. Keogh, any observations?

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MR. KEOGH: Very shortly on two or three points. It is not very important, but my friend referred to the McKinnon Dash and Metal Manufacturing Company. The right name will appear as the McKinnon Dash and Metal Works Company, so your lordship won't think they are two different companies.

Then, my friend said the statement of claim was delayed owing to negotiations. I think that he perhaps just misunderstood that a little bit. Whatever negotiations there were took place before the writ was issued in 1946. The statement of claim was delayed, not because of negotiations, but maybe because I was continually writing them for a period of almost a year —

MR. SLAGHT: Mr. Schiller was very ill for many months.

MR. KEOGH: Yes, towards the end.

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HIS LORDSHIP: Well, I don't suppose it affects, in any case.

MR. KEOGH: No, it is a minor matter.

My friend suggests a reference to your lordship on the question of damages. I am opposed to that for a number of reasons, and I do not suppose we have to decide that question now.

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HIS LORDSHIP: Well, I will be glad to hear what you have to say about it, Mr. Keogh, because I would like to make up my mind on it at as early a date as possible. While we do not need to decide it until I hear more of the case, at the same time I would like to come to a conclusion on it because it affects my mind in listening to the evidence. I might say in some cases, as one listens to the evidence on the aspect as to whether there may be liability, one can dismiss the question of the extent of the injury and, if I am trying the question of damages, then, I have to charge my mind with a consideration of the extent of the injury as well as whether there was injury that is actionable.

MR. KEOGH: Well, my lord, my first and biggest objection is that there will be a very definite conflict in considerable of the evidence as to whether there was damage at all in certain respects, or any, and if there was damage whether that damage actually was caused by anything that came from our plant or not, and I do not see how you can solve that conflict without going into the nature and extent of the damage to some considerable length and, as I understand it, the cause of action in nuisances is very much wrapped up with the extent of proof of damage on the plaintiff's property originating or caused by something that came from our property, and while it is all right for my friend to say that some evidence may be given of damage in general terms, from the defendant's point of view damages in general terms is very vicious because there will be quite a contest as to whether whatever damage which was alleged to be caused by us was, in fact, caused by us at all; so I think your lordship, from that point of view —

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HIS LORDSHIP: May I interrupt you there? I would have to decide whether there was damage caused by your clients, actionable damage, and if I came to the conclusion that there was actionable injury, then, could not the Master or the Local Judge be trusted to distinguish between injury caused by your clients and injury that could have been caused by others? We will say on the simple question of smoke nuisance.

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MR. KEOGH: With all due deference to the Local Judge, he is a very fine man, who was sworn in here on the 9th of last month. The question as to whether any particular head of damage was caused by my client or caused by any general atmospheric conditions existing throughout the area, or caused by some disease, or anything else, is a very difficult one and that is going to be gone into very thoroughly at this trial, and your lordship having come to the conclusion on that point, on these various heads of damage, to leave some of those damages, and items of loss for a decision by a Local County Judge, if there is a dispute as to some of them, and some of these items are very substantial. For instance, my friend files a claim for some \$18,000 damage for orchids alone, and he claims in one year 20% of ten thousand, loss of production \$5,400, and so on, and a comparable amount in 1948. That is my first point.

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My second one is in the statement of claim the exact flowers he claims to have been damaged, with the numbers of them and the amounts claimed for each, and it should be a comparatively simple matter, having determined the principle of liability in those two years to have those assessed.

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The third point is that in the particulars which came to us about a week ago, the particulars of loss in 1948, the exact flowers are set out and the numbers of them, and I do not want to leave the matter at large for reference, the principle of liability having been determined, for the plaintiff to come along and inject in a lot of other things, items of damage which he has not already alleged in this action under the blanket item which he has in each of those particular years, namely, 20% loss of production of so much and which item is not specified according to the flowers, and while there is an old saying that sometimes the longest way round is the shortest road, in the end, I do feel quite sincerely and I am anxious to save as much time of the Court as possible, and I am sure my friend is, and he is very sincere on his side, — I do feel quite sincerely that your lordship will have to go into the exact nature of the damage on each particular flower, or the biggest part of it, in order to determine the various questions.

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HIS LORDSHIP: I want to do something else, except try this case, between now and midsummer.

MR. KEOGH: Of course, this is all taking time.

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HIS LORDSHIP: Oh, no. I do not think this is time lost.

MR. KEOGH: For instance, some flowers or species of flowers are more susceptible to the type of damage claimed by the plaintiff than others. That will have to be gone into. Some are comparatively unsusceptible, and so on, and I do think, while the suggestion of a reference is possibly attractive at the start of what looks like a long case, the final result will be that your lordship will have to go into these various questions to such a considerable extent that the fixing of the damages will not be such an arduous task as my friend suggests.

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Then, I do submit it is part of their cause of action for nuisance and on the question of settlement in the suggestion that my friend brought up, that was pleaded originally by the plaintiff in a special paragraph in the first statement of claim, and that paragraph was struck out on a motion, by His Honour Judge Stanbury, as Local Judge, on the ground that having set that out, they were not to be considered as any admission of liability covering that period, and not claimed for in this action, and any reference to such period we say is irrelevant. My friend appealed from that judgment of the Local Judge to Mr. Justice Genest. Mr. Justice

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Genest affirmed that judgment and I am just giving my friends warning now that if they attempt to introduce those documents in evidence, I intend to object to them and we will have to argue that question at the proper time.

And one other point on the question of the defendant's foundry in paragraph 9. It is my submission that was our foundry, buying it from our predecessors. The McKinnon Dash and Metal

Works Company built it in 1907 and we having been incorporated in 1925, a new company with a word added to it, McKinnon Industries. There was a re-organization in 1917. It was our foundry, but my friend says, "I may want an amendment. I do not think it is necessary, but if your lordship thinks it is, I would like to make it clear and I would ask for leave to insert the word "predecessors" in front of the word "foundry" on the third line of paragraph 9 of the defence, to insert the word "predecessor's" in front of the word "foundry" so that it would then read in the

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defendant's predecessor's foundries.

HIS LORDSHIP: Well, in case there may be any confusion, if you wish, I will give you permission to make that amendment. You will also see that that is done.

MR. KEOGH: All right, my lord. I may have the permission of the Court to make that change in the record of that one word "predecessor's."

HIS LORDSHIP: Yes.

Just one other matter that I would like to discuss with counsel and that is the hours of sitting. It is sometimes convenient to counsel to have some fixed schedule of hours so that you know what time you are going to have for other things and what time your witnesses might have for other things.

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MR. SLAGHT: As far as I am concerned, my lord, I am entirely in your lordship's hands. I may say I have had some experience at the Bar and the case is a heavy one to present and dealing with some expert evidence and so on, and whatever time your lordship fixes we will be ready for, but it may be if it is not too severe, I think we must not waste time, because it is going to be difficult to get the case of liability tried, in my view, in the time indicated already.

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HIS LORDSHIP: My experience in these cases is that one does not gain by attempting to sit too long hours in Court, because counsel have to have time to confer with their witnesses and if they have had proper conferences, the time in Court is very frequently shortened.

MR. SLAGHT: I was going to venture to suggest that, my lord, but whatever your lordship fixes will be quite satisfactory with me and I am sure with my friend.

HIS LORDSHIP: I would like to suggest that we start at 10.30 in the morning and that we will sit through without an intermission until 12.30, and will resume at 2.15 and probably rise about 4.30: that is, for this week, at any rate. If we require to put any further pressure on when we resume later on, maybe we will do that. But this is a case that involves a great deal of technical matter and there is not a great deal to be gained by too heavy pressure at the beginning.

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MR. SLAGHT: May I add one word in reply to my friend on the problem of reference to the Master.

HIS LORDSHIP: Oh, we will discuss that later on. I want to get a little broader view of what really is involved in this case and then I will raise that matter for discussion in a day or two.

Call your first witness.

DOUGLAS URE, sworn,

EXAMINED BY MR. SLAGHT:

10 Q. Mr. Ure, you are an Ontario Land Surveyor? A. Yes.

Q. And you practise your profession in St. Catharines?

A. Yes.

Q. I believe you did a good deal of work for the city, as a city land surveyor, in connection with new areas, and so on?

A. Yes.

Q. And have practised here for how many years? A. Since 1925.

Q. Then, you are also an engineer? A. Yes, a civil engineer.

Q. A graduate of Toronto? A. Toronto University.

20 Q. Then, I understand you were asked to prepare for Mr. Walker a sketch which would disclose his greenhouse property and the other buildings on it, and also show the four cupolas operated by the defendant company and the location of the forge shop and of the large, tall smoke stack? A. Yes.

Q. And you prepared such a plan? A. Yes.

Q. Will you identify that, please? A. This is the plan which I prepared.

—EXHIBIT No. 1: Plan prepared by Douglas Ure.

30 Q. Have you an extra one of this plan? A. I have one.

Q. Well, you refer to your own and let his lordship have that one, and I will refer to mine. They are duplicates, I take it?

A. Yes.

HIS LORDSHIP: You have not got an extra copy, have you? I do not want to deprive counsel. I have found in these cases, where I use plans, that I sometimes like to make notes on a plan which I do not want to do on the one filed.

THE WITNESS: I could leave this as an exhibit, my lord.

HIS LORDSHIP: The witness says that he can have his copy marked as an exhibit and he can leave me this.

40 MR. SLAGHT: Oh, that will be splendid, and his lordship can have that one as an unofficial copy. That will be your lordship's personal copy.

HIS LORDSHIP: Yes.

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MR. SLAGHT: Q. Then, Mr. Ure, if you will indicate, please, the area comprised in the Walker property. It contains the greenhouse, No. 7, which is in green, and I believe six other buildings which are coloured differently and are numbered 1 to 6. Is that correct? A. Yes.

Q. If I lead in this, my lord, I think it won't be harmful. Then Manchester Avenue on the north abounds the Walker property? A. Yes.

10 Q. And I see Ontario Street is the boundary between the city of St. Catharines and the township of — A. No. Carlton Street is the boundary between the city and the township.

Q. Oh, yes, I am sorry. Carlton Street is the northerly boundary of the city of St. Catharines, is it not? A. Yes.

Q. And from there the Walker property, which runs through apparently from Carlton to Manchester, as appears there, lies immediately north of the city boundary of St. Catharines, by Carlton Street? A. Yes.

Q. Now, you have indicated over to the left of this plan four round ciphers, which are marked "cupolas"? A. Yes.

20 Q. Are they shown in proximity to the Walker plant and are they cupolas on the McKinnon, the defendant's property? A. Yes.

Q. Then, away down south, or to the south, rather, I find under the title "McKinnon Industries," a little arrow and the word "stack." Is that the large stack — that is a large stack. Give me the approximate height of that stack as a guess, or an estimate? A. I have heard that it was 150 feet. I imagine that is about right.

30 Q. Well, we will hear perhaps if it is necessary, the exact amount. Then, would you give us the approximate distance, if you please, from the centre of the McKinnon cupolas over to the left, — to the approximate centre of the Walker property — over on his property? A. From the centre of the cupolas to the centre of the greenhouse No. 3 would be about 600 feet.

Q. Then, from the centre of the cupolas to McKinnon's test plot — have you shown the test plot on McKinnon's there? A. Yes.

40 Q. Yes. I did not call your attention to that. It is just below Carlton Street and it is labelled "test plot"? A. Yes. The distance from the centre of the cupolas to the centre of the test plot is about 440 feet.

Q. And the test plot I understand has a fence around it? A. Yes.

Q. And do there appear to be bulbs, or flowers, or plants grown on it? A. At the time I was there I do not think there was anything very much there, but it had been dug and cultivated.

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Q. It showed appearance of having been cultivated? A. Yes.
Q. Well then, from the big stack down south to the nearest Walker building is approximately what distance? A. About 610 feet.

Q. That would be pretty well north? A. Yes.

Q. Running pretty well north, some 610 feet? A. Yes.

Q. And you have shown —

HIS LORDSHIP: From the stack to the nearest Walker greenhouse —

10 A. That is to greenhouse No. 1, my lord.

MR. SLAGHT: Q. From the stack to the nearest Walker building, being greenhouse No. 1 shown in light blue, — that you approximate at what? A. 610 feet.

HIS LORDSHIP: Now, I cannot understand that, if this is drawn to scale. Did you not tell me from the cupolas to No. 3 was 600 feet?

A. Yes, my lord, it is. Oh, the stack — pardon me; the stack we are referring to is this one.

HIS LORDSHIP: Oh, you are referring to this one.

20 MR. SLAGHT: Just below the "McKinnon Industries" in type.

HIS LORDSHIP: Yes, I see.

MR. SLAGHT: Sorry, my lord.

Q. I do not think I asked you to identify the forge shop. Would you show his lordship where the forge shop is. It looks to me as though, from the forge shop over to McKinnon's, was in a northwesterly direction, but the forge shop is somewhat further north than the cupolas. It is marked "forge shop" there, is it?

A. Yes.

30 Q. And what is the approximate distance from the forge shop to the Walker building? A. From the easterly end of the forge shop to the westerly end of greenhouse No. 2, about 390 feet.

Q. And can you give us an estimate — you did not measure it, I understand, of the height of the stacks in those cupolas?

A. Well, it would be just a guess, if I did.

Q. I see. Now, the total area of the Walker property is approximately what? A. I have not that figured out. The length is about 390 feet, the width of Carlton Street is about 70 feet.

40 Q. But you have figured the approximate square footage of the total — give us that. A. I have got a figure here; I don't know where I got it. I think I got it from you. I may have worked it out at one time.

Q. Will you look at that and see if this is the memorandum you furnished to Mr. Ross, the solicitor, or to us, and if that is your memorandum, perhaps it will help you? A. Yes, that is my memorandum.

Q. That is your typed copy? A. Yes.

—EXHIBIT No. 2: Typewritten memorandum made by Mr. Ure.

Q. Thank you, my lord, and it shows the total area of the property as 45,160 square feet? A. Yes.

10 Q. And it shows the area covered by the seven buildings, the seven greenhouses? A. Yes.

Q. As 13,344 square feet? A. Yes.

Q. Then you have got some others here, where you have the area for carnations 9,000 square feet, and the area east of No. 7, that is an outdoor area, 6,500 square feet? A. Yes.

Q. Area east of No. 4, 6,000 square feet; area east of No. 7, 6,500 square feet; area south of No. 1, 2,400 square feet? A. Yes.

Q. That will be Exhibit No. 2. Then, your measurements were made on three days in March and April last, I believe?

20 A. Yes.

Q. And —

HIS LORDSHIP: Just a moment, Mr. Slaght. The area under glass then is 13,344 square feet. Is that correct? A. Yes, my lord.

Q. And there would be about 32,000 square feet that is not under glass? A. Yes.

MR. SLAGHT: Q. Then, would your dates be the 22nd and 23rd of March and the 1st of April, 1948, when you were making your plotting? A. Yes.

30 Q. And can you tell me whether on any of those dates, that is last year, there were fumes or anything coming from the cupola and the forge shop in the direction of Walker's building? A. There were fumes.

MR. KEOGH: I object to the use of the word "fumes." I don't mind the witness being asked about smoke. He has not been qualified as any expert on fumes. He is a surveyor.

HIS LORDSHIP: Probably he is not an expert on smoke. Did you observe anything coming from it?

40 A. There was a whitish gas coming from the cupolas and I only made a note of it on one day, blowing over in the direction of the greenhouses.

MR. SLAGHT: Q. What about the forge shop? A. There was also a gas coming over from the forge shop.

Q. Could you say anything about the colour of that item?

A. I didn't make a particular note of the colour.

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Q. Well, all right. That was not your task. I need not trouble you further on that. Will you tell me whether in the area between the Walker greenhouse and Ontario Street on your plan, whether there are or are not a number of workmen's homes?

A. Yes, there are several houses on the north side of Carlton Street.

Q. Have you indicated some of those on your plan? A. Yes, they are marked on the plan.

10 Q. And I am starting just east of greenhouse No. 1 and there seem to be four lots. There is a narrow strip in between and then four consecutive lots, and there are markings which, I take it, are meant for homes? A. Yes.

Q. And then, are there workmen's homes north of Manchester Avenue? A. Yes, there are.

Q. Do you know how many? A. No.

Q. Then, the first fruit farm was owned by S. Minisin, which lies north of Manchester Avenue? A. He has property in that vicinity, I know.

Q. In that vicinity? A. Yes.

20 Q. Well, we will identify it more accurately from somebody else, and then east of Garden Place, are there homes there? A. Yes.

Q. How many? A. I don't know how many.

Q. Then, I see east of Garden Place you have indicated some little jots that look to me like trees or fruit trees. What are they? A. Those indicate trees.

Q. What kind of trees? A. They are fruit trees.

HIS LORDSHIP: Those are west of Garden Place, are they not? A. Yes, my lord, west.

MR. SLAGHT: No, wouldn't that be east, my lord?

30 MR. FERGUSON: No, west.

MR. SLAGHT: Yes. I am sorry, my lord, your lordship is right. I got my "north" mixed up. West of Garden Place you find four or five various — lots of places there you have indicated; what kind of trees? A. Fruit trees.

Q. Then, I show you what I understand is a plan or map of the city of St. Catharines of 1899, prepared by whom? Is this your plan? Is this in your custody now? A. Yes. That plan was prepared by Mr. Gardiner, a surveyor in this district. I have his notes and plans in my office.

40 Q. You have his work notes and plans in your office and I wonder, unless my friend objects, whether you can look at this old plan and give us an idea of the homes and buildings and layout in the locality of the McKinnon and Walker properties in the year 1899? Can you help us with that?

MR. KEOGH: If my friend is attempting to have the witness say, by looking at a plan, the location of our plant and foundry and the location of buildings surrounding it in the year 1899, I would have to object to that. I don't mind the witness identifying it as a plan prepared by that gentleman and in his custody, but it is well known that surveyors do not always put down everything on plans. They just put down what seems important for their own purposes.

10 MR. SLAGHT: Well, I have not got Mr. Gardiner's plan so I will take advantage of my friend's suggestion, as a plan in the custody of the witness, prepared, as he says, by Mr. Gardiner, and identified as such.

MR. FERGUSON: My lord, under the Surveys Act those field notes are handed down from surveyor to surveyor, and I presume this man's custody is just as good as the original.

HIS LORDSHIP: I would think that it would be evidence of those things that it purports to show. It may not be evidence that there were any other things there at the time, you see, Mr. Keogh.

20 MR. KEOGH: Yes, I agree to that.

HIS LORDSHIP: It cannot go any further than what it purports to show.

MR. SLAGHT: I quite agree, my lord. Then it will be on that understanding, marked as Exhibit No. 3.

—EXHIBIT No. 3: Plan prepared by the late Mr. Gardiner in the year 1899.

HIS LORDSHIP: Then, this, I suppose, is one of the plans that belongs to the city?

30 THE WITNESS: No, it was Mr. Gardiner's personal property. I understand he had furnished the city with copies of it.

HIS LORDSHIP: It is one of his plans that he kept in his personal custody, together with his field notes? A. Yes.

Q. It is not a registered plan? A. No, it was not registered. It was his original plan done on paper and he would make a tracing off of that and the City probably got the tracing. I have not been able to locate it.

Q. Now, how do you describe it?

MR. SLAGHT: It is a map of the city of St. Catharines of 1899, prepared by an engineer surveyor, Edward Gardiner.

40 HIS LORDSHIP: Is he dead now?

THE WITNESS: Oh, yes.

MR. SLAGHT: Q. Now, if you would indicate to me, for the Court's benefit, where the Colonel Woodruff's property was then situate? In the first place, let me ask you, does the Welland Canal run somewhat north and south and a short distance west-erly of the McKinnon and Walker properties? A. Yes, the McKinnon properties go right to the canal.

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Q. And then, was there a property of Colonel Woodruff there at that time? A. Yes. The Woodruff property is on the west side of Ontario Street, south of the McKinnon property.

Q. Now, we get that Woodruff property. Were you old enough to be aware of the Woodruff property at that time? A. The Woodruff property, that is, the remainder of the Woodruff property was subdivided in the last five or six years.

Q. Yes, but can you tell me, in 1899 — I am perhaps going on to 1904 when Walker bought, whether the Woodruff property was occupied by Woodruff and what it consisted of? A. The Woodruff property was quite a large estate with a big house and quite extensive gardens and lawns and orchards.

Q. Approximately the acreage there? A. Oh, I would say from 10 to 15 acres.

Q. And was it occupied by Colonel Woodruff, who was one of the prominent citizens here? A. Yes.

Q. At that time. And then, you have told us that the McKinnon Dash, it would be at that time, or the McKinnon property as it is now, was situated adjoining the residence of Colonel Woodruff? A. Yes. I understand that the McKinnon Dash property was bought off the Woodruff property.

Q. And then, can you tell me what other homes are indicated on this plan as situated in that vicinity? I want to get a general idea for his lordship of what we call the area or vicinity of the city at that time, because it has been suggested by the defence that it was a purely industrial area. Now, can you indicate any homes that were situate in that vicinity as appears from this plan? A. This plan shows the buildings. The buildings on the Woodruff property are marked on the plan and there are also a number of houses on Ontario Street; on the easterly side of Ontario Street.

Q. And how close would that be to the McKinnon Dash property? A. Well, the closest house that is shown on the plan would be about 1400 feet from the centre of the McKinnon property.

Q. Well, now then, give me any other homes that are in that general locality as of that time? A. There are homes on York Street, on the westerly side of York Street, which would be approximately 2,800 feet from the McKinnon property.

Q. Yes? A. There are several homes shown on Merritt Street; the closest one to the McKinnon property would be about 2,000 feet. There are other homes down on the westerly side of York Street. There is one near Welland, which is about 3,000 feet.

Q. Are there any industries whatever shown in there as of that time, other than the McKinnon Dash? A. The McKinnon Dash buildings are not shown on the plan. There is what is

shown as the Flynn Brothers, which is run as a canning factory; I believe it was in operation in 1903.

Q. Anything else than that Flynn Brothers canning factory? A. I don't know of anything else of an industrial nature, — well, except there is the Welland Vale plant.

Q. Where is that? A. Which is shown on the canal property at Welland Avenue, about 2600 feet south of the McKinnon property.

HIS LORDSHIP: Do you refer to that as the Welland
10 Canal? A. This is the old canal.

MR. SLAGHT: Yes. I should have made that clear, and the Welland Vale property is down south there near Welland Avenue? A. Yes.

Q. Now, on Welland Avenue itself what homes are indicated there, as at that time, because I am going to take Welland Avenue, — My friend may want to quarrel with this — as the southerly street which might be called the southerly boundary of the adjoining area of the locality there that we are trying to describe. Are there homes on Welland Avenue? A. There is one home on
20 Welland Avenue, on the north side of Welland Avenue, and east of Ontario Street. There are two on the south side of Welland Avenue and west of Ontario. On the north side of Welland Avenue from Ontario Street to Lake, it shows 12 houses. On the south side of Welland Avenue, between Ontario and Lake, it shows 10 houses.

Q. Yes. Then, find any more in that area? I don't care where they are. A. They are on York Street, between Welland Avenue and Louisa Street.

Q. No, Louisa Street is north of Welland, is it? A. Yes.
30 Q. So it is in the area that I am creating temporarily?
A. Yes.

Q. Houses there? A. It shows seven houses and on the west side of Ontario it shows five houses.

Q. Find any more in there? A. On Louisa Street, between York Street and Lake Street, it shows 17.

Q. And Louisa Street is again north of Welland Avenue?
A. Yes.

Q. Any more? A. On Elizabeth Street, which is north of Welland Avenue, it shows 11 houses. On Merritt Street it shows
40 seven houses. On Dufferin Street, from York to Dufferin — from York to Lake, I should say, eight houses.

Q. Any more, and we will try and clean this up? A. On York Street from Louisa to Carlton Street, 14 homes.

Q. Are there any more there? If there are I am not going to ask you to count them. If my friend wants to check on that —
A. There are a few scattered ones about there.

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Q. Well, I am not going to bother going into the details of those at the moment. If my friend wants to cross-examine on that, he may. The Welland Vale property, which you spoke of there, which is down off Welland Avenue, what is the location of that as to topography? Is it high, or level, or in a valley?

A. It is down at the canal level. It is quite a bit lower than —

Q. Lower than the surrounding homes? A. Yes.

Q. And is it a lower area than the Walker property?

A. Oh, yes, it would be.

Q. It would be lower than the Walker property? A. Yes.

Q. Your witness.

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CROSS-EXAMINED BY MR. KEOGH:

Q. Mr. Ure, if I understand correctly, this plan that you have been referring to, Exhibit No. 3, is a plan made in the year 1899? Is that right? A. It is dated 1899. It was prepared — in the course of preparation for several years.

Q. Probably for several years before that? A. Yes.

Q. Were you living in St. Catharines in April, 1901?

A. No.

Q. And you say that plan does not show the McKinnon Dash Foundry or buildings on it? A. No.

Q. I suppose, in the course of your inquiries about titles and so on, — did you ever come across a by-law, a 1901 by-law of the city of St. Catharines awarding a bonus of \$4,000 to the McKinnon Dash and Metal Works for the erection of a new plant? A. No. I had never come across that.

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Q. I thought you might have had occasion to check that up when you were looking up this old timer. Simply from looking at that plan, you are not able to say whether or not the McKinnon Dash and Metal Works Limited had worked or commenced to work the foundry on the west side of Ontario Street in the years 1900 and 1901, are you? A. There is nothing on the plan to indicate.

Q. The plan doesn't tell you whether that is right or wrong? A. No.

Q. You do not know yourself, whether that is right or wrong? A. No.

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Q. Now, on this plan Exhibit 1 that you filed, is it or is it not a fact that a short distance south of Manchester and east of Garden Place there is a smoke stack of an enamelling company, called — an Enamel and Paint Company, called the Ensign Industrials Limited, — a factory and a smoke stack there, just south of Manchester and on the east side of Garden Place? A. Yes, there is an Ensign place there.

Q. There is the Ensign Enamelling plant there, is there not? A. Yes.

Q. And that would be in the white, or thickened corner, at the right hand top of your plan below Manchester and on the east side of Garden Place, would it not? A. There is a lot of houses fronting on Garden Place, and the Ensign Products plant is behind that again.

Q. And they have a driveway coming out to the east side of Garden Place, between some of the houses? Is that right?

10 A. They have a driveway to Carlton Street, and they have a driveway to Manchester. I am not aware of any driveway to Garden Place.

MR. SLAGHT: I take it my friend's question is as of the present time, about the Ensign?

MR. KEOGH: Yes, I am speaking as of the present time.

HIS LORDSHIP: What is the name of the company? A. I am not certain of the company.

HIS LORDSHIP: Have you the name?

20 MR. KEOGH: The Ensign Industrials Limited, I am told, and that they make enamels and paints.

THE WITNESS: Yes.

MR. KEOGH: Q. And then a short distance east, on Garden Place and immediately north of Manchester, with a driveway leading out to Manchester, is there not located three city of St Catharines staff houses, with a large smoke stack attached to one of them? A. I am not prepared to say. There are three staff houses there.

Q. And isn't there a large smoke stack attached to one of them? A. I am not prepared to say that.

30 Q. You didn't notice the smoke stack? A. No.

Q. Then, immediately opposite Walker's property on your plan Exhibit No. 1, you have shown a building with the words in it "Canadian Warren Pink"? A. Yes.

Q. And that company make forge utensils, such as cant hooks, logging chains, chisels and things of that kind, do they not? A. I believe so.

Q. And have they a forge shop in that building, with hammers in it? A. I don't know.

40 Q. Well, you would be around this area for probably a day or two days making all your field notes and observations for this Exhibit 1, would you not? A. Yes.

Q. Didn't you hear sounds of pounding or hammers going from the Warren Pink building, in that time? A. Well, if I did, I made no note of it.

Q. And then, they have a smoke stack which you have not shown on here, have you, on Exhibit 1? A. No, it is not shown.

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Q. Would you mind marking on Exhibit 1, the Court's copy, where the Warren Pink smoke stack is located? A. I have no record with me as to where it is.

Q. You remember the smoke stack there, but you can't remember as to whether it is at the north end of the building or the south end of the building? Is that what you mean? A. Yes

Q. By the way, you say some —

HIS LORDSHIP: We will adjourn now until 2.30 p.m.

—Whereupon Court adjourned until 2.30 p.m.

Monday afternoon, April 11, 1949,

2.15 p.m.

CROSS-EXAMINATION OF MR. URE CONT'D
BY MR. KEOGH:

Q. Then, we were mentioning one or two other smoke stacks, Mr. Ure. Towards the lower left hand corner of your plan, Exhibit No. 1, down in the left hand corner, you have a stack shown. Is that the McKinnon Columbus stack? A. Yes.

Q. And they make chains and heavy metal products of various kinds, do they not? A. Yes.

Q. Then, just behind that McKinnon Columbus stack, to the west, is there not any smoke stack of a Tyler company in there? A. To the south and west.

Q. A little to the south and more to the west? A. Yes.

Q. That would be almost in the peak of your lower left hand corner on your plan — in the apex, perhaps I should say? A. Yes, somewhere in that.

Q. Somewhere near the apex? A. Yes.

Q. And a very large manufacturing plant, are they not?
A. Yes.

Q. And do you know what products they make?

HIS LORDSHIP: Excuse me, what was the name — tire?

THE WITNESS: Tyler.

MR. KEOGH: Q. And what do they make? A. I understand they make wire fencing.

Q. Well, before the adjournment, you said you saw some white gas coming out of the McKinnon's cupola stacks. Did that resemble steam? A. Well, I didn't make any attempt to determine what it was.

Q. Might it have been steam? A. It might have been steam.

Q. Mr. Ure, do you not know that there is a water wash scrubbing system in the top of each of those cupola stacks?

A. No, I didn't know.

Q. You don't know anything about that? A. No.

Q. Then, before the adjournment you said you saw some gas coming from the forge shop? A. Yes.

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Q. Do you mean by gas, smoke? Is that what you mean?
A. Well, whether it was smoke or fumes, or what it was, I am not prepared to say.

Q. You don't know what it was, but it was some soluble haze coming out, but what it was you don't know? A. Yes.

MR. SLAGHT: That is all, thank you.

—Witness excused.

WILLIAM WALLACE WALKER, sworn

10 EXAMINED BY MR. SLAGHT:

Q. Mr. Walker, you are the plaintiff? A. Yes.

Q. And you carry on business as a florist and grower of plants in Grantham Township and in St. Catharines City?

A. Yes.

Q. You have, I believe — I shall endeavour not to lead, my lord, when I come to anything that is controversial. You have, I believe, your greenhouses and plants, operations, situate in Grantham just south of the street which separates that township from the city of St. Catharines? A. North.

20 Q. North, I mean — thank you. A. Correct.

Q. Then, your home you have there and a shop in the heart of the city, on what street? A. St. Paul Street.

Q. And you operate from there a retail shop? A. Well, for 35 years, yes, sir.

Q. And I believe from your greenhouses you sell to your own shop in the city, at wholesale prices? A. We sell to our own shop at wholesale prices, subject to Government tax.

Q. And you sell also from your greenhouses, as a grower, to other retailers and other florists in Ontario? A. Right.

30 Q. Different cities? A. Yes.

Q. Toronto? A. Toronto principally.

Q. Yes. Now, when did you purchase the land on which you started business? A. 1903.

Q. And you bought that under an agreement for purchase from — A. Edwin Graves.

Q. From Edwin C. Graves? A. Correct.

Q. I have a copy of it here — on the 3rd of April. Where is the original, do you know? A. I couldn't say.

MR. KEOGH: I have no objection to a copy going in.

40 HIS LORDSHIP: Mr. Keogh is not disputing the title of the plaintiff.

MR. SLAGHT: No; they have admitted that, for 45 years, we have carried on business at these premises.

HIS LORDSHIP: Well, this will be Exhibit No. 4.

—EXHIBIT No. 4: Title to the Walker property.

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MR. SLAGHT: Thank you, my lord. Exhibit No. 4 is a copy of an agreement of sale, Edward C. Graves to William W. Walker, dated April 3, 1903, and describes certain lands therein, which lands are part of your greenhouses, and are part of the present property. And you paid up under this agreement for purchase, I believe, and did not get your deed until some years later, 1911?

A. Yes.

Q. And then you got your deed and registered it, from Graves? A. Right.

10 Q. And then, after purchasing, did you or not take possession of the land? A. We could not get possession until the following spring, for Mr. Graves was building a house next and I allowed the tenant to stay till the next spring.

Q. There were houses on this land when you bought it but, for some reason, you did not take possession until the spring of 1904? A. Correct.

Q. And did you then set up some of the plant to carry on growing? A. I immediately began to start cold frames and plant pansies and such other perennials as you can raise outdoors.

20 Q. Cold frames? A. Yes, they require no heat.

Q. And you planted pansies and daisies, and different — A. Planted pansies and other perennials.

Q. And did you operate that business in 1904 and sell blooms, or plants? A. I sold plants.

Q. To the public? A. Yes.

Q. Who helped you carry on that business? A. Mrs. Walker.

30 Q. Your wife. And then you added buildings to that, I believe, when? A. 1905 I built the first greenhouse, with the assistance of my father-in-law.

Q. And then you had a plumber, perhaps, too? A. I had a local plumber who came in and helped me at nights.

Q. At all events, you built it and did you continue to operate that along with your outside connection and carry on your business there, from that premises? A. We did.

Q. And have you or not carried on business there down till to-day? A. Until to-day.

Q. Then, you are now 67 years of age? A. Yes.

40 Q. And you have lived here in St. Catharines? A. 57 years ago last Friday, as a boy of ten.

Q. Let me know something about your earlier experience, if any, with flowers or plants? A. I had always cared for flowers and I had worked more or less with Landis Pratt (?).

Q. Of St. Catharines? A. Yes.

Q. And what was his business? A. He was a florist.

Q. Then, did you work for any other market gardener?
A. I also worked for John Davis, who ran a big garden, what is known as the racecourse —

Q. Well, I don't care — where? A. At this upper end of McKinnon's holdings.

Q. And then you worked for somebody else, I think, and how long did you work for the florist people — until about what age? A. Till I was about 17.

10 Q. Then, you worked for somebody else in the meantime and during that time, did you build and enlarge your own florist business? A. Not at 17. I built after I was married.

Q. Oh, yes, yes. I mean, after you bought it, as you have told? A. I built the first greenhouse in 1905; the following year built another small one and then another.

Q. And, since then, your business has been growing? A. It has.

Q. Then, how many greenhouses have you on the present property? A. Seven.

20 Q. And are there, in addition to the greenhouses, other buildings, a boiler house? A. There is a boiler house, a packing shed, what we call a heavy shed for holding flowers coming along too fast and two large coal bins.

Q. Is there a cloth house? A. There is a cloth house.

Q. And is there a slight — A. There is a slight shade in the house where we have to carry stuff to get away from the rays of the sun.

30 Q. What is the cloth house? A. We grow flowers out of season and we used to get a very cheap grade of cotton, but the last few years we just use rags, cloths, that is put over the top to keep out the rays of the sun and mostly insects out, but mostly the rays of the sun.

MR. SLAGHT: Q. Now, before I leave your experience, had you any other experience which you suggest may have assisted you in the care and culture and growing of plants and orchids, particularly? A. I have had occasion to go down to Dales at Brampton.

Q. Dales at Brampton? A. The largest producers of flowers and orchids in Canada.

40 Q. And having occasion to go there, what resulted from that, if anything? Make it as short as you can. A. I became very friendly, or at least he may have taken to me, with Hanson, who was ten years with the Royal House of Denmark, and 15 years in Sandringham and established a collection of 60,000 orchids at Dales.

Q. Where is Sandringham? A. That is in England.

Q. One of the Royal Family Palaces? A. Yes.

Q. And then 60,000 orchid plants, Hanson, you suggested, reared at Dales? A. Yes.

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Q. What was your contact with Hanson, which may or may not have helped? A. During the course of discussion I said to Mr. Hanson —

Q. You cannot tell us what he said to you, but what did you do with him, if anything? A. He knew I was very much interested, and he asked me, "Are there any orchids coming in?", and I said "Yes," and he came over and gave me the first demonstration on potted orchids and he gave me minute directions, and that was 40 — I would say 35 to 40 years ago.

10 Q. And he came over to you? A. On one or two occasions.

Q. And what time did you start your orchids? A. About 35 years ago.

Q. About 40 years ago? A. About 1914; just a couple of years before the first war.

Q. In addition to Hanson coming to you, did you go to Dales from time to time and watch the progress of his productions there? A. As Dales is the supply house, I went quite often; I would say as much as twenty times a year. I never went without contacting Mr. Hanson and I would ask him how the orchids were and if I had any difficulties I would take them up with him.

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Q. And then, when you were there, what did you do and what did he do? A. He took me to his orchid houses and demonstrated them to me.

Q. So in that way you had that contact, for what it was worth to you, and did Hanson charge you for those services? A. Not one cent.

Q. You and he were friends and he did that to help you. Then, any other experiences — I want you to make this brief — on top of that, which you think may have helped you in the growth of orchids? A. I also did business with Miller Brothers, in Toronto; at that time they had the second largest collection of orchids, and I became very friendly with their head orchid grower. We talked it over and he gave me personal directions until he went back to England, where he died since. He would always give me absolute information where he possibly could until he went back to England and died. As we got along, I thought I would like to have more particulars, so I wrote to England and one of the ones I wrote to was Stewart Lowe and Company, one of the biggest orchid growers in Crosborough, in England, where they have been for years and where they have been having trouble with smoke and other stuff.

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Q. Did you have any contact with that firm which you think helped? A. It was in 1917 the phone rang, and I went to the phone, and it says, "This is Miss Lowe of Stewart Lowe and Company."

Q. Well, that brings us to your contact with Miss Lowe?
 A. And I said, "I will come over and get you." I went over and got her about two o'clock.

Q. What was her first name? A. Eileen.

Q. And what did she do with this big firm in England?
 A. I believe she is everything in connection with it. I think she is one of the main owners.

Q. All right. Did you and she spend some time at your plant?
 10 A. I spent all the time in the afternoon till the late train going to Toronto.

Q. Doing what? A. She was showing me different ways of handling orchids and the way other conditions should be, and assisting me all she could.

Q. Now, then, we will leave that matter and go, if you will, please, to the locality, and something about the locality in which you bought. We have had Exhibit 1, a map prepared by Mr. Ure, and his lordship has been informed and shown where your property is, and the McKinnon property there. Will you go with me, please, to the year you bought, in 1903, and the year you began
 20 business, in 1904, and take the locality which takes in the northern part of Grantham Township, where your property is, and from Ontario Street down to Welland Avenue southerly in the city, along York Street and out to the canal, and treating that for the moment as the locality or area, what was the character of that locality or area when you started business? A. The locality of that area was, to start with, Samuel Woodruff had a very large mansion over here and his holdings there were about 40 acres. Ten northerly acres, which he sold to the McKinnon Industries. On that there was erected a very big house, a partial mansion or
 30 manse, and there was also a large greenhouse there. There was rows of houses. There was the coachman's house and the main house which at present is turned into four apartments. There was the gateman's house and there was a large road out —

Q. All right; that is enough about Colonel Woodruff's manse, and, keeping your mind on the year, you started business in 1904. Tell me something more about Grantham Township. We heard from Mr. Ure this morning from the city down to Welland. Tell me what you can about what was the situation in Grantham Township as to the character and the locality? A. Grantham Township in this section, being in the garden city of Canada
 40 as it is known, was producing at that time the finest quality of peaches and fruit and grapes and more or less all types of fruit. In fact, right across from the General Motors — pardon me for that mistake — from McKinnon Industries, there were four acres in there — I believe four acres owned by a man by the name of Swift and that was highly planted to all types of fruit.

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Q. Did you have occasion to visit that? Were you familiar with the conditions? A. I knew this here man because I lived right across from him and I rented a barn on the place when I first started business.

Q. Now then, finish the association of that southern portion of Grantham Township, which you have dealt with pretty well along the line of where your place was and where McKinnons were, just across the road. Tell us anything more you can?

A. George Robinson's fruit farm extended right up to within 60 feet of McKinnon's first holding.

Q. Who is that? A. George Robinson.

Q. I want you to speak of 1903 and 1904, and no other date.
A. I am speaking of that date.

Q. What did he grow? A. He grew all classes of fruit and he grew fruit and grapes within a distance of the width of a country road, I believe, 66 feet, and they are still growing with the exception of the piece that he sold.

Q. From whom? A. From the McKinnon Industries.

20 Q. Go on, if you can recall anybody else? A. On the far side of me, there were a number of small fruit farms there that since have been broken up and acquired by Armenians. There was one particularly large one, which was known as the old Johnson home. Old Sep Walker was a former resident. He owned all that land before it was broke up.

Q. Now, is that close or far from the McKinnon's place?
A. That is about five-eighths of a mile.

Q. That has been broken up since? A. There was also, farther down this way, in across from McKinnons, southwest, there was the Riker farm.

30 Q. Was that fruit? A. That was fruit, except the back end of it.

Q. What kind of fruit did these farmers grow? A. They grow fruit on account of it being very light soil. They grow mostly peaches, pears, apricots, and so on, and they produce the finest in Canada.

40 Q. Well, at all events, anything more in Grantham Township? If not, then I want you to go into the city, right surrounding McKinnon's. A. Adjacent to the Riker place was William Kottmeir's farm, I believe 60 acres. That was a very highly cultivated farm.

Q. Have you been on it? A. Oh, yes, for years.

Q. Anything else in Grantham now? A. I think that that takes in possibly half a mile, five-eighths of a mile, north of the Grantham line.

Q. And the Grantham line is — A. Is Carlton Street; Carlton Street being entirely all in the city.

Q. All right. Now, come across the street and tell us in a general way — I don't want too much detail from you — what was there across the street, in the first place, at that time, when you bought in there and started business? Was there any other industry across there? We have heard of several that have come along since, or some. A. No industries whatever only the Warren Axle Tool Company.

Q. The Warren Pink? A. The Warren Pink — it was the Warren Axle Tool first.

10 Q. We have heard about the Warren Pink from Mr. Ure and Warren Pink is shown on the map, I see, just south of Carlton Street? A. Directly next to my dwelling house.

Q. Now, when you set up there in 1903 and 1904, what was the property which now we find marked "Canadian Warren Pink"? What was the character of that property? A. That was a little farm there. I believe it was four acres, owned by a man by the name of Swift.

Q. Did Swift live in a house on it? A. He lived in a house right opposite my greenhouse; a little old house.

20 Q. What did Swift produce on his place? A. Swift had this very highly cultivated and planted with the best of fruit, peaches, pears, plums and so on.

Q. In later years, did he sell out to Warren Pink? A. In later years he sold out to Warren Pink.

Q. And they put up this plant? A. Yes.

Q. Do you happen to know what year that was? A. Oh, along 15 or 20, along in there.

Q. So they were not there when you went there? A. No, sir.

30 Q. Now then, we are down in the city now. Give us any other information about homes or surroundings there? A. There were a large number of homes around here even as early as 1904, and I recollect other houses up there. On behind the Woodruff estate there were two log houses. Coming up the old Welland Road there was Shea's and another house on Welland Avenue. A little farther up was Sweeney, then you get up to the top of Welland Avenue and you almost had a continuous line of houses on from Thomas Street, to York Street; some very big houses.

40 Q. And those streets, Thomas and York, are both south of Welland and down towards you and the plant? A. One of the big houses down there now is used as the Board of Education building. Those houses are north of Welland Avenue. We didn't take them in.

Q. Then, you heard Mr. Ure's evidence this morning when he spoke from the print map, one of the exhibits, and gave us accounts of houses on different streets in this area? What do you say — I am not going over them with you — but in the main

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how does that accord with your recollection? A. Very much so, except there were a few more houses there, because I knew them houses and could place every one of them on the map.

Q. Now then, coming back to more recent times, we have heard there is the Welland Vale plant in the valley? A. Down in the valley, and the smoke stack does not come much more than the level — it never interferes with this end of the building.

Q. It comes just about level — you mean the top of it would be about level with your ground? A. Yes, just about.

Q. Have you ever observed or known of any smoke or fumes, or trouble, from that smoke stack? A. None whatever.

Q. Now, I want to take you to a description of the McKinnon Dash plant, as it was in 1903 and 1904 when you set up your business there. I believe you worked for them parts of the year, did you not? A. I did, as a moulder, and there was always a place for me there in the McKinnons when things were slack.

Q. The McKinnon Dash? A. The McKinnon Dash.

Q. And how did you carry on your growing and florist business? A. Mrs. Walker looked after that while I was away.

Q. And then in the summer season or the spring season, did you or not work in your own plant? A. There was about three years I was off the thing. There is a canning company and in the fall and winter I worked in McKinnon's.

Q. And in the spring and fall what did you do? A. I always ran my own business and had a market.

Q. Tell me something about the plant they had then? A. Very small plant. They had one small furnace known as an air furnace or a wind furnace.

Q. And about what capacity did it have? A. Six to seven tons; sometimes to hasten things they were taking two lots off per day.

Q. Six to seven tons per shift, and sometimes two shifts? A. Yes.

Q. Which would double that, some days? A. Yes.

Q. And that was the capacity of that plant? A. Correct.

Q. Then, did you ever suffer any annoyance even or injury, from fumes or smoke or anything from that early McKinnon Dash plant? A. I would say none, outside of a little bit of smoke, which would wash off, and that soft coal would wash off with any rain, when it came.

Q. Well, comparable to the injury you say you have suffered, or what Mr. Ure told about, what would be anything that would come from that little plant at that time comparable to the conditions in the last few years from the new plant? A. There was nothing to be compared in the same line we are now, with gases and oils and vapors and other substances.

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Q. Well, we will come to that. Did you have occasion at all to complain to the McKinnon Dash people over the years they operated, of anything bothering you from them? A. None whatever, for 25 years or more.

Q. And what did the McKinnon Dash manufacture in your period of time? A. They manufactured saddlery and hardware for their dashes and hames, and little, light castings, malleable casts.

10 Q. Saddlery, hardware and hames? A. Hames, the irons that goes around the tugs, and so on.

Q. And what about dashboards? A. They manufactured dashes there; that was called the McKinnon Dash Company.

Q. That means dashes for cutters and buggies? A. That is right.

Q. Were there any motive parts manufactured around here in those days, 1903, 1904? A. There was no motive parts whatsoever.

Q. Those were the horse and buggy days, so to speak? A. They were.

20 Q. Then, come along to when the present plant was in operation and began, or the present company, which was incorporated in 1925. What is, first, approximately the period, or, first, tell me what you know about the changes, if any, they made in their plant? A. This small furnace which they had and which, as I stated, had a capacity of about 12 tons a day, was later changed to a larger furnace, lying directly east, and about twice the capacity, with a higher stack that was put in.

Q. That was in the McKinnon Dash days? A. Well, I don't know that date.

30 Q. Well, a few years later?

HIS LORDSHIP: About when would that be? A. That would be very shortly after 1905; oh, along probably in 1908 or 1910.

MR. SLAGHT: Q. Now, when that larger plant was put in by the McKinnon Dash, did you suffer any damage or inconvenience from that? A. We got a little smoke but it was nothing that would not just wash off with the first rain.

40 Q. Then, coming along to a later period when the present company were operating, what can you tell me about the change of their plant and the operation and what year? A. When the cupola system was put in, around about 1937 or 1938, and when that started in operation we began to notice that we could detect much more smoke and loose stuff coming over and our plants began to show not as good a growth until in 1939, when the war started, production got very heavy; they ran sometimes two and I am not sure but I think there were three shifts running in 24 hours, but, anyway —

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Q. Now, you have spoken of the cupola. I want you to tell me what transformation, if any, occurred in that plant in the manner of change, I mean of buildings and so on? A. They also, at that time, put in there a large forge plant and put in any number of hammers, and those hammers —

HIS LORDSHIP: Is that about 1937 or 1938? A. That is right — correct, and they also put in a large number of hammers which they started to use bunker oil on and although at the present time I believe there is a little bunker and fuel oil being mixed.

Q. Now, wait. You speak pretty fast. I want to get that. At the present time — or, you said they started with bunker oil in 1937 and 1938, and they now use bunker and crude oil mixed?

A. I see bunker going in the yard and fuel oil being emptied into there.

MR. SLAGHT: Q. You were there on an inspection on the 14th of March under a Court Order, with some associates? A. I was.

Q. I will come to that in a moment. Now, you tell me they erected a forge shop there in 1937 or 1938. What happened to the old foundry that had been there? Did they carry on with that?

A. That foundry was very much improved and very much increased in size to handle larger tonnage, they having, in the meantime, gone into almost, we will say, automotive production, that is, blocks and other sections.

Q. Well, did they, or not, build a much larger foundry, as you put it, in 1937 or 1938? A. The foundry was extended very considerably.

Q. And, in addition to that, they built a separate forge shop? A. They built a separate forge shop, which was really two forge shops into one.

Q. Then you began to notice some trouble there, you say, in 1938 or 1939, which you have described, and then, when you came along to 1940, what was the character of the trouble annoying you, if any? A. In 1940 it was beginning to get very bad and it became so bad that we sent letters that year or the next year to the McKinnon Industries, complaining of this here.

Q. I will show you those in a minute but, before we leave the earlier period, what was the location of the McKinnon Dash plant in 1904 as regards the location of the plant and the present conditions now? A. The McKinnon plant at that time had a small foundry going down with an L-shaped building, running east and west, which was the annealing room. Now that has been all done away with. Some stacks have been brought approximately, I would say, 300 foot closer to our greenhouses than what the old stack was.

Q. So the operation of that McKinnon Dash, when you came there, was some 300 feet farther away, with this small plant you have already described? A. Correct.

Q. And I suppose by that you mean the present plant and the one that the present company erected in 1937 and 1938? A. May I go back just a moment?

Q. In regard to what? A. In regard to the hammers. I believe I have not mentioned the vibration from the hammers, which is one of our main troubles.

10 Q. Now, when did that start in, with the hammers? A. They first had some broad hammers.

HIS LORDSHIP: Q. What do you call them. A. Broad hammers. That is one that doesn't strike a very hard blow. It is a broad hammer, carries up and down, broad. The blow is not very heavy; there isn't much vibration.

MR. SLAGHT: Q. Well, prior to that, had there been hammers there at all? A. I believe there was, but they were over in the old plant and they didn't bother us at all.

20 Q. In the old plant, did the hammers bother you at all? A. Not at all.

Q. Then, you say the McKinnons started first with smaller hammers, broad hammers? A. I would say they brought some broad hammers over to this new forge shop and added to them a 2500 pound hammer, a 4,000 pound hammer, and, in 1947, a 5,000 pound hammer.

Q. Now, have they operated that 5,000 pound hammer from 1947 down to the present time? A. Yes.

Q. In the daylight, I take it, so you have been awake? A. No, it is quite often in the day and quite often at night.

30 Q. Now, that 5,000 pound hammer went in in 1947, and the 4,000 pound hammer, do you recall about what year that was installed by them? A. I would say that and the smaller hammer possibly must have been in there when they started the war operations in 1939, or approximately then.

Q. Then, did your trouble continue in 1940 — I think you told me it did? A. In 1940 it continued; was somewhat abated by the engineer they had at that time making a few slight changes, especially in the accumulation of what they call fly-ash, stuff which would come out. They hung chains down to stop it.

40 Q. What about 1941? Did it or not continue? A. In 1941 it began to get worse and then in 1941, 1942 and 1943, during the war years —

Q. You spoke of writing some letters in 1941, and I show you a carbon of a letter. By the way, I didn't ask you. These are signed "W. W. Walker & Sons." Who are they? A. The "Sons" are nothing more than a trade name. They are my two boys, but they have no interest in this whatever.

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Q. Do you own entirely the W. W. Walker & Sons business?
A. One hundred per cent.

Q. And this letter is written by them on November 24th, 1941, a carbon copy, and then attached to it is the reply you got on November 26th from the defendants, signed by William A. Wecker. Mr. Wecker was general manager? A. Mr. Wecker was general manager at that time.

Q. And then a further letter from you in reply to Wecker's?

A. Yes, sir.

Q. January 6, 1942? A. That is right.

Q. Then, if your lordship pleases, I will put in a series of three letters being from the plaintiff to the defendant, November 24th, 1941. Perhaps you would let me have the original of our letter to you. You produce it. It is dated November 24th, 1941.

MR. KEOGH: Subject to the objection I want to make to his lordship when you have the dates mentioned. Do you want the one of January 6, 1942?

HIS LORDSHIP: I want to deal with the letters separately. That one of November 24th will be Exhibit No. 5 if it is admitted.
20 That will be the letter from the plaintiff to the defendant of November 24th, 1941. What is your objection?

MR. KEOGH: Well, my lord, reserving my objection about the release and the agreement previously mentioned, these letters deal with a period which was covered in that release and which is not claimed in this action, and my submission is that they are not relevant to the years for which this action is brought, 1945, 1946, 1947 and 1948 and up to now.

HIS LORDSHIP: Let me see that amendment Mr. Keogh asked for this morning.

30 MR. SLAGHT: While that is being found, may I say this. I did not answer my friend this morning but now is the proper time to say it. He mentioned a motion to strike out our reference to payment to us and the settlement for those years which His Honour Judge Stanbury decided and which Mr. Justice Genest dealt with at that time. My lord, the defendants had not pleaded; it was our statement of claim and, as your lordship knows, the proper time to move against a statement of claim is before the defence is filed. They did that but, when they filed their defence, they put against us a bar against our succeeding on the ground
40 of acquiescence, laches and delay, so that here to meet that plea, my submission is that this Court will receive evidence of our failure, or our lack of laches, acquiescence or delay inasmuch as I am proffering documentary evidence which was not written without prejudice, in answer to their plea of that kind and in answer to the amendment which was granted this morning in which they

pleaded that by reason of the plaintiff's laches, acquiescence and delay, the defendant and his predecessors acquired a prescriptive right to an easement over the lands and buildings. Now, facing that plea I do not think I would be doing my duty if I left the Court in ignorance of what occurred in 1940, 1941, 1942-3-4, as though we had sought to be —

10 HIS LORDSHIP: Mr. Slaght, I do not need to hear you any further unless Mr. Keogh has something further to add. I do not see how after having pleaded acquiescence that you can object to evidence being given that they were not acquiescing and it being put in writing that they were not acquiescing.

MR. KEOGH: Well, I would agree with that, my lord, subject to one thing, that, in the agreement, which is not yet before the Court and which my friend referred to this morning, the release, without any admission of liability, Mr. Walker was paid a sum of money for all the alleged damages, which were not admitted up to the end of 1941.

MR. SLAGHT: 1944 maybe.

20 MR. KEOGH: Excuse me, I am talking about the release, and then a separate document and agreement, as my friend correctly referred to this morning, was entered into, also without any admission of liability, in which it was stated that he was paid \$600 a year for an easement for the next three years, and every one of those amounts were paid and acknowledged in each of those documents, and this it seems to me in effect is getting in evidence of damages which were settled and released and compromised.

30 HIS LORDSHIP: Oh, well, I could not make that use of it at all. But, Mr. Keogh, even though that money may have been paid to the plaintiff without admission of liability, that is surely evidence that the plaintiff was not acquiescent. It is quite true it is not evidence that there was any liability, neither is it to be used for the purpose of establishing liability in this case. It cannot be applied for that purpose, but the very fact that he was paid money under those terms is evidence that he was not acquiescent, otherwise it puts the plaintiff in a very unfair position, that he is paid money without an admission of liability and therefore his mouth is closed for all time from saying that he did not acquiesce.

MR. KEOGH: He made a bargain when he got the money that it would not be considered as an admission of liability.

40 HIS LORDSHIP: Oh, yes, quite so. It is not tendered for that purpose and it is not being received for that purpose. It is not being received for the purpose of establishing liability at all, but it is tendered for the purpose of showing that he was not acquiescent and that no prescriptive rights were running.

MR. KEOGH: Well, I just mention this point and then I am through. I would have thought that those agreements, having been entered into expressly saying that they were not evidence

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of an admission of liability, that any correspondence leading up to that could not be looked at for any purpose in this case. That is my point.

HIS LORDSHIP: Oh, I do not think so.

MR. SLAGHT: I confirm your lordship's suggestion that they are not being tendered as proof of liability by these defendants to us, because they contain clauses protecting them from such admission; but I do put them forward in answer to the plea of acquiescence, laches and delay, to establish that they are accepted and believed as showing that not only were we not acquiescing and guilty of laches and delay, but we were very alert to the infringement of our rights. We asserted our rights. We were paid money as a compromise, and that is the view I put it in for and for that only.

HIS LORDSHIP: I am receiving them as evidence in the case and the application of them will be subject to argument later on. At the present time the only value that I can see is that they tend to show that the plaintiff was not acquiescent.

MR. SLAGHT: Thank you, my lord, and I ease my friend's mind by saying that I do not propose at any later stage to argue any other purpose that this evidence would serve in my behalf.

Q. Then, Mr. Walker, my friend has been good enough to hand me your first letter from Walker & Sons, signed by you, to the defendants, dated November 24th, 1941, which will be Exhibit No. 5.

—EXHIBIT No. 5: Letter from W. W. Walker & Sons to McKinnon Industries Limited, dated November 24, 1941.

MR. SLAGHT: It reads, my lord:

“Referring our conversation ten days or more ago. With regards to smoke-oil smudge and refuse from your plant causing damage to our production at the greenhouses.

“We thank you for the prompt attention in sending your Engineer Mr. Edwards over, but to date we have not heard either from him or yourself. He will recall the condition of some of the stock in our greenhouses. On inspection this week we find that we are again filled up with coke-breeze, and other dirt, and must ask that immediate attention be given to remedy this.

“Thru this nuisance we have lost over 60% production in the upper house, add to this our outside loss, this year and diminished production thru-out the greenhouses, this is running into many hundreds of dollars and is a serious threat. But we will take this loss up direct with you after the remedy has been found. In the meantime this loss keeps piling up. Your urgent attention is requested.”

Then, the reply to that, we have Exhibit No. 6, McKinnon Industries Limited, from William A. Wecker, dated November 26, 1941.

—EXHIBIT No. 6: Letter from McKinnon Industries Limited to W. W. Walker, dated November 26, 1941.

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MR. SLAGHT: It reads:

“Dear Mr. Walker,

“We have for acknowledgment your letter with refer-
“ence to your claim that your property is suffering damage
“as the result of operations at our plant.

10 “Since you spoke to the writer concerning it, the matter
“has been having our best attention. You will appreciate
“that it is essential that we first determine whether or not
“the damage of which you complain is actually the result of
“our operations.

“We will require probably an additional week or ten
“days within which to complete our preliminary investigation
“and you may be assured that, as soon as this has been done,
“we will be in communication with you.”

20 Then the next exhibit will be No. 7. Will you let me have a letter
from the defendant dated January 6, 1942. I need not read it all,
my lord. (Letter produced.) It is signed by Mr. Walker. This
is your signature? A. Correct.

—EXHIBIT No. 7: Letter from W. W. Walker & Sons to Mc-
Kinnon Industries Limited, dated January 6, 1942.

30 MR. SLAGHT: “Below I have itemized the losses we have
“sustained through the smoke oil smudge, and coke nuisance
“coming from your factory and about which we have already
“had correspondence, and investigations. In arriving at the
“loss have used wholesale cost of stock and have made no
“mention of the purchases that had to be made to replace the
“flowers damaged thru the nuisance mentioned above. I shall
“be glad to discuss with you any point on the estimate of
“this loss.

“The loss is divided as follows: . . .”

Then I am not going to read that, my lord. The items he puts in
total \$1228.50.

“Undoubtedly this does not cover all, and we are not sure to
“what extent this has been remedied by yourselves as shortly
“we will have to open vents to air flowers. It is when this is
“done that a great deal of the damage occurs with the coke
“breeze etc. coming right down on the flowers.”

40 Q. Then, at some later date than that letter apparently you
executed between you an agreement, which I show you in the form
of a release from you to the defendants and signed by yourself.
Is that right? A. That is right.

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Q. William Wallace Walker. The date is the 2nd of January, 1942, and it is witnessed.

—EXHIBIT No. 8: Agreement dated 2nd January, 1942, between W. W. Walker & Sons and McKinnon Industries Limited.

HIS LORDSHIP: Did you say the 2nd of January, 1942?

MR. SLAGHT: Yes, my lord, because we were putting forward a claim in the end of 1941.

HIS LORDSHIP: The last letter was dated the 6th of January, 1942.

MR. SLAGHT: Yes. It is just explained that, while it is dated back to January, 1942, it was not exactly — for a little while afterwards lawyers and yourself were rigging it up. That is how come your letter is dated after the date on the agreement. Is that correct? A. Correct.

20

Q. Now then, in this — I am not going to read it all, there are certain recitals — I don't think I will read — and it recites that Walker alleges that his premises and stock of flowers and other crops have been damaged as a result of our operations — which goes to show our lack of laches and our alertness, — and then he claims that the McKinnons are liable and McKinnons have expressly denied its liability and Walker, for the purpose of avoiding litigation, has agreed to compromise his claim in respect of all injury.

30

“NOW THEREFORE WITNESSETH that for and in
“consideration of the sum of Twelve Hundred and Twenty-
“five Dollars of lawful money of Canada to the said William
“Wallace Walker, paid by the said The McKinnon Industries
“Limited, the receipt whereof by him is hereby acknowl-
“edged he, the said William Wallace Walker, for himself, his
“heirs, executors, administrators, successors and assigns
“hereby fully forever releases, acquits and discharges the
“said The McKinnon Industries Limited, its successors and
“assigns of and from any and all actions, causes of action,
“claims and demands whatsoever which against the said The
“McKinnon Industries Limited the said William Wallace
“Walker ever had, now has or which his heirs, executors, ad-
“ministrators or assigns, or any of them hereafter can, shall
“or may have for or by reason of any cause, matter or thing
“whatsoever existing up to the present time; and without
“limiting the generality of the foregoing particularly by rea-
“son of the emission from and discharge over, along and upon
“any of the premises and/or property of the said William
“Wallace Walker of any smoke, oil smudge, ash, gasses and
“other substances whatsoever and/or by reason of any nuis-
“ance or alleged nuisance to the said William Wallace Walker
“his lands, premises, chattels and effects occasioned or

40

“claimed to have been occasioned by the operations of the said
“The McKinnon Industries Limited.

“It is expressly understood and agreed by the said William
“Wallace Walker that the acceptance of the hereinbefore
“mentioned sum is in full accord and satisfaction of a dis-
“puted claim and that the payment of the said amount by
“the said McKinnon Industries Limited is not and shall not
“be construed as an admission of its liability to the said Wil-
“liam Wallace Walker or as an admission that any of its
“operations constitute a nuisance to him or neighbouring
“occupiers or property owners.”

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“It is further expressly understood and agreed that this
“release and settlement is intended to cover and does cover
“not only now known injuries, losses and damages, but any
“future injuries, losses and damages not known or antici-
“pated but which may later be developed or be discovered as
“the result of any and all matters existing up to and includ-
“ing the 1st day of January, 1942.

20

“It is further expressly understood and agreed that this
“release and settlement shall extend to and be binding upon
“the said William Wallace Walker in his individual capacity
“and in his capacity as the sole proprietor of the business
“carried on by him under the firm name and style of W. W.
“Walker & Sons.

“IN WITNESS WHEREOF the said William Wallace
“Walker has hereunto set his hand and seal as of the 2nd
“day of January, A.D., 1942.”

And did they pay you the money under this? A. They did.

30

Q. When you got it closed out between the lawyers?

A. Correct.

Q. Then there is a clause in here which, in fairness to my
friend, I should call attention to. I indicated it in my opening —

MR. KEOGH: It is on page 3, Mr. Slaght, the second from
the top.

MR. SLAGHT: Yes, about the middle of page 3.

“It is further expressly understood and agreed that this
“release and settlement —”

MR. KEOGH: No, just above that.

40

MR. SLAGHT: “It is expressly understood and agreed by
“the said William Wallace Walker that the acceptance of the
“hereinbefore mentioned sum is in full accord and satisfac-
“tion of a disputed claim and that the payment of the said
“amount by the said McKinnon Industries Limited is not
“and shall not be construed as an admission of its liability to
“the said William Wallace Walker or as an admission that
“any of its operations constitute a nuisance to him or neigh-
“bouring occupiers or property owners.”

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I don't know why they ran in the neighbours, but they did. That will be Exhibit No. 8.

Q. Now, they settled with you up to the 1st of January, 1942, and, tell me, just in a word, whether you also settled with these people for damage you claimed they caused you in the years 1942-3-4, and up to the date of the 31st December, 1944? A. I did.

Q. And is this the agreement that was entered into, dated the 1st of January, 1942, but doubtless signed up later, which covered those three years? Signed by you and the company under their seal? A. That is right.

—EXHIBIT No. 9: Agreement between W. W. Walker & Sons and McKinnon Industries Limited, dated 1st January, 1942.

Q. And under this agreement did they pay you all the moneys they agreed to pay you for these three years? A. The war was on then and things were very uncertain. I knew they were in war production and taking it up with my lawyer at that time, we thought that we had better concede along the lines that we might get better consideration, that, when once the war was over, but we could not expect more at that time.

Q. In other words, did they pay you the amounts set out there? A. They did, right up to date, absolutely.

HIS LORDSHIP: And that is up to December 31st, 1944? A. Three years, yes.

MR. SLAGHT: That is right, that is the date as it appears by the agreement and there is a similar clause, I do not say the exact language, whereby they protect themselves by not admitting liability to you as they did in the earlier release you gave them. Is that correct? A. My memory is not absolute, but I believe that is so.

Q. Well, it is in there, so we will make that clear. Now then, when we come into 1945 it was, — if I may say one word — it was with the understanding that they would do all they could in the meantime to stop all these here damages going on. Who did you confer with? A. Mr. Wecker at that time.

Q. You and him? A. Yes.

MR. KEOGH: I object to that statement. There is no such provision in either Exhibit 8 or 9 and that violates the parole evidence rule that there was anything suggested or alleged at that time.

MR. SLAGHT: Well, it is quite true that there is nothing in either of the exhibits about abating the trouble, but there is a letter in, signed by Mr. Wecker, where he says: "We will do everything possible to investigate the matter and if we find we are at fault —"

HIS LORDSHIP: Well, we will not argue the effect, just the documents. They are in. I thought Mr. Keogh's objection was well

taken, that evidence cannot be given now of any supplementary understanding that was entered into at the time that this agreement, Exhibit No. 9, was executed.

MR. SLAGHT: That being your lordship's view, I will ask that that question and answer may be stricken out of the record or treated as no part of the record.

HIS LORDSHIP: We do not strike that out of the record. There is no jury.

10 MR. SLAGHT: No. Well, my lord, I acquiesce and I rely on that.

Q. Then, in 1945, how did you find the trouble? Did it abate? A. The trouble was getting worse all the time from 1945 on, both as to —

Q. Well, did you have a Mr. Collier, who was acting for you then? A. Schiller & Collier. Schiller was the man who was acting for me. They were known as Schiller & Collier.

Q. And let me ask you, did you have any meetings with the defendant company or any representative, you and your lawyer? A. The late Senator Bench, who was acting at that time for the
20 McKinnon Industries, met my lawyer and myself in his own office along with Mr. Cook, the present manager.

Q. Who is in Court, is he, to-day? A. Quite, sir.

Q. And those meetings did not result in any peaceful adjustment of the difference? A. They did not.

HIS LORDSHIP: Mr. Slaght, will you just pause for a moment till I read this last exhibit?

MR. SLAGHT: Yes, my lord.

HIS LORDSHIP: Very well.

MR. SLAGHT: Thank you, my lord.

30 Q. Then, Mr. Keogh, will you let me have our letter to you of September 7th, 1945? Mr. Walker, you spoke of the war with Germany being on when you took those smaller amounts for those three years and did not litigate. The war with Germany ended, I understood, in May of 1945. Is that your recollection? A. That is right.

Q. And so by September, 1945, did you write this letter; a letter from Collier & Schiller, or did you cause this to be written to the McKinnon Industries and a copy sent to Mr. Bench, of Mr. Keogh's firm? A. I gave the instructions.

40 —EXHIBIT No. 10: Letter dated September 7, 1945, from Collier & Schiller to McKinnon Industries Limited.

MR. SLAGHT: And it reads thus, my lord:

"As we told Mr. Cook over the telephone the day before
"yesterday, we intend to issue a writ for damages and in-
"junction. We could not effectively claim an injunction dur-
"ing the war period, but now that the war is over there is
"no reason why we could not get an injunction.

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"We regret the fact very much, and this letter is written
"for that purpose, that although we have co-operated to every
"extent with you, you did not co-operate in the last week
"when it was arranged that your Mr. Cook and your counsel
"would meet either at our office or at your office to inspect
"some photographs we have showing the damage done, in fact
"we had no word from your office whatever.

"Therefore there is nothing else to do but to proceed by
"way of lawsuit, and we will have to abide by the Judge's
"report."

10

Now, as to the general question. It appears through the corres-
pondence that you have been or you were putting forward claims
from 1941. You were settled with up to the end of 1944. Had you
in 1945, prior to writing that letter, acquiesced in any way in
their continuing to injure you after the 1st of January, 1945?

A. Would you clarify that wording?

Q. Did you consent to it or submit to it willingly? A. No.

Q. Or tell them that they could go on injuring you without
being at their peril? A. No.

20

Q. Then, that is what acquiesce means, in one sense. Now
then, I want to show you a copy of Mr. Ure's plan, Exhibit 1,
which contains some other detail written on it, the names of some
of the neighbours around there, and I ask you whether you have
examined this copy which, my lord, is an exact copy of yours, Ex-
hibit No. 1, but which has names of neighbouring occupiers of
homes in the vicinity written on. Is this correct? A. That is
correct.

30

Q. And if I may, my lord, if my friend wants to in any
way dispute the fact that these are the neighbours, but it will
make it much clearer for the Court evidence, I am now going to
adduce evidence as to surrounding damage.

—EXHIBIT No. 11: Copy of plan, Exhibit No. 1.

Q. Now, I want to ask you — we will do this as speedily as
we can, Mr. Walker, — first, I think I will put in, looking at this
map Exhibit 11, — I want you to tell me what you can from your
own knowledge of a visit to these surrounding properties, as to
whether or not injuries appeared on them of a character similar
to the injuries to your plants and flowers.

40

MR. KEOGH: Now, my lord, before my friend goes into
that, I must register my objection. There are so many different
things that can cause injury to plants and flowers but, unless there
was proof that conditions on the surrounding properties as to soil,
fertilization and strength of plants, and so on, were exactly the
same as on Mr. Walker's property, I submit the evidence would
have no weight. In other words, this is evidence of other occasions,
or of other similar facts which probably does not come within the
requirements of that rule, I submit.

HIS LORDSHIP: Well, Mr. Keogh, if evidence was given that some of Walker's plants were injured and that the plants of none of the other neighbours were injured, that would be relevant, wouldn't it?

MR. KEOGH: Yes, I believe it would be.

HIS LORDSHIP: Well, then, would the converse not be true, to show that the same sort of injury was prevalent in the immediately contiguous property, — in properties that were contiguous to Mr. Walker?

10 MR. KEOGH: Well, at first blush that sounds very probable, saying the converse, but there may be so many other conditions, if it were possible.

HIS LORDSHIP: Oh, there may be, but it is not a ground for rejecting the evidence. It is a ground for weighing it. Oh, we do not reject it because there may be reasons why you should not give it any value.

20 MR. KEOGH: Well, take, for instance, Mr. Chichekian (just selecting a name at random) we will have a trial within a trial as to whether the condition on Mr. Chichekian's flowers and soil and conditions and watering and so on, and fertilization and so on, are exactly the same.

HIS LORDSHIP: I am afraid that is a thing I cannot control. I would have thought in argument it would have been a matter of comment and if there had been evidence that Mr. Walker's plants suffered and no evidence that any other plants in the neighbourhood suffered, it may be that in reply or on your cross-examination you will have to develop aspects that will show that it ought not to be given any weight, but its admissibility is not determined on that ground.

30 MR. KEOGH: There is the smaller question of surprise. No claim has been made against us by any of these 16 or 18 individuals either in this action or any other. We did not come prepared to meet a third party saying what damage is done in somebody else's back yard.

HIS LORDSHIP: I suppose on examination for discovery you could have ascertained whether he had any evidence that any other person in his neighbourhood suffered in the same way. Oh' I think the evidence is admissible, Mr. Keogh; I cannot reject it, but what weight it will be given, that is a different story.

40 MR. SLAGHT: Q. Now, will you look first, Mr. Walker, at the property owned by Mr. — these gentlemen all seem to have foreign names. A. They are most Armenians and their names mostly end with "ian."

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Q. Well, take Mr. Boyagian. Where is he? A. He is the corner of Manchester Avenue and Garden Place.

Q. Where is Boyagian there? A. He is here where all the peach trees are.

Q. On Exhibit 11, over to the right. Joseph Boyagian? A. I don't know the first name.

Q. Oh, yes, I see Boyagian. A. On Manchester Avenue.

Q. Apparently on the corner of Manchester and Garden Place? A. Correct.

Q. And what are those hieroglyphics on there? Has he got peach trees there? A. He had a large number of peach trees there which grew very good and produced a real peach tree, the equal of any that was cultivated on any of your fruit belts, until the operations at the present time of the cupola system started.

Q. Now then, had you been over there, yourself, to see these well-grown peach trees? A. Many, many times.

Q. What do you say as to whether the soil they were grown on was or was not generally similar to the soil on your place? A. It was identically the same. It had to be for those peach trees that sort of growth.

20

Q. Oh, trouble ensued there, — and did you physically see the trouble? A. I seen that from the time they first started; they gradually started to go down; at present they are —

Q. And what do you say as to whether or not — A. Lying in the direct draught from the cupola chimneys, they suffered from the gas, oils, and other things that took place.

Q. It appears from this map, if I am correct — A. That would be southeast; coming from the southwest direction.

30

Q. Yes, you are right. That would be southeast. A. Or blowing — a southwest wind would take them, which is the prevailing wind.

Q. Which would pass over your place from the cupolas — would they pass over the Boyagian place likely? A. Correct.

Q. And do you know of any other source of trouble which might have caused the damage to his peach trees? A. Not one thing.

Q. Other than the fumes that injured you? A. No, previous to the starting of the cupola system. If it hadn't, they would have kept their trees.

40

Q. Take Caleb Steeves' property. A. Caleb Steeves' property is right here. His house is over here.

Q. Well, it is marked "M. Ciurhiuni, formerly Caleb Steeves." Was that formerly Caleb Steeves? A. Caleb Steeves lived there and built it up for 25 years.

Q. And did you see his property? A. Quite often.

Q. That seems to be almost adjoining your large greenhouse, No. 7. A. My line fence is the west side of his property.

Q. So he is right adjoining you? A. Yes.

Q. And to the east and south of Manchester? A. That is right.

Q. Now, what did he have there, that you saw? A. He had a very fine vegetable garden and also a number of trees and one or two ornamental — what will I say, ornamental nuts; they were these Japanese nuts, or something, and they have gone now, except one or two.

Q. What kind of trees did he have? A. Plums and peaches and pears and fruit trees.

Q. Now, did you see those in the time of prosperity? A. I did.

Q. And did you see them later when there was trouble? A. I seen them until the end he dug them out, because I only had to look over the fence, that was all.

Q. Well, what was the appearance of them? What had happened to them? A. Well, the first effects began to take place during — the trees began to turn yellow and, the following year would show more yellow and the following year was done for.

Q. Dead? A. Dead.

Q. And what was the soil that he had, on Steeves' place, comparable to the soil on your place? A. There is no difference only between one fence and the other.

Q. Then, the next is John Krekorian. Where is he? A. John Krekorian is up at the corner of Garden Place.

Q. He is on the corner of Garden Place and Carlton Street?

A. Yes, that is right.

Q. What are those clusters that look like trees on his place? A. Those are apricots, pears and peaches, — what is left of them.

Q. What is the history of those? A. He had a very fine vegetable garden there also and used to have some very fine stuff. They proved it. He had a very fine type of corn.

Q. How did the corn fare with the trouble? A. Just the same. He took a pride in it.

Q. And what was the story? A. The story was as soon as the cupolas were moved and put up, they began to gradually go back until now there is hardly anything there and he has given up altogether, and also you can go down and see the wall and there is big cracks in it from the vibration.

Q. And Mr. Matosian. Where is that? A. Right opposite the forge shop on Ontario Street.

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Q. Then we go over, my lord, to the edge, it is the fourth from Manchester down, and it fronts on Ontario Street apparently and is pretty close to the forge shop. A. Right directly in front.

Q. Had you been familiar with him? A. I lived there 15, 16 years.

Q. Well, then, has Matosian lived there for some years past?
A. Matosian is one of the first men that bought in there.

Q. Has he left there now? A. Yes, he left there.

Q. And have you been over to his place? A. I have been over to his place many times.

Q. What did he raise? A. He had a very fine vegetable garden and also a number of trees, among which was some of the finest apricot trees that I have seen.

Q. Did he grow any flowers? A. His wife is very much enthused in flowers.

Q. I mean, he grew flowers? A. Yes, flower beds all over the place, and the same old story.

20 Q. What was the story with regard to that? A. I think that was one of the first places we began to notice a bad effect on the trees. The apricot, as you know, comes out first in the spring-time and apparently the first year that these cupolas hit that, they hit it very hard, and the leaves turned a pure yellow. The next year they were a little smaller and they had begun to gradually go away; some have died and others, I expect this year, will possibly go out.

30 Q. Now, take his home, his house; have you noticed any damage done to that? A. His house, some mornings, from the bunker oil coming from the forge shop, is worse than a steamship sailing in battle array, as they say, — a smoke screen, very dense. It is entirely black some days. It has become so bad that he cannot even sleep without closing the windows.

Q. And then, what about any damage in there from vibration? A. I was in there just a short time ago previous to that and he told me —

Q. No, leave out anything he told you. What you saw yourself. A. I was in there, and I seen where they had just gone over and replastered the house, redecorated it, and already there are signs of cracks in that from the vibrations.

40 Q. And do I understand that Mr. Cook was over there, too, to view that with you? A. Not with me.

Q. Then, don't tell us about it if it is something you learned. And the next, I think, is Mr. Zampegian. A. Yes, he is the one.

Q. Zampegian, where is his place? A. His house is right directly the same as Matosian's only south.

Q. Fronts on Ontario Street and would be even a little closer to the forge shop than Matosian? A. Yes, a little less.

Q. And what do you know, actually yourself, about conditions there? A. He had a very fine outside garden. In fact I might just say every one of these Armenians are very, very fond of their gardens, and he also had a number of fruit trees. Some have gone. I have seen rhubarb that has been hit so hard in 24 hours it turned yellow. He also had a number of fruit trees. Some are dead and others are almost all dead.

10 Q. How does his soil and that of Matosian compare with yours? A. They are both right along side each other. I would say they are similar.

Q. Then, to the north we have S. Malkonian. A. He is in the line of small farms, up in here.

Q. Oh, we go up above Manchester Avenue, further away? A. Down on Ontario Street.

Q. Fronting on Ontario Street and we get up there and it is shown the second from the bottom, S. Malkonian marked "fruit farm." Has he a fruit farm? A. He has, yes, and the first one
20 has a larger fruit farm.

Q. S. Minosian. Well, then, speaking of Malkonian and Minosian, insofar as there is any similarity, are you personally familiar with their production there? A. Ever since they came there.

Q. And what do you say was the story of their property? A. Their story is this here, that, when the wind blows, we will say a little more north, that is a south, almost a south, bearing a little on the west, wind, they get then the brunt of the gases that are coming over. I have seen their apricot trees and we have pictures of them there, with these here colours showing, that they
30 have been damaged so heavily that the entire crops have been lost. I have seen Mrs. Matosian's flower bed just burned over the whole thing, and that has continued away back to the back concession, which is half a mile back, when the wind is blowing that way.

Q. That damage evidences itself as far back as that? A. As far as five-eighths of a mile.

Q. Do you know of anything about any of those which I have asked you about which you suggest could cause this damage, other than the McKinnon fumes? A. I would like to recite one
40 more.

Q. You would like to recite one more. Who is that? A. Torozian.

Q. Yes, I see now. Torozian. He is up there, the third from the top on this plan, the second below the Lincoln County Industrial Home? A. That is right.

Q. Now, Torozian, has he got a fruit farm there. A. Torozian has about 22 acres there.

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Q. What does he grow? A. His land extends right from Ontario Street, clean through to the other concession. He has on that place, I would say — I didn't count them — but I am pretty sure approximately 50 of the finest apricot trees ever known in the Niagara district.

Q. He has them there now? A. He has them there now.

Q. 50 of the finest? A. Yes.

Q. Are they the finest now? A. No, they are not now. He had 50, if I may change that.

Q. And what has happened to his trees? A. Last year the gas hit him so bad that I find that the flowers are coming out and that they are — well, I wouldn't just guess, but I believe they will pick less than 100 baskets of apricots.

MR. KEOGH: Well, do you know, yourself? Don't guess, or believe.

MR. SLAGHT: Just tell us yourself. Just tell us whether you saw the injury to the trees themselves, or — A. I can tell you these trees averaged 15 baskets to the tree.

20

Q. No. If you don't know that, you cannot tell us. Stick to what you know. A. I have seen these here trees, and I say there is 85% loss as regards the crop.

Q. Well, never mind, if you were not there. Just one more, which I have, No. 9, southeast from your place, and on the south side of Pleasant Avenue, next to the park and sports grounds. Go down to that property. Southeast — about where is Pleasant Avenue? A. Here.

Q. That is down, my lord, in the lower part of the map. A. A line of trees there mark it out.

30

Q. South of Pleasant Avenue I see a bunch of trees there marked "poplar trees." Is that right? A. That is right.

Q. Was there a row of poplar trees there, and what do you know about them? A. There was a row of poplar trees there which grew, I would say, for 15 or 16 years and attained an average diameter of 18 to 20 inches.

Q. Who cared for them? A. The Parks Superintendent, Bert Green.

Q. They were city property, were they? A. They were city property.

40

Q. At least, cared for by the city caretaker? A. That is right.

Q. And what has happened to them, if anything? A. After the cupolas were erected and the gas started to come over, these trees gradually began to go back, and the first few years they showed a withered appearance, yellow, and the next year they would be worse until they got in such a bad state that I believe it was last year they cut them all down with the exception of five other varieties, which is a little hardier.

Q. Did you see these trees that you have mentioned? A. I seen them almost every day, because I go that way.

Q. And did you see the stumps? A. I saw the stumps and counted them.

Q. And, can you say whether or not, compared to trees being on the fruit soil they had or had not deteriorated? A. They had not deteriorated at all. They were going along.

Q. You did not catch my question very well. Before they were cut down, can you tell whether they had deteriorated or not?
10 A. Oh, yes, they reached a point where you would think fire had gone through them and all the limbs was dead.

Q. And what would be the character of the soil there, comparable to your ground? A. The soil was exceptionally good, as was proved by the trees which had been there until a short time ago.

Q. Now, I want you to tell me something about your own property and first we will go outside your greenhouses. I think you told us earlier that apart from your greenhouse space, you have got beds and plots and ground which you utilize for growth
20 outside? A. Outside we have one place what we call the cloth house.

Q. Now, I think you can look at No. 1, the plan, for this.
A. The cloth house lies east of No. 7, the big greenhouse.

Q. All right. We will continue looking at Exhibit No. 11, it shows an area which is south of No. 1 greenhouse on this plan. That area fronts apparently on Carlton Street, does it? A. That is correct.

Q. And what do you use that for? A. We used that there for growing early bulbs and later on —
30

Q. Of what plants? A. Mostly tulips and daffodils.

HIS LORDSHIP: Is that under glass? A. No, that is open. It is open to the air but very well drained beds.

Q. What are you referring to? A. Right under No. 1, your lordship. It is that piece there.

Q. Oh, yes.

MR. SLAGHT: Is it any better on Exhibit 1 than on Exhibit 11? I think it is, some. Then, using that plot in that way, did you or not in the earlier days find it satisfactory for growth? A. Very much so. We prepared that plot there under drainage and run the
40 soil high, so as to have it there. We also, in that land lying east, we underdrained it very, very close, in order to have it collect a good deal of water. We also, at that place, put up a large cement holding cistern for furnishing us water for the growing of orchids.

Q. When, if at all, did you begin to notice deterioration in your growth on that plot? A. Shortly after the cupolas were installed.

Q. And did it get better or worse? A. Worse.

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Q. And take in 1945, one of the years we claim for, what do you say, if anything, as to whether any damage occurred to the bulbs on that plot in that year? A. That year, 1945, we had daffodils and tulips planted in the principal plot and south of No. 1 greenhouse.

Q. When did you expect them to come into bloom? A. We expected we would be able to cut them there for Mother's Day, that is along about the 1st of May.

Q. Of what year? A. We planted the year before and we expected them — you plant your bulbs before for the next year. They remain in there all winter.

Q. And did your blooms come along as you hoped for? A. The leaves came up, but there was very, very few blooms, and they were imperfect blooms.

Q. And what do you say was the cause of that? A. The cause of that, that I would say was the iron and other deposits that went on to the leaves.

Q. Where did it come from? A. That came from the McKinnon Industries.

20 Q. Have you seen the fumes — well, I am going to your diary on that so we won't ask the general questions now. Then, did you examine the leaves of those to see whether there was any iron or any substances lodged on the leaves? A. Yes. There was quite a bit of substance lodged on the leaves that washed down into the ground, and the bulb, and the following year there was just a few leaves came up and no flowers and the year after, they were gone.

30 Q. Now, you left them in the second year? A. Yes. We had prepared this here bed with good drainage and everything to go on for three years.

Q. Would you have proper plant production by preparing the bed, putting them in and expecting something next year and expecting to get something the next year? A. Yes.

Q. All right. You have told us about the second year. What about the third year? A. The third year there was hardly a thing that showed any signs of coming up whatever.

Q. Then, 1948, that is the spring, what was the situation there? A. We had no bulbs in that section because we knew from experience we could not plant bulbs out there.

40 Q. Oh, I see. Then, what about the gladiolii? You have spoken something about tulips. I won't go into that just now. Oh, hold on. Yes. Where did you get your gladiolii plants? A. The gladiolii were bought exclusively from James Platt, who, I believe — the foundation of those gladiolii was Mr. Palmer, at Vineland. They were very fine, not even just selected No. 1, but selected No. 1, the biggest we could get.

Q. Were they outside bulbs? A. They were outside bulbs, and properly treated. We had a few also from Baron, of Fonthill.

Q. This ground you had there, did you have any tests made of it by the Agricultural College? A. We sent soil up to the Agricultural College, and they told us —

Q. Never mind what they told you. Did they come down? A. They did not.

Q. Then, we cannot take that evidence. Shrubs — anything about shrubs in that same area? A. At one time we had a number of shrubs. We used to import very heavy and put our shrubs up there and sell them in the springtime but it got so bad —

Q. What type of shrubs would they be? A. We had lilacs, and we had weigalia and we had snowballs and usually a batch of ornamental shrubs.

Q. And did they flourish at first? A. Not after the cupolas were installed.

Q. But prior to that did they thrive? A. Very much so.

Q. And what did you sell them for? A. We used to sell some of the finer varieties up to 75c and up to \$2.

20 Q. Was that a good price for shrubs? A. That was, comparing along with the nurseries and the quality.

Q. Then, in later years, after the cupolas were put up, did these shrubs show any bad effects? A. The shrubs showed so bad in such a short time—by that I mean, when we got our shrubs, we put them out in the ground. They were there possibly ten weeks and they began to get so bad from the fumes coming over that way, that we discontinued that.

Q. All right. Now I want you to take the sections east of No. 4 and No. 6 greenhouses. There is a section of an outdoor area there, east of 6 and 4? A. That is right.

Q. That is quite a large section? A. Yes; 30 lots we bought in there.

Q. Has the word “grapes” on there? A. This peach tree was destroyed; one special peach tree.

Q. Well, to identify it on this Exhibit No. 11, I find the word “grapes” printed on there? A. Oh, that is grapes, yes.

Q. I am identifying the plot. Is that the plot you are speaking about now? A. That is the plot, yes. Just one moment. We are wrong here. This is the one you want, here. That will be —

40 HIS LORDSHIP: You are still twisted, Mr. Slight. “Grapes” is west of No. 2.

MR. SLAGHT: Yes. Let us withdraw that. Take this plot east of 4 and 6. What is printed on that? A. “W. Walker & Sons, florists” and then “cold frames,” up in the corner.

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Q. Now, what can you tell me about that section about growing any pansies there? Take the cold frames first. A. We had the cold frames show all that and, at that time, we grew about 60 sash of fancy pansies at that time produced in Canada.

Q. What did you get for them? A. At that time we got \$1 a dozen, which was a high price for the pansy.

Q. For the pansy plants, not flowers? A. No, pansy plants.

Q. Was that a good price? A. That was a good price at that time.

Q. How many years success did you have with those?
A. 20 years.

Q. And then what happened, and when? A. The accumulation coming over, of iron and other substances on the glass was so heavy at that time, the glass became almost black and when we had occasion, as we must, to raise our sash up to let in fresh air, then, we would get gases and other stuff directly on the pansies.

Q. With what result? A. With the results that we lost them.

20

Q. And were you able to continue using that ground for pansy plants? A. We used that ground once after for bulbs and being prepared the same as No. 1, we were not able to carry on and we just discontinued.

Q. What is the practice in growing pansy plants? Is it or is not desirable to raise the frames on sunny days so as to get the air in? A. Get fresh air in.

30

Q. Is that the proper practice in growing pansy plants? My friend may complain. You do not keep the lids down. But can you keep the lids down tight and cultivate them properly in a proper manner? A. If you keep the lids down tight you could not produce in a proper manner. You have to open them to grow the plant.

Q. And after you got rid of them, did you replace them with anything else? A. We had in that section produced a very heavy plant of Jerusalem cherries. We have had as high as 6,000 Jerusalem cherries in there but, owing to the fact of the gas and that on the cherries, which is very susceptible, we had to discontinue that and went into carnation plants, along with delphiniums.

40

Q. Now, when you say so many thousand Jerusalem cherries, you don't mean Jerusalem cherries — you mean plants?
A. I mean the plant. We sold them all over Canada; shipped them all over.

Q. Then, go on with the carnations. You said carnations?
A. Then we put carnations in that section; also alongside the section down by the cloth house we grew from ten to twelve thousand carnations every year and always disposed of them. A small place in there I may say we grew delphiniums there, a perennial,

and by having good drainage there and proper care, and covering them with soil and a covering of straw, which carries them through the winter, we were able to carry these here beds for four or five years, but since the gas began to come over, why, we lost them.

Q. I believe you secured a plot of farm land about a mile north of your place when you were in trouble, did you? A. I had two of them.

10 Q. And what did you plant up there? A. We planted carnations, and they done very well.

Q. Now, would that be open planting? You didn't build a greenhouse? A. Just the same as before.

Q. Did you buy that farm land, or rent it? A. No, we rented.

Q. And what did you grow up there? A. We grew carnations there, and here we planted carnations and they are thriving very good.

Q. Well, wait. You say "here" and "there." Where do you mean "there"? A. That is on the farm on Ontario Street.

20 Q. Now, you left a few of them down on your old place, planting the larger quantity up on the rented farm? A. Correct.

Q. What happened to the ones down on your own place there? A. Down at our own place, whenever we would get a bad burn, it would set the carnation plants back and we would have a poor crop, so that eventually in the fall we had a very weak plant.

Q. Can you tell me, comparable to the same streak — you grew good plants on the rented farm more than a mile away from you; what was the type of plant produced on your own place?

30 A. Very, very poor, except last year.

Q. Well, tell us about last year, 1948? A. Last year, oh, boy, was that ever a God-send to us.

Q. What do you mean "a God-send to you"? A. I mean the period when the General Motors closed down.

Q. You don't mean General Motors, you mean the McKinnon? A. Yes, I mean the McKinnon Industries.

Q. Why did they close last year? A. The strike.

Q. That strike began when? A. July 16th.

Q. And continued for something over 100 days, did it not?

40 A. Till shortly after the 1st of November.

Q. The 2nd of November is suggested by our friends. Well, in and during that strike, did they operate the cupolas and the forge house? A. They did not.

Q. Did you notice any difference in the cessation of fumes and smoke and gas over your place? A. We cut \$501 more of flowers and sweetpeas off the cloth houses. We also —

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Q. More than what? A. More than the previous years.

Q. Now, in previous years you might have planted more, did you or not? A. We did not. We had the same benches, alternating the sweetpeas, and then chrysanthemums, putting one on the other.

Q. That is perhaps why you rejoiced at your place. At least, during the strike, you were in a rejoicing moment? A. We were able to — there we had planted two thousand — a lot of carnation plants. Those carnation plants grew so well that we were able to ship them off there before we were able to ship the stuff off the farm. We had a couple of rows of Jerusalem cherry trees, and notwithstanding that these here had suffered a bad burn —

Q. Now, wait. You are going too fast. Prior to the shut-down for the strike, the Jerusalem cherry trees had had one bad burn. Is that correct? A. All that section.

20

Q. Then because of the strike, the cessation of fumes during the strike, what happened to these partly injured Jerusalem cherry trees? A. They recovered, and we had 90% No. 1 plants. We also were able to produce onions, which I have not here to-day but will bring to-morrow, and sweet potatoes on this same section. They had been a failure for the past three years. We also had in that same section —

Q. I would ask leave — he did not bring a basket to-day. If I may put that in to-morrow?

HIS LORDSHIP: Put in a basket of onions?

MR. SLAGHT: Yes.

HIS LORDSHIP: Yes, I will consider that.

MR. SLAGHT: We have heard of a lot of peaches, apricots and small fruits but we have not had any onions yet.

30

HIS LORDSHIP: I could think of how valuable it would be by the time the case got disposed of, probably in the higher Courts, in several years time.

MR. SLAGHT: Yes, my lord. Perhaps the exhibits would shrink and we must not risk exhibits that might shrink.

HIS LORDSHIP: Oh, I think we had better leave it to a description of them.

MR. SLAGHT: Q. Well, would you just describe it now? A. The growth inside the greenhouse was very, very much improved.

40

Q. Are you speaking of onions? A. No, the onions we have passed. We had onions, three to four inches across where formerly, in the last three years, owing to the interference of the gases and so forth, we had only been able to get an onion of one inch and one and a half. In other words, one and a half before, off the same ground where we had eight bushel. Our tomatoes were the same; the sweet potatoes were the same.

Q. Are you speaking of these better crops and bigger vegetables as having been procured during the strike period? A. Yes, those were. Also, our plants and our delphiniums and mums, they came on, as I said, notwithstanding they had suffered a severe burn, and they produced us, what was left of them, a very fair crop. Would I mention here about the inside effects?

Q. Yes? A. On the inside our growth was so much better. One thing was noticeable.

10 Q. Better when — during what period? A. When the General Motors were closed down.

Q. We will call it McKinnons. A. When the McKinnon Industries were closed down we had about 125 what we will call second or third grade cyclamen plants. When these plants suffered no interference they developed into 85% of them, No. 1 plants, notwithstanding that the year before we lost the entire crop. We also had —

Q. Now, wait a minute. The period of no interference was the strike period again, was it? A. I am referring to the strike period.

20 Q. On the cyclamen? A. Yes.

Q. I just want to keep it straight in my own mind. A. Last year we had a bed planted to "Detroit News," a dark bronze, and also "Good News," a very, very good dark yellow. They came perfect.

Q. The "Detroit News" is the name of a species? A. The name of a chrysanthemum, a very dark bronze, and "Good News" is a dark yellow. Those same beds, planted the year before with the gas coming over, turned the "Detroit News" a perfect yellow, and the dark yellow a lemon colour.

30 Q. Now, tell me something about the lily-of-the-valley? A. We have down there a bed of lily-of-the-valley which previous to this trouble used to produce some of the finest lily-of-the-valley plants in Canada.

Q. Where do you import them from? A. We import them from British Columbia.

Q. And were they planted in 1944 and 1945? A. In 1944 and 1945, but as I was scared we might have trouble down there, my son, about 400 yards farther south, took half of these Valley, those can be seen here, and they are producing.

40 Q. Wait a minute. Your son, William, has a place about how far south? A. Oh, around 500 yards exactly south.

Q. And he took some of them down there and planted them there? A. He took half of them.

Q. And what happened to yours and what happened to his? A. His — to-day I am cutting them and last year I shipped not one Valley.

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Q. He gave you the use of his ground? A. He gave me the use of his ground.

Q. And what about those that were planted on your own?
A. My own have been gradually deteriorating over the years till I question this year if we won't find it hard to find that a Valley has been planted there.

Q. Then, there are two peach trees you told me about?
A. From these men who are nursery people, the Eddy Company of Stardust, British Columbia, we bought two, a very special white peach tree. I planted one in my own lot, east about halfway down east, we will call it the boiler house. This tree for about five years grew very good and it bloomed heavy but never produced only one or two peaches. Then it gradually began to get worse, although it came out into bloom, until a year ago, when it died. The other tree, the mate to it, was taken approximately 500 yards south and planted on my son's place, W. H. Walker. That grew last year and produced 14 baskets of No. 1 peaches.

Q. What do peaches sell for a basket? A. Oh, about a dollar there. These were good.

Q. Now, there is a slatted shed there, just east of Greenhouse No. 7? A. That is when we have azaleas and you want to get moisture in there. Sometimes we use it for hydrangeas in the fall, for protection. We use that just for protection.

Q. During this last few years, from 1945 on, what have you noticed with regard to azaleas? A. The azaleas and other stuff planted there have not been doing so good.

Q. Can you put a percentage on the damage that you say, or the less satisfactory growth — to what extent do you say there is a less satisfactory growth, if you can put it? If you cannot, don't guess at it. A. Your reference to —

Q. Azaleas? A. Azaleas and that, I believe has been covered in your damage outside.

Q. All right. Now, next to that shed that you use there is a small open plot of ground? A. Yes, we grow carnations along in there with the other one.

Q. Do you grow any peonies and sweetpeas? A. We grow sweetpeas in there and they done very well for seven years; even outside.

Q. Well, what happened to them when the cupolas got going? A. As soon as the cupolas got going and the first hot muggy days, you only had yellows.

Q. Next to the greenhouse, the big house, is the cloth house?
A. Yes.

Q. You explained that, that the sides are closed and the upper part of the roof is covered with cotton cloth? A. Yes, to attract the rays of the sun.

Q. What have you grown under that, for years? A. We have grown one bench of sweetpeas and another bench of what is known as shaded mums, meaning that a shaded mum is —

Q. Well, never mind that. Just tell me if you noticed at any time when they began to deteriorate? A. They deteriorated the last four years, except during the period when the McKinnon Industries was closed down last year and proceeding from which we cut \$501 more than in the preceding three years.

10 Q. Will your lordship pardon me a moment. While we are talking about this place, have you got the dimensions? We heard by Mr. Ure, but he only gave your total square footage. Have you prepared a schedule of measurements of the greenhouses and the cost of same to you at the time you erected them? A. I have.

Q. And if my friend has no objection and we will work so much faster, I would suggest I put it in and let the witness testify to it.

MR. KEOGH: I have no objection.

20 MR. SLAGHT: So the schedule which you have submitted, which has been prepared and which has been typed — you have gone over this, have you? A. I have, yes.

—EXHIBIT No. 12: Schedule of measurements of greenhouses and costs at the time of erection.

Q. I see greenhouse No. 1, 50 by 28, 1400 square feet, 12½¢. What does that mean? A. That was the price given to me by Lord & Burnham, construction men, the approximate cost on that date.

30 Q. Now, I am not going to go through others of these, except I see No. 7 is an expensive one. But what do you say as to whether these figures set out in the schedule, are the approximate cost to you as at the time they were constructed? A. That is, when I first started going down through these greenhouses?

Q. Yes? A. That is correct.

Q. And that totals up — you have a boiler house in here and a coal shed, etc., and those are put in on the greenhouses and office and shed and those seem to total up to \$4,360. A. That is correct.

Q. And your dwelling house you put in at \$3,500. Is that a fair cost? A. That is \$400 less than one cost to-day — sold last fall.

40 Q. Then your list includes soft water tank for orchids and sewage approximately a little over an acre. Now, you bought that land from Graves away back in 1903 or 1904, and then you added to that land by some subsequent purchases? A. There were three separate parcels of land.

Q. But all part of your business and plant? A. Correct.

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Q. And you value that at \$10,000. But sewages, what is there in the way of sewage? A. We have put sewers all through there. We have also put sewers out to the back. The sewers we have paid for. Our sidewalks and our pavements, which has been put in that, we have put those in. Here is a large holding tank for catching soft water. We have no tile on these cold frames and also no tile on our greenhouses. Alongside we are —

Q. All right. With the additional cost of the land and the improvements you refer to, I ask you to put an estimate of value on it and you have done so at \$10,000. What do you say whether that is a correct or a fair value? A. That is a fair value.

20

Q. Then, you have an item of \$5,000 "location of special value to plaintiff," to the extent of another \$5,000. Is that marked "five" on yours? What do you mean by "special value" to you? A. We have been there a matter of 45 years. We have built up a certain amount of trade that comes direct to our greenhouses. We are also situated on one of the main trunk sewers and have the accessibility of using it. We have city water and we also have telephones, and we have all our freight and everything accepted as if we were in the town.

Q. Now, that is what is represented by your "special value"? A. Yes.

Q. That gives a total of \$62,360. What was this house built of? A. Those greenhouses are built, 99%, if not 100%, of cypress, which is not available now.

Q. And what is another nickname for cypress wood? A. "Wood eternal."

30

Q. What do you say as to their condition now, after many years of use, so far as depreciation goes? Are they in better shape or worse shape than if they had been all built of ordinary material? A. If they had been built of ordinary material, they would not have been there. There are no bad parts.

Q. Now, is \$62,360 — what do you say about those figures? Greenhouses Nos. 1 to 7, built in the years they were built, what would be the relative cost of building them new to-day, as comparable to building them in the years gone by? A. If I might qualify that statement just for one moment. That does not only include the cost of building, but the cost of heating, pipes, benches and everything.

40

Q. Oh, yes, you have a source of heating system. I should have asked you about that. Take No. 1 greenhouse. When you put \$1,300 opposite as the cost, it includes not only the building, but equipment so far as the heating equipment is concerned? A. It includes your building only, not your benches and your heating equipment.

Q. Oh, I see. It does not include that? A. No, other than you asked me what would be the value of those buildings now.

Q. Yes. A. Approximately almost 75%, if not more.

Q. 75% of what? A. More than they cost at that time.

Q. That is, 75% more, having regard to their age, having regard to their cypress construction, and having regard to the equipment inside them, and I will presume you are putting on the added cost of material and labour to it? A. Don't forget the labour and the glass.

HIS LORDSHIP: I do not think that has much to do with the issue, Mr. Slaght.

10 MR. SLAGHT: Perhaps not. I am sorry I spent so much time on it. I am not putting it forward as damage claimed, but I thought the Court would like to know whether he has just a little show —

HIS LORDSHIP: Oh, I don't think it is disputed that he has not a substantial business there.

MR. SLAGHT: And, in this aspect that, if this business is ruined —

HIS LORDSHIP: Well, he just gets damages for the injury that is done to him.

20 MR. SLAGHT: Well, I am through with it now, anyway.

HIS LORDSHIP: He is entitled to it, if there has been injury. I think we have arrived at the time for adjournment.

MR. SLAGHT: Yes, my lord.

HIS LORDSHIP: Then 10.30 to-morrow morning.

—Whereupon Court adjourned until 10.30 a.m. Tuesday, April 12, 1949.

Tuesday, April 12, 1949, 10.30 a.m.

30 EXAMINATION OF MR. WALKER CONTINUED
BY MR. SLAGHT:

Q. Mr. Walker, you understand, of course, that this is a continuation of your evidence from yesterday, and you are still under oath? A. Yes, sir.

MR. SLAGHT: My lord, I am advised by the solicitor who looked after it, that the record has been amended, all except our reply, which reply has been filed with the Registrar and will be added to the amended record, at noon, if your lordship pleases. There was a little delay in getting that out.

HIS LORDSHIP: All right.

40 MR. SLAGHT: Mr. Walker, you told us yesterday that you had been up to the plant on various occasions during the years 1945 and down to the present time? A. Yes, sir.

Q. Did you have some photographs taken which I show you of the scene that stands for their plant? A. That is correct.

Q. And I put in one of those, if I may, as Exhibit No. 13.
—EXHIBIT No. 13: A photograph of the plant of McKinnon Industries Limited.

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Q. And the sign indicates that it is the McKinnon Industries Limited, a subsidiary of General Motors Corporation. Then, as we had yesterday, you at various times with Mr. Wecker, and later Mr. Cook, asked regarding these troubles from time to time, and then a letter was put in, Exhibit No. 6, in which, in reply to your complaint, Mr. Wecker for the defendant firm named, writes, "We have your acknowledgment with reference to your claim that your property is suffering damages as a result of operations of our plant," and so on. "We will require probably an additional week or ten days within which to complete our preliminary investigation." What I want to ask you is this. I don't think there is any dispute from the period under review to the first of 1945 down to the present moment as to who has been operating this plant. A. McKinnon Industries.

Q. The word "Limited" on the end of it? A. Yes.

Q. Are they the defendants in this action? A. Yes, sir.

20

Q. Then, I will put in, my lord, as Exhibit No. 14, if I may, the original Charter incorporating — no, a certified copy of the original Charter rather, certified recently by the proper official, the Deputy Provincial Secretary. It is on the back of the certificate, and the Letters Patent granted by the Province of Ontario to McKinnon Industries Limited in this action and the powers. I am not going to trouble the Court with that, because if they are questioned it will be found they are wide enough to permit them operating the way they are without anything further, and I don't know of any particular need for it.

—EXHIBIT No. 14: Certified copy of original Charter and Letters Patent granted by the Province of Ontario to McKinnon Industries Limited.

30

MR. SLAGHT: And Exhibit No. 15 will be Supplementary Letters that were granted on the 14th September, 1945, but did not affect the powers, and further Supplementary Letters granted on the 7th July, 1925. Perhaps those should go first, which deal with the financial structure, and how it affected the powers, so I suggest you now have before you the Structure of the Defendant Company.

—EXHIBIT No. 15: Supplementary Letters Patent granted the 14th September, 1945, and the 7th July, 1925.

40

Q. Just a question. Yesterday, to supplement a statement you put in and the evidence you gave showing that your buildings, plant, equipment, land and so on, cost and were valued at \$62,500, that took no heed of your stock of goods in the plant, did it?

A. None whatever.

Q. What would be a fair approximate valuation of the bulbs, flowers, plants of all kinds, including the orchids?

A. \$50,000 for the orchids and \$20,000 for the stock; a total of \$70,000.

Q. Invested there in stock on top of your other plant investment? A. Correct.

Q. I am not going into the details of that, my lord, but that would make a total of \$132,500 invested there. You took certain data, I understand, at your own plant from time to time of the conditions, from smoke conditions? A. From the late spring of 1946 to the present day.

Q. Now, do you keep a diary? A. Yes.

10 Q. I am going to hand you your diary, and I ask you if you kept this? We cannot put it in, but I am asking you not to read from it, but from time to time if you require it to refresh your mind, you may do so, with his lordship's permission. First, when did you make the entries of conditions in the diary? A. 1946.

Q. But did you make them at the end of the year or from day to day as the occurrences were noted by you? A. As the occurrences were noted, and the first entry of a note — I believe there was a short period, for two months that year before we started making entries.

20 Q. Oh, yes. I am not concerned with the blank pages, but, where you commenced to make your entries, was that made at the time? A. That was made at the time, when the notes in there were taken.

Q. Well, we will take 1946, and I will get some data from you. I have the dates here so you can turn to them readily. I believe your son, John, also made observations over the period in the same diary. Just a moment. He had occasion to make his notes in his handwriting. Is that correct? A. That is correct, it is; I wasn't there.

30 Q. I want you to not refer at all to any of John's entries. We will have him, if need be, but just to your own. On April 6 of 1946, what were the conditions — just putting it in a sentence or so, if you can? I just want to condense this as fast as possible. A. There was smoke and other stuff and a lot of gas and stuff coming over from the cupolas.

Q. Then, April 9, what were the conditions? Did you do anything on April 9th with reference to that condition? A. That day, the note was made that night —

40 Q. Never mind what the note was. What did you do? A. That day we had such a terrific lot of ash and other stuff coming over from the cupola of the McKinnon Industries forge shop, that we were forced to try to clean off, as fast as we could, a large proportion of our plants.

Q. Did you? A. Yes, sir.

Q. Then, April 16th? Was there anything coming then from the McKinnon Industries? A. They had the wind coming over on — April — what is the date?

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Q. The 16th. A. And changed at 2.30 in the afternoon. It was bad up to that time, gas, smoke, and oil and other nuisances coming over.

Q. It was coming over earlier in the day, with what result?
A. It was coming over from approximately 8.30, when I took observations in the morning, until 2.30 in the afternoon.

Q. What was coming over? A. Smoke, and ash, oil and gases.

Q. Now, I am going away on to April 29th. Where was the wind from that day? A. The wind was southwest and was coming over from — oh, in fact, one of the worst days we had had.

Q. Did you notice anything about the tulips? A. Oh, that day, we went to our No. 1 greenhouse and we had a large number of tulips and daffodils planted there. We began to note that they was beginning to be affected.

Q. All right. May 9th? A. Southwest winds, oil, gas, smoke and other etc. coming directly over the greenhouse and very low.

20 Q. And what was the weather like as to moisture that day?
A. It was a sultry day, with a very moist effect.

Q. Then, May 27th? Perhaps I can shorten it. Were conditions similar as to the wind and dust and smoke coming from the defendant's plant? A. Oil and smoke and gas and other ingredients were coming over.

Q. Were they coming high or low? A. Coming very low and the worst I have seen in many months, on that date.

Q. May 28, were they coming that day? A. Gas and oil there, later on. 7.00 a.m. in the morning that morning, had gone down early in the morning; an hour earlier.

30 Q. You had gone down? A. Yes.

Q. Then, May 31st, what was the weather like that day?
A. Gas and oil and other nuisances coming over from the McKinnon Industries. Very bad, and it was very low; the gas and oil was very low.

Q. By "low" I take it you mean low in the heavens, close to the plant? A. Yes, a sultry day and very little wind and very little disturbances. We felt it worse at centres on our place, west.

40 Q. Then, jump to June 30th, 1946? A. Motion of the prevailing winds for the greenhouse that day, and gas and oil very low.

Q. And have you what they call the trial house there? I don't know that we have used that expression so far. Perhaps my note is wrong. A. No, I would say not.

Q. July 23rd? A. Gas and oil very low and other loose stuff coming over.

Q. And when you use that expression, you need not repeat it every time, I want you to refer to anything except gas and oil and conditions which were coming from, according to your observation, the defendant's plant? A. That is the correct expression I am trying to tell you, and when I use that "gas and oil" it means all the other stuff that comes along with it, because it carries other ingredients.

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Q. And what about July 24th? A. Gas and oil coming over very bad and first strong signs of burning showing.

10 Q. Now, first strong signs of burning, what? A. Of the outside plants, particularly. They will show up in only a matter of a few hours.

Q. Then, what about September 10th, 1946? A. South-west winds, gas, oil and other ingredients coming over and very low.

Q. Then October 16th? A. Gas and oil very low coming over extra heavy, and plants showing — suffering inside greenhouses and out.

20 Q. October 30th? A. Smoke and gas continuing over greenhouses.

Q. November 6th? A. Smoke and gas very low and all day. That means from the morning until five o'clock.

Q. November 7th? A. Smoke and gas still very heavy over greenhouses.

Q. November 8th? A. Smoke and gas very bad, still continuing.

Q. November 16th? A. Smoke and gas very low coming over from McKinnon Industries.

30 Q. What about the weather then? A. A very muggy day which holds the gas in very close to the ground around our greenhouses.

Q. You have ventilators, of course? A. Yes, we have to open them up on muggy days. In fact, I would like to enter one note that I made here. We have never been able to use the west side ventilator owing to the trouble from the McKinnons. We have never had one on that side except one small one, low down, below, which is a very big detriment to growing stock.

40 Q. November 28th — same conditions prevail? A. Smoke and gas very bad, very low, and the worst that we have had since V.D. Day.

Q. Well, I don't remember when V.D. Day was, I am very shocked to say. A. Was that not when the war ended, sir?

Q. Well, just go on. December 4th, 1946? A. Ventilators open; gas and oil coming over very bad.

Q. The 5th December? A. Smoke and gas very bad and very low.

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Q. The 8th December? A. We have ventilators open; the stock suffering very much from the stuff coming over from General Motors.

Q. Well, how would you know the stock was suffering to make that entry? Did you examine it that day? A. Yes. When you begin to see the stuff and to see the growth begin to stop and not make the growth it had made before.

Q. December 11th? A. Yes; smoke and oil very heavy over the greenhouses and very low, muggy weather.

Q. December 19th? A. If I may say, sometimes I use the expression "heavy," which is meaning the same way as muggy.

Q. December 19th? A. Smoke and gas very low and directly over the greenhouses.

Q. Jump to Christmas, December 25th. Did they touch you that day? A. Gas and smoke bad.

Q. December 26th? A. Smoke and gas very bad.

Q. December 27th? A. Smoke and gas directly over greenhouses.

20 Q. Now, that ends the year 1946. If my friend desires I could file this diary. I do not conceive I have a right to as a documentary piece of evidence, but otherwise I shall leave the case as is, but the diary will be available to him on cross-examination. Give me that back and take 1947. In 1946, did you call in some expert gentlemen to bring their judgment to bear on your conditions? A. I did.

Q. Who were they? A. Mr. Jarvis.

Q. Anybody else in 1946? A. Not to retain them, but merely in for observation at that time.

30 Q. Who came in in 1946 to observe? A. Mr. Parry, of the Dale Estate and Mr. Cottell, a grower for Calverts, Brampton.

Q. Then, take your diary for 1947 and again I want only the entries made by you personally and your depositions to cover conditions which you personally saw and made a short record of. January 20th, 1947? A. Gas, oil and smoke very bad.

Q. January 24th? A. Mild weather; gas, oil and smoke very bad.

Q. 27th? A. Very bad, directly over greenhouse, gas, oil and smoke.

40 Q. March 19th? A. Gas, oil and smoke directly over greenhouses.

Q. March 20th? A. Gas, oil and smoke directly over greenhouses and very bad.

Q. How was visibility that morning, do you know? A. I couldn't say, but if I marked "very bad" I would say it would be muggy weather, because those are the days when it is very bad.

Q. You have no record of visibility? A. No, I haven't a note here.

Q. All right, you cannot tell it. On April 29th, 1947? A. Gas, oil and smoke very bad and heavy; very close to the ground.

Q. April 30th? A. Gas, oil and smoke very bad, very low and muggy weather.

Q. May 5th? A. Gas, oil and smoke very low and directly over greenhouses.

10 Q. Can you tell me the time of your observation of that day, May 5th? A. It is not marked here, but they are always made in the morning.

Q. And May 12th? A. You asked me that one. That is the one I gave you last.

Q. Oh, I am sorry. I got the wrong page here. Then May 13th and 14th, take the 13th first — no, that is not yours, that is your son's. Take the 14th. A. That is signed by me, too, as having been there that day, or I would not have signed it. The observation was made and my son signed it, but I was along with him and I saw it.

Q. Well, tell us what you saw there, — that is May 13th? A. Smoke, gas and wind coming over very heavy; not quite as bad as yesterday.

Q. May 14th? A. Slight effects of gas and burning beginning to show in gladiolii.

Q. May 16th? A. If I may say, sir, this item is taken and while it says May 16th it should be June 13th. Now, it is the effects of the gas and that that begin to show on the gladiolii. It should be taken as June 13th. I believe that is the only one I made a mistake in.

Q. Oh, well, then, leave that item. Strike that out — any reference to that date at all. What date are you looking at there?

A. I am looking at Friday, May 16th. I might also say that this one item here should have been as of June.

Q. Well, leave it out entirely. A. But there is just this —

Q. Well, leave it out.

HIS LORDSHIP: Well, you cannot just put things in and leave them out. The witness has explained there was an error apparently as of the date of the entry — that it is entered in the wrong date but that it is a correct entry with respect to a later date in June.

THE WITNESS: That is right, my lord.

MR. SLAGHT: Thank you, my lord, the entry being June 13th? A. The effects of gas and oil showing very plainly on gladiolii.

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Q. And the 14th? A. Gladiolii very bad and effects very plain now.

Q. Then, go on to July 14th — June 16th — is that your entry? A. That is mine. Gas and oil and smoke very bad to-day.

Q. Is that the 16th? A. That is June 16th.

Q. Any condition in the plants that you can speak of that day? A. Not that date. There may be one in between there.

Q. Never mind. July 14th, now? A. Gas, oil and smoke directly over greenhouses.

Q. Any plant conditions there noted? A. Not on that day.

Q. Then, jump to July 24th? A. Do you want an item between it — July 21st? I believe it has to deal with this case.

Q. Tell me that, then, July 21st? A. Gas and oil directly over greenhouses.

Q. And July 24th? A. Gas and oil very bad, and also gladiolii.

Q. July 25th? A. Gas and oil directly over the greenhouses.

20 Q. Now, after July 25th, I see you have just given your note that "also gladiolii." Did you communicate with Mr. Jarvis, one of your experts, asking him to come to your plant? A. I did.

Q. And did he come? A. I believe he came about two days after the effect.

Q. Well, look at July 31st and see if Jarvis visited then, because we will hear from him about it. Do you recall when Jarvis came? A. Well, it was just two or three days after I informed him. I believe I informed him about the 28th of July.

30 Q. All right. That is close enough. Thank you. Have you a note there of when Mr. Jarvis was there, just about that date, or haven't you? A. No, I haven't a note here. I can possibly produce a short note in the notebook on that.

Q. Now, I have to take you to 1948. Have you any entry of your own, on November 6th? A. November 6th, sir?

Q. Your own entry? A. Just a minute. That is not my entry.

Q. Then we will pass that and come to — now, these diaries will all be available, Mr. Keogh, which I give you for convenience. Do you say there are entries here for November? If you have any special conditions you want to tell me about, you may do so.

40 HIS LORDSHIP: Just a moment, witness. We cannot get along with two people talking at once. Mr. Slight was speaking and you are insisting on speaking at the same time. Now, the reporter can only take down one at a time. Please remember that.

THE WITNESS: Yes, your lordship.

MR. SLAGHT: Do you find, in November, references which help your memory about occurrences? A. Well, will I read these, on those dates?

Q. No, don't read them if they are not in your handwriting.
A. Yes, sir.

Q. Oh, well, then, give me the result of them, but don't read them?
A. October 7th.

Q. Yes? A. Gas and oil very low. Very hard to breathe. One of the worst times that we have had. One of the worst days we have had. That is October 7th. That is my signature.

Q. In 1947? A. On October 7th.

Q. Of 1947? A. That is right.

10 Q. Anything else there now? A. This indicates two items and they are important, I would think, to me.

Q. Well, did you take them? A. Yes, sir.

Q. Well, give us the purport of them? A. October 27th, gas and oil very bad, directly over greenhouses. October 28th, gas and oil coming directly over greenhouses.

Q. All right. A. May I comment on that for one moment?

Q. Yes, if you are telling us something that you saw or observed? A. I saw.

20 Q. Yes? A. I began to notice that our chrysanthemums, particularly one variety the "Detroit News," a very dark bronze, was beginning to show its colour, but the centre of the buds was not any bronze colour whatever. It had faded out to a yellow and a small margin of bronze on the outer edge. Also the variety, "Good News," a very, very dark yellow, was coming in the buds almost a lemon yellow. At that time I left for a hunting trip, and, when I came back, these flowers had not been cut and we will show you pictures of them where the bronze has been perfectly yellow and the dark yellow a light lemon.

Q. Two pictures — moving pictures? A. Yes, sir.

30 Q. There will be an application, my lord, to show some results of moving pictures, but I won't deal with that now.

MR. KEOGH: Will you have Mickey Mouse, too?

MR. SLAGHT: Well, I am taking this case seriously. I should not have said that, my lord. We must have a little levitation.

40 Q. Now, will you come to 1948, please, Mr. Walker, and refresh your mind from your 1948 diary. The first date I ask you about is January 19th. Will you look at that? A. Gas and oil directly over greenhouses this morning, that is 8.30. That is the usual time, 8.00 or 8.30, when most of my observations are taken.

Q. And January 20th, the next day? Anything there?
A. To-day gas and oil and blue haze hanging very low and directly over greenhouses.

Q. Then, March 3rd. I am going to take the responsibility, my lord, of not attempting to put all that in. I am just trying to take a date in a month now. A. Gas and oil directly over greenhouses.

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Q. Then, April 1st? A. Gas and oil they are all directly over greenhouses and blue haze all through the houses.

Q. May 26th? A. Gas and oil very low and directly over greenhouses.

Q. June 1st? A. Gas and oil coming over the greenhouses this morning.

Q. June 4th? A. Gas and oil directly over greenhouses; also another observation. That is the first one that was made in the morning. Another one taken at 2.30, "still continuing over greenhouses."

Q. June 14th? A. Gas and oil directly over greenhouses. Very heavy. Tenant reports hardly able to breathe last night.

MR. KEOGH: Just a minute, "Tenant reports." I object to that.

MR. SLAGHT: Oh, strike that out. I should have told you, don't give us any notation of something you have heard from some one else, or somebody told you. I am sorry that came in and I shall not refer to it. A. It was in here.

Q. Yes, but be careful about that, please. June 17th. If there is nothing there tell me, and we will pass on. A. Gas and oil very bad. Do you want other comment on that day about it? If you do that is here for you.

Q. If it is your own observation? A. Yes, it is my own observation. McKinnon Industries had planted beds in front of power house, with new gladiolii and other apparently buds in there and the finest gladiolii I had ever seen.

Q. Just a minute. They had planted them there? A. No, they had planted them there in the front beds in front of the forge shops.

Q. Did you learn they were doing that for test beds? A. I did not. I took a picture of that on Sunday. There was nothing there then.

Q. Tell me shortly what you observed? A. They planted them and I noted them and looked at them and they were already showing very severe burns, and next day they removed them. We will show you pictures, showing the gladiolii very badly burned.

Q. Now, you say at first they were right and fine and then very badly burned? A. They were very, very fine. I never seen any better gladiolii. They had apparently been selectd from No. 1, very strong plants.

Q. And then you found them burned? A. I came back from Port Dalhousie on Thursday. In fact, the bed had been bedded the day before that. The bed is only situated 20, 25 feet from the big fence. You can see it, and I noticed these here were very, very badly burned and the next morning I got a commercial

man to go down and start taking pictures and they had already, on Saturday. removed them, and he can show you pictures showing them removed.

Q. So you had photographs taken showing them removed, the gladiolii? A. That is right, sir.

Q. Now, where is this test plot of theirs? They had a little test house there, too? A. That would be about 350 feet, almost directly east of the cupolas.

10 Q. On their own property, about 350 feet almost due east from the cupola? A. On the Warren Axle Pink property.

HIS LORDSHIP: Is that 350 feet from the cupola? A. Yes, sir.

MR. SLAGHT: I am told it is marked on the plan. A. Mr. Ure told me yesterday. I didn't think it was.

MR. SLAGHT: Because, being due east from the cupolas, what do you say as to whether or not, setting up their test plot there, whether they would receive as much trouble from the cupolas as you would when you were northeast and in the trail of southwest winds? A. They would not receive over 35%; I question if they would receive that much.

20 Q. At their test plant? A. At their test plant.

Q. My question was whether they would receive that much. I find, my lord, from the cupolas, practically due east and over towards the Canadian Warren Pink building, is marked a "test plot."

HIS LORDSHIP: Well, the surveyor told us that was 440 feet from the cupola.

30 THE WITNESS: That would be correct, my lord. Mine was only from observation.

MR. SLAGHT: Yours was from observation only. You don't know, of course, what is inside their little house; now, give us the dimensions of the little test house? A. Do you mean the plot?

Q. The plot. They built a building there, didn't they? A. I couldn't tell you. There is so much machinery.

HIS LORDSHIP: Just a moment. I understand those gladiolus plants were planted outside on this test plot? A. No, your lordship. These gladiolii we are speaking of now are directly in front of their forge shops. They had their beds there.

40 MR. SLAGHT: But were they outside, or covered? A. Outside.

Q. Then, his lordship is right about that.

HIS LORDSHIP: And when was it the gladiolii were planted and taken up? A. I had seen this plot and taken a picture on the Sunday. I did not see that again. One day during the week, that would be Tuesday or Wednesday, but Thursday I observed the burnings.

Q. Yes, but what month? A. That would be — well, it was just after the worst —

Q. But can you tell me by reference to your diary? A. I think so, yes, if I may.

Q. Refer to your diary and let me know. I just want the approximate time. A. Thursday, June 17th.

MR. SLAGHT: Q. And what do you say about referring to it?

HIS LORDSHIP: Q. That is 1948? A. Yes. Will I read it?

MR. SLAGHT: No, just the purport of it. A. Those beds that had been planted with selected new gladiolii bulbs, were very badly burned and next morning were removed before nine o'clock.

MR. SLAGHT: Q. When you were over observing them, did you observe any McKinnon's people observing you, or didn't you know about that? A. No, I didn't know.

Q. That just happened. Now then, come along to June 23rd? A. This observation was taken at 6.15 in the morning and the gas and smoke was very bad.

Q. June 24th? A. That, sir, is June 24th. Do you want June 23rd?

Q. I think you gave us June 23rd. A. I mistook the date. Gas and oil very bad, directly over the greenhouses.

Q. What date are you giving now? A. That is the 23rd.

Q. And give me the 24th? A. Gas and oil very bad. This observation was taken at 6.15 in the morning.

Q. And the 25th? A. Gas and oil very bad over the greenhouses.

Q. And the 26th of June? A. This observation, that has to do with that — will I quote it?

Q. Give me the purport? A. Mr. Jarvis was down and went over and found —

Q. No, don't tell what Jarvis found. Anything you found is all right. If there is nothing there about what you found, don't speak. Did you go with Jarvis? A. Yes, sir.

Q. Well, you went with him. We will leave him to tell what he saw. Do you recall what you saw? A. Yes. I seen these here gladiolii was burned and I seen the leaves and that on the apricot trees was burned and other leaves burned, and I seen as far down as Matosian's place, the flowers were burned.

Q. Did Jarvis go with you? A. Yes, sir.

Q. Now then, come to July 2nd? A. July 2nd?

Q. Yes. A. We are dealing with the 25th, sir.

Q. Well, come to July 2nd? A. Oh, I beg pardon.

Q. That is June? A. Gas and oil directly over the greenhouses.

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Q. July 5th? A. 8.10 a.m., gas and oil very bad, directly over greenhouses and very low.

Q. July 9th? A. Gas and oil very bad; directly over greenhouses.

Q. July 12th? A. 6.30 a.m., gas and oil very bad; directly over greenhouses; looks like rain.

Q. Now, I take it we come to a big gap in your diary with the pages blank to November, because the strike, you tell us, started about the 12th of July? A. That is right, sir.

10 Q. And I think you told me yesterday they were not operating in that period? A. No. I enter one note made here at that time.

Q. What is the observation? A. In regard to the observation already made, that the stuff had begun to improve.

Q. Oh, you told us that yesterday? A. Thank you, sir.

Q. On the 8th or 9th of July — no, the 9th, did you have any observations with regard to conditions other than in the air? A. July 9th?

Q. Yes? A. No, sir, only the gas and oil very bad.

20 HIS LORDSHIP: Q. Well, from July 15th to November 2nd, did you at any time observe these conditions that you have been referring to, that is the gas and oil in the air in the vicinity of the greenhouses? A. Your lordship, only one day when they had a fire and just, I believe to clean out the boilers; that is the big stack to clean out the boilers; that amounted to, we will say, very little.

Q. Otherwise, during that period, the atmosphere was clear? A. Absolutely.

30 MR. SLAGHT: Then, come along to November 4th. The strike was over. A. Gas, smoke and oil directly over greenhouses.

Q. And November 5th? A. Gas and oil directly over greenhouses. Do you want an observation there, or not?

Q. Yes, if it is an observation of yours? A. It is. Noticed yesterday that all plants had been removed from McKinnon Industries' beds in front of forge shop. They had made very poor growth and may I interpolate here that after the gladiolii was up they planted it with another lot of plants.

40 Q. Yes. Then, November 16th? A. Gas and oil very bad and fumes directly down Carlton Street. That is the time that the upper house is hit most, when the test plot might receive something, that is a direct east wind coming from the west and down Carlton Street.

Q. When you say the upper house? A. I mean No. 1, up closest to Carlton.

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HIS LORDSHIP: You say an east wind coming from the west? A. I mean it is coming from the west and blowing down east over the test plot and up to our greenhouses.

MR. SLAGHT: Q. Then, what date is that? A. That is November 16th.

Q. Then go to November 22nd. Perhaps you have not anything on it? A. Gas and oil very bad. Wind northwest, but air conditions very bad for upper house. That is the observation.

Q. What do you mean, wind northwest? When you say "wind," I want to know where it is coming from? A. It is coming from the northwest. It is a little past — up this way from the greenhouses, but there seems to be a separation as it goes, and we get a certain amount of gas and oil and probably the lighter stuff blows farther, I believe.

Q. All right. Then, November 23rd?

HIS LORDSHIP: Just a moment. You say you get the effects when the wind is coming from the northwest? A. Northwest, if it is not too far off of west there seems to be a separation of some of the gas, which comes back and the other travels on. It may be the heavier particles that do not blow so far. That is very seldom, your lordship, that occurs, but it does occur. I believe that is why we sometimes get stuff through our ventilators when anything comes straight in one end of it.

Q. I suppose when the wind is southwest you get most? A. Southwest is the most trouble, sir.

MR. SLAGHT: Q. And what is the prevailing wind? A. Southwest.

Q. Varying, I suppose, sometimes from west and sometimes more westerly than south? A. More often it will be coming west and it will work right around to south, but it is very seldom that happens.

Q. Then, come to December 8th? A. Gas, smoke directly over greenhouses; wind west.

Q. And December 10th? A. 8.10 a.m.

Q. No, never mind that. December 10th? A. December 9th, sir.

Q. Well, give me December 21st. I am going to jump some of these dates. A. Gas and oil, they are all directly over the greenhouses.

Q. December 22nd? A. Gas and oil, they are all west; one of the worst days we have had since December 3rd, 1948.

Q. Now, let us take 1949. If you will take your 1949 diary, please, this year. The first date which you might look at is January 10th. A. 7.00 a.m., gas and oil directly over greenhouses.

Q. January 12th? A. Gas and oil directly over greenhouses; wind shifty.

Q. January 13th? A. Gas and oil directly over green-

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houses, wind northwest, but shifty; directly over greenhouses.

Q. March 8th? A. Gas and oil directly over greenhouses.

Q. 21st of March? A. Gas and oil, they are all directly over greenhouses; wind shifted at 8.00 p.m.

Q. April 4th is the last item, that is Monday of last week?

A. That is commencing — gas and oil over greenhouses at periods during this week.

Q. I am speaking of April 4th. A. That is the comment on that date. There has been no entry, sir.

10 Q. Have you, over the period, at times, at the instructions of Mr. Tienken, who is an expert you have engaged, is it? A. Yes, sir.

Q. And at the instructions of Mr. McAlpine, another expert, have you taken samples from your greenhouses for that and turned them over to them? A. Yes, sir.

Q. We will let them speak to that, and Mr. Jarvis, another expert, has he been there and taken samples of his own? A. Do you want the period of Mr. Jarvis, or just the question answered?

Q. No, let him tell us that. A. Yes, sir.

20 Q. Then, taking I think Mr. McAlpine particularly, you took samples more than once from the glass on the roof of your greenhouses? A. Yes, sir.

Q. And tell us perhaps did you follow his instructions in the way you took the samples? A. Yes, sir.

Q. How did you take them? A. There was cotton batting, I suppose, which had been prepared on purpose for that, and water, and the man just took and placed this here little water on a dampened cloth, on account of the iron and that on the roof; you couldn't get anything, unless you had it dampened, and he just
30 went around till we had all the cotton approximately specks, or got filled there and then that was placed in a container, and so on, all over the different greenhouses.

Q. Did you use glass in the scraping? A. We didn't scrape that time, sir.

HIS LORDSHIP: This is for Mr. McAlpine? As that correct? A. Mr. McAlpine and Mr. Tienken, both.

Q. When were these samples taken? A. The first was taken last year.

40 Q. If you are relying on experiments made of samples they will have to be fairly specific, Mr. Slaght.

MR. SLAGHT: Yes. I was going to leave the specific dates to them, because he has said —

HIS LORDSHIP: But you will have to be specific with respect to what was done in the taking of the sample.

MR. SLAGHT: Now, can you tell us anything else? You said you used glass on one occasion in the taking of samples? A. We scraped the glass, one glass with another glass.

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Q. You mean you scraped your roof of greenhouse glass with glass? A. That is right.

Q. And you took other glass and scraped that? A. Scraped that.

Q. And did you do that once, or more than once. A. Twice.

Q. And to whom did you deliver those samples so taken?
A. Directly to Mr. McAlpine.

Q. Then, Mr. Jarvis, I think you said, took his own samples? A. He did, sir.

10 Q. And then you paid a visit with others to the plant of the defendants, under a Court Order of March 17th, of this year?
A. I did, sir.

Q. And I want you to tell me something about it and devote all your description to some extent — first, who were with you?
A. Manager Cook, the plant superintendent, and I believe Mr. Keogh on the McKinnon Industries side.

Q. And then, Mr. Ferguson was with you? A. And with us was Mr. McAlpine, Mr. Beaumont and Mr. Ross, and myself.

20 Q. Mr. Ross, the lawyer? A. Yes.

Q. And the two experts? A. Yes, sir.

Q. Now, do you recall your visit to the cupolas on March 14th, in the morning or afternoon? A. Afternoon.

Q. Accompanied by the defendant's representatives? A. Yes.

Q. And did you go up in one of the cupolas? A. Yes, sir.

Q. And were they in operation? A. Yes, sir.

30 Q. Describe the operation because, except for my description in opening, I do not think we have had it. A. Mr. Beaumont had gone up to the top of the cupola and he motioned for a man to come up, and I went up.

Q. Well, I mean, describe what the conditions are; the cupola is in the shape of a large stack, is it? A. The cupola is a large stack and the air is forced, the same as this here, — and your air is forced in the bottom part here, and then your charge is put on top, sir, of coke, and then on top of that is piled your metals.

Q. Now, let me stop you. You say at the bottom there is forced air in the bottom? A. Very heavy.

Q. Is it powerful? A. Very powerful.

40 Q. Then what does it first contact? Do they have a light fire in the bottom of the cupola? A. Yes, sir.

Q. And what fuel do they put on top of the fire? A. Put on top coke.

Q. Coke is used for fuel? A. Yes.

Q. Then on top of the coke goes the raw material, either scrap or pig iron? A. Goes the charge.

Q. You call it the "charge"? A. Yes. I have worked around a cupola.

Q. And higher up, is there an opening in the side of the cupola where there is a track running out on which they drop the charge that goes down to the flames? A. Quite so, and also they have a way of feeding their coke.

10 Q. Now, that was in operation. And what do you say as to whether the draught, the forced draught, was a mild forced draught or a heavy one? A. The forced draught was very, very strong. Had to be; a powerful fan, to generate the air that was going up through there.

Q. And towards the top of the cupola, there is a device sometimes called a scrubber. Describe that cone-shaped device and how the water goes into it, please? A. At the top of that there is a cone-shaped device; directly at the apex is supposed to be water coming out there.

20 Q. Now, wait. "Supposed to be water." How is that water filled — through a lateral pipe? A. That water is fed through a pipe. When it goes up to the top it is split and on the two sides the pipes go through and are fed directly down over the top of the cone.

Q. Now, at the apex, where the water comes in, did you observe that on your inspection? A. Very special.

Q. And tell me what was going on there? A. There wasn't one of the four that the water spray was placed correctly in the centre. The second one, say from the west, would be, I would say, 35% off.

30 Q. Well, what result does that have as to the two sides being equally treated with water, or otherwise. A. That would result in the blanket of water, if I may use that term, which I believe they were trying to force equally around this cone, which would have the effect of stopping the gas and other materials and so on going up, this was not placed on any of them so that it would keep a direct amount all the way around, and the sections was, in some places where the water came down, there was as much as that space in between (indicating).

40 Q. And you indicate about a foot there, in between what? A. In between the water that was coming down; the water should have been a sheet. It was not. It only come down the cone and, through not being placed directly over in a proper manner, it was not being delivered to accomplish that.

Q. I see. Would the result be, if I understand you, that parts of the cone would have a heavy volume of water relatively, and parts of the cone would have a trickle, or a small volume?

A. Very much so. The second one from the west, as I said, had very little on one side. It was directly off.

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Q. And I think you said that they were all deficient in your view; I suggest to you, that the distribution of water was not uniform? A. That is correct.

Q. Then, just a word on that. The heated gases from the top of the slag forced with the heavy draft going up, wouldn't those heated gases pass around all parts of the cone where the water was thick and the water was thin? A. I would say, yes. If I may say one other word here. We were very fortunate in getting northwest wind, which took the fumes and that away from you, so you could lean right over the cupola. Otherwise I don't believe you would have got very close to that there, but that afternoon the wind was coming northwest.

Q. You had a chance to peek? A. Yes, we had a wonderful view.

Q. Were you at the top of the cupola? A. I was right up on top, beside Mr. Beaumont.

Q. Was there any odour coming out? A. Yes. You could smell the same as we got over there, sulphur dioxide and that; you could smell it right in your nostrils.

20 Q. Up at the mouth of the cupola? A. Yes.

Q. What do you mean by the same as you got "over there"? A. Smell the same as we got over at the greenhouses.

Q. Well, have you smelled the smell at your greenhouses? A. For a good many years, sir.

Q. Now, we can leave the cupola and give us your observation of what you saw in the forge shop? A. In the forge shop it was in operation; they were pouring automobile blocks.

30 Q. Now, before you come to that, I should ask you to describe the operation they were prepared to carry on there. They had, I understand, a number of ovens, so called? A. No, sir. Your ovens was in the — you are asking me the forge shop?

Q. Yes. I am in the forge shop with you now, I hope, and there are a number of so-called ovens there. Is that right?

A. Would you like me to say, before I went into the forge shop, what occurred?

Q. If you like. A. In crossing over there, knowing we have very heavy vibration at the greenhouse, this big hammer was working at this time and you could stand and just feel the ground just creep up and down, outside this here forge shop.

40 Q. Now, wait. You are giving an example of vibration on the ground outside the forge shop? A. Before we went in.

Q. That the concussion affected it by raising you up and down? A. Yes.

Q. Now, we are in the forge shop, and I still want to get from you — we know, I think, this is pretty common ground — are there some 60 ovens distributed around this big forge shop?

A. I believe that was the number we were informed. I didn't

count them.

Q. A great number? A. Yes, a great number.

Q. And I want a description of what that oven is like. Some one told me it somewhat resembled a blacksmith's forge, but, instead of coke and coal in the blacksmith's forge they used oil. Is that right? A. Yes, sir. The description would be such as this. Some of the ovens might be as long as the bench in front of his lordship here.

10 Q. Well, that desk is eight feet long. A. That is quite all right, and there is a head over the top of this here and there are a number of steel bars placed in here.

Q. Now, wait. You are going too fast. Before you describe the machine, is the fuel fed into the bottom of the oven? A. If I may, that would lead to just another question.

Q. Well, go ahead. A. These steel ingots are passed along and this bunker oil is forced in and this large number is heated, and as they become to a certain heat or colour, the man that runs the ovens, the heater, he turns around and passes them to a man behind him.

20 Q. Now, you are speaking of iron like anvils. Do they make anvils? A. No.

Q. I mean axles. A. This one I was speaking of, bars of iron were put in, —

Q. But still, tell me, when the bars of iron are put in there, how are they heated and how is the oil injected in there? A. Well, would be injected in there by force.

Q. Through different pipes? A. Through different pipes.

30 Q. Now, tell me, at the end of the oil pipes, before the oil ignites, is there a spray on each? A. I would say that is what would be there in order to make —

MR. KEOGH: Of course, I object to argument. If he doesn't know, or cannot say what would be there —

MR. SLAGHT: Let me put it this way. Were they spread out?

MR. KEOGH: Does he know?

HIS LORDSHIP: Well, I don't suppose the precise detail of how this operation was carried on has very much bearing on the case. It is probably more a matter of general description.

40 MR. SLAGHT: Yes, quite. Perhaps paying too much attention to it.

HIS LORDSHIP: I don't think we need go into the detail.

MR. SLAGHT: Very well, my lord.

Q. Well then, what is the appearance of those ovens, as to heat? A. Would you qualify that?

Q. When they put the iron bar into them, is there heat there? A. When they put the iron bar in, this oil comes underneath and heats these here iron bars.

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Q. Well, you were telling us that an attendant gets the iron bars out of that oven, and what does he do with it? A. As it becomes sufficiently heated, he takes it out and passes to the usual hammer man back — directly back behind him, placing another one of these here in the same place.

I. A cooler one in to get the heat. Then, what does the hammer man do with the red hot one? A. The hammer man places it underneath this here big hammer, and he drops this hammer, or throws in the gear that is necessary. It forces the hammer to come down, striking between the two dies.

Q. I suppose the iron bar is laid on a flat surface of some kind with a die and a very hard flat surface? A. The die head is placed on, I would say steel or a cast iron base.

Q. Like an anvil? A. Yes, very much so.

Q. Then, down comes the big hammer. Did you see the 5,000 pound hammer in operation? A. I did.

Q. Does it come down of its own weight, or is it forced down by steam? A. No, I think — I am not prepared to say. You can get that from the hammer man.

20 Q. And what is the floor like when you are parked around there? A. When these hammers are operating, that is, especially the 2,500 pound and the 4,000 pound and the big 5,000 pound, you are just on a bounce all the time when you are standing beside them.

Q. And what is the floor made of, is it tile, or brick, or what? A. Earth.

Q. An earthen floor that you and the spectator are standing on? A. An earthen floor, yes, sir.

30 Q. Then, what is the condition inside that forge house as to smoke, or fumes, or density of air, if there is any? A. The condition in that forge house is such that unless a man was able to stand their strangling odours and the oils and that, it might make him good and sick. I have been in those places —

MR. KEOGH: That is absolutely theoretical, my lord.

MR. SLAGHT: Never mind that. Tell us, do you smell anything in there? A. I do, a very, very strong smell of oil.

Q. And then, do you see anything in there? Was it nice, clear air, or was it fume-laden air? A. As I said before, it was very heavy laden with oil.

40 Q. With oil? A. With the fumes from the oil.

Q. Now, I believe you had a picture taken? A. May I answer one other question, — this hung very low, because there was no means that I could see taken to take that out, except by the natural ingress or egress from the top.

Q. Was there any chimney over any one of these 60 ovens, that you saw? A. I did not see any. There may have been.

Q. Then where did the fumes, whatever they were, escape to in their attempts to get out of the building? They have to get out. A. They went out to the high peaks of the forge shop, where there are small ventilators.

Q. Are those ventilators in the side walls of the forge shop? A. No. There is a cupola at the top and they had a small ventilator placed in there for it to go out.

Q. Well, be careful about the cupola now. We are in the forge shop. Is there no chimney, or cupola, above the roof of the forge shop? A. I didn't notice any.

Q. Then, did you notice how these fumes, or smoke, escaped from the forge shop to the open air? A. As I said before, they ascended to the peak of the roof and came out through openings there into the open air.

Q. Have you, from the outside, or did you that day when you were outside, either going or coming, notice the escape of fumes or air from the ovens in the forge shop? A. I did, sir.

Q. So far as you know, did you observe any netting, or sieving, or any device over the openings out of the forge shop into the air, or which would purport to nullify or clarify the density of the smoke? A. I didn't notice any.

Q. You have told us about a device in the cupola for cupola stacks. Was there any device of any kind that you were shown or observed which would purport to clarify the deposit of the oil ascending from the forge shop, before it reached the open air? A. None whatever, in my observation that day.

Q. Now, you did, on the 14th, have some pictures taken of the forge shop and the cupolas, both in operation, apparently? A. That is correct, sir.

Q. Does this give an idea of what you saw, yourself, that day? A. Yes, sir.

Q. I have a copy for you, Mr. Keogh. Now, take a look at this photograph and, over to the left I take it are the cupolas. Are they all four there, or just some of them? A. They are all there, sir. They are in a line there. That is the cat-walk up at the top, we walked around.

—EXHIBIT No. 17: Picture of cupolas at McKinnon Industries Limited.

Q. Now, dealing with what is coming out of the cupolas, have you seen that come out on other occasions? A. Very, very many times.

Q. Back through 1945, 1946, 1947 and 1948? A. Back ten years approximately, since the installation of that type —

Q. Of cupola? A. Yes. There was little former change in the cupola in the first few years, but it was the same operation, but these here, I have seen ever since they changed them.

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Q. Now then, look at the forge shop itself. I see some substance coming out of there, which looks like steam. A. I believe that is the exhaust from the dryers and the foundry stack.

Q. That appears to be coming out from in between the two highest parts? A. Exactly.

Q. Is there any partition between those two higher buildings, or is it all one? A. Not that I recollect, or what I seen of it.

Q. Now then, around the forge shop, what are those, that smoke, or what appears to be smoke. Is that smoke? A. That is smoke. That is unburned oil.

Q. Take the right hand one where it seems to go up through the wiring — that is over there. What is that stuff that is going up there? A. That is oil and smoke; unburned oil, smoke and oil.

Q. And is that the stuff you say you smelled inside? A. That is correct, sir.

Q. And it comes out through openings which this photograph does not even show, apparently? A. No, they seem to be covered up by something.

20 Q. But would those openings show but for being covered by oil and smoke? A. Yes; you can see it in a day when it is not coming out.

Q. Going back for a minute to the forge shop inside, was there or not smoke rising from the 60 ovens, arising from such of those as were burning, whatever they were there? A. It was arising from such ovens as were being operated.

Q. And would it or not, in your observation, be that smoke rising from that source which got out through the vents and which we see in the picture? A. That is correct, sir.

Q. Now, there is another picture taken on April 4th.

30 HIS LORDSHIP: Excuse me. The other picture was taken on what date?

MR. SLAGHT: March 14th, my lord. I think it is on the back you will find it, and you will recall that is the date of their inspection under the Order.

Q. I show you a picture taken on April 4th. Does that show the cupolas and the forge shop? A. That is correct, sir.

—EXHIBIT No. 18: Photograph showing cupolas and forge shop of McKinnon Industries Limited.

40 Q. Now, coming out of the cupolas, I see something in the air different from pure air. What do you say that is? A. That is smoke that arising from the combustion of the charges placed under the iron in the cupolas and being forced out.

Q. Now, you have told me many times you observed smoke from the cupola coming over your greenhouses? A. That is correct, sir.

Q. And was it smoke of that type that you saw on occasions coming over your greenhouses? A. Yes, sir.

Q. And was the smoke coming over your greenhouses on those occasions, to your observation, depositing any sediments of any kind on the roofs of the greenhouses? A. Yes.

Q. And what types of sediments did you find there deposited by such smoke? A. We found a very large lot of oil, which, not being of an oily nature —

10 Q. Now, wait. I am speaking of the smoke from the cupolas and did you find an oily nature deposited from the cupola smoke? A. No, sir, I wouldn't say that.

Q. Well, I perhaps did not make my question very clear. A. You did not.

Q. Well, I will put it in a double-barrelled way. This last exhibit, No. 18, appears to have air, not natural, over the forge house again? A. That is right, sir.

Q. And what is that we see in this picture? A. That is oil and unburnt oil coming from the forge shop.

20 Q. That you have described heretofore? A. Which forms the base of anything which comes over on our plants, or on our glass.

Q. Now, have you observed that holding result on your glass and greenhouses after the combined black smoke or blackish looking smoke from the forge shop and —

MR. KEOGH: I think that is a little leading, my lord. I think he should ask him when he has observed it.

MR. SLAGHT: Yes, thank you, Mr. Keogh.

30 Q. I will frame the question to suit you. When have you observed, if at all, particles or deposits lodging on your greenhouse roofings, the glass on it from or at the time when combined smoke from the forge shops and the cupolas was coming over?

MR. KEOGH: No. That is the same objectionable question. It is not when you have observed it at a certain time, such and such; it is just when have you observed it. My friend has more experience than I have in these matters.

HIS LORDSHIP: Of course, he is covering a number of years. It is a peculiar way of putting it. Does the forge shop operate at some times when the cupolas are not operating?

THE WITNESS: That is correct, sir.

40 Q. And the cupolas operate at some times when the forge shop is not operating? A. That is correct, sir.

Q. And when the cupolas are operating alone, do you observe this oily base? A. No, sir.

Q. And do you observe that at any other time than when the forge shop is in operation? A. Do I observe that?

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Q. What you have described as an oily film that forms on the greenhouses? A. When the forge shop is operating and at the same times the cupolas are operating, may I put it that way, your lordship?

Q. Put it whatever way you like. A. This oily smoke and so forth coming from the forge shops, forms a base of an oily substance and the cupola working at the same time the deposits of it is lodged and held on the glass by the oily substances.

MR. SLAGHT: Now, what is it? You used the word "deposit which comes from the smoke from the cupolas which the oil joins with when they are jointly operating." You used the word "deposit." In what form did you find that on the roof? A. We found that from any unburned coke; we found on there an iron deposit and, I am afraid that you will have to have your experts describe the other stuff. It is there in many ways.

Q. In other words, you suggest it is unburned coke and iron mixed with other substances. And is that easy to remove? A. It is impossible to remove unless you use an acid.

Q. Your lordship will pardon me a moment now. While I am on this, I show you another photograph of what I understand to be of the roof of your large greenhouse, No. 7? A. That is correct, sir.

Q. And I will put that in. Was this taken in 1945? A. That is correct, sir.

Q. And on which side of the large greenhouse? A. On the east side.

Q. And what time of the year? A. That was after we had washed the houses, early September, along the 1st to the 15th of September.

Q. Along in the early fall.

—EXHIBIT No. 19: Photograph of No. 7 greenhouse of Walker & Sons, taken in September, 1945.

Q. Now, — A. Would you like me to comment on it for one moment on that?

Q. Well, just go easy now till I show this to my friend. Look at this. It shows the condition of the glass in the right hand portion to be different from the condition of the glass in the left hand portion of your greenhouse. Is that correct? A. That is correct, sir.

Q. And why is the difference and what does this illustrate? A. That illustrates after we have done what you call a cleaning. That is the best we could get with the deposits that are on the houses in regards to cleaning, and that does show a very big volume of loss of light, but to use acid —

Q. Now, pause there, please. The right part of the picture shows after you have cleaned that portion of the greenhouse roof with acid? A. That is right, sir.

Q. And is that the best result you could get with your cleaning? A. That picture was taken within a few days after finishing cleaning, that is, without damaging anything else.

Q. And what do you say as to whether the cleaning the glass, doing the best you can to clean it, has cleared up, or given you good results underneath it in the greenhouse? A. I would say taking the test with a light meter, which has been taken, there would be 20% loss. That is the best that we could get.

10 Q. Now, look at the left hand side of the exhibit and that shows? A. An accumulation over one year's period.

Q. Before it is cleaned? A. That is right, sir.

Q. And what do you say as to the chance flowers would have under that sort of thing — A. Your flower will —

Q. Wait a minute — to achieve a normal growth? A. Your flowers or plants will develop approximately only about 75%. Your quality and quantity and price value will only be 75%.

20 Q. Then, I show you another picture. When was this taken? This is a picture looking from inside the greenhouse out and through the glass of which a portion has been cleaned. A. May I look at the back and find the date on there?

Q. Oh, yes, the date appears to be in 1946. A. That is right, sir. That is Healy's picture, a commercial photograph.

Q. Was this taken under your instructions? A. Yes, sir.

Q. And were you there when it was taken? A. Yes.

Q. And does it correctly show — A. It correctly shows the difference in the glass on the evidence as it is. We have only left about two panes, from the, — probably eleven panes.

Q. So on the right of the picture of this roof you have left about eleven panes uncleaned, for the purposes of record? A. Yes.

30 Q. At the left of the picture I take it two panes have been cleaned? A. That is right.

Q. And the machine is inside and photographs this roof from the inside? A. This is one from the inside, and the other one from the outside.

—EXHIBIT No. 20: Photograph taken inside greenhouse No. 7 in 1946.

40 Q. Well, now, that is in 1946. And what do you say as to whether the glass to the left of this picture, Exhibit No. 20, after it is cleaned, is able to be sufficiently cleaned to afford proper light for the growth of flowers? A. At no time in the last number of years have we ever been able to get our glass clean enough to get what I consider a proper growth.

Q. Have you examined the glass of other greenhouses?
A. Yes, sir.

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Q. And, before we leave that, is light and sunshine through glass, or not, a necessary part, at certain times of the year, for the development of plants? A. Absolutely essential, especially when your crop is going in and the flowers are developing.

Q. But I gather — and you will correct me — that parts of the year, in the heat of the summer sun, — you even have to cover over your glass? A. With light whitewash.

Q. In order that the sun's rays at the time of the year when they would be too hot, do not injure your plants? Is that part of the process? A. That is quite right, particularly the orchid.

Q. And then the whitewash which you use to protect them against too much sunshine, is that readily removable with water? A. It was formerly, and we can remove it yet, but not in any proportion that we were able to in the old days.

Q. Well, do you not remove — A. We do all we can to remove it.

Q. You do all you can to remove it? A. Yes, sir.

20 Q. And then, what about the dirty glass here? Is that glass proper to rear flowers under and get a normal growth? A. I would say you would not get over 50% production under that type of glass. Your quality of flowers and your quantity would be very low.

HIS LORDSHIP: Q. Can you tell me if the glass that is not cleaned, as shown as having not been cleaned in Exhibit No. 20, had been cleaned the year before? A. Yes, sir; that was cleaned shortly after that again, but we left it till we got the pictures.

Q. Well, that was the accumulation of a year, was it? A. That is right, sir, yes.

30 MR. SLAGHT: I show you another picture you had taken on March 14th apparently. What does that show? A. That shows the stuff coming from the cupolas.

Q. The cupolas are photographed there above the roof. And what is that coming out of the cupolas on March 14th, in this picture? A. That would be the smoke and whatever is driven up through the cupola with the heavy blast.

—EXHIBIT No. 21: Photograph taken on March 14th showing smoke leaving tops of cupolas.

40 Q. Have you seen smoke or have you not seen smoke of that type carried over your greenhouses? A. Many, many times.

Q. I have a copy for you, Mr. Keogh. I show you a picture in 1945, which purports, according to your record, to be taken from a spot east of the greenhouse, showing 2, 3 and 4, and showing ventilators on the roofs, and on the sides, and in the distance, apparently, the roof of the forge shop and of the cupolas, is that right? A. That is correct, sir.

Q. This being taken, not for smoke purposes, but to show the relative distance. Is that your greenhouse in the foreground?

A. Correct, sir.

Q. So that it shows, over the top of your greenhouses, the distance of the cupolas and the top of the forge shop? A. Correct, sir.

Q. It is not of great value, but it may be helpful.

—EXHIBIT No. 22: Photograph showing the distance of the cupolas and the top of the forge shop.

10 Q. Then, coming to 1946, I show you a picture you had taken, which purports to show a plot south of your greenhouses, taken early in the summer, showing effects of gas on gladioli. That is in the summer of 1946, early in the summer? A. That is correct, sir.

—EXHIBIT No. 23: Picture taken in the summer of 1946 showing the effects of gas on gladioli.

Q. That is a picture,— A. If I may make a comment?

20 Q. Yes. A. That picture was taken within a day or two after the effect of the gas began to show, which became much worse, as is always the case, a few days later on.

Q. Was this before you called in Mr. Jarvis, perhaps? A. I would like to verify that by another picture; they were both taken at the same time with Mr. Jarvis. What date is that?

Q. Well, this purports to be taken early in the summer, showing the effects on gladioli. I will withdraw that question. But what does that disclose now, looking at it? A. The white effect shows the first effect of gas burning.

30 Q. The white effect on the stems of the gladioli as they appear, growing in the ground? A. All these white spots are the first effects of sulphur dioxide, which will show within 10 or 12 hours that it occurs, and it becomes much worse as the days go by.

Q. Did you observe these in the ground at the time you had this photo taken? A. Yes, sir, and I was there when it was taken.

40 Q. This was early in 1946, and that is Exhibit No. 23. Now, you had some photographs taken in 1946 of the test plot of McKinnon Industries, taken early in the summer of 1946, and I show you as Exhibit No. 24 that picture. Can you identify it? A. Yes. This is the test plot of the McKinnon Industries and taken at the same time as the others were taken, the first pictures.

—EXHIBIT No. 24: Photograph of test plot of McKinnon Industries Limited taken in early summer, 1946.

Q. Now, did you see that plot at the time the picture was taken? A. I did, sir. I was there — over there, right alongside it.

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Q. And what does that disclose? A. That disclosed the first effects — you will notice white spots up and down the stems of the gladiolii, which becomes much worse as the days went by.

Q. Now, if those plants were healthy and normal, would those white spots be there? A. No, sir.

Q. And that is on their test beds, not yours? A. That is correct, yes, sir.

Q. Now, I show you what will be Exhibit No. 25, a photograph you had taken of the gladiolii on the east side of the greenhouse, taken early in 1946. Had you seen those? A. Yes, sir. That was taken the same day as the others were, and by the same man.

Q. And what comment is there? A. These white spots and right down through here show the first beginning of the effects which become much worse as the days go by.

—EXHIBIT No. 25: Photograph showing white spots on gladiolii planted on east side of Walker greenhouse.

Q. Now, those white spots you point to — A. That is burned alongside the leaves.

Q. You say that those are burnings alongside the leaves. Of course, burnings would not be with a healthy plant.

HIS LORDSHIP: This shows your own plants? A. Yes, sir. This one here now on the plot and along east of the greenhouses. All those pictures show they were taken on one day.

MR. SLAGHT: Q. Now, then, I come to August 7th, 1947, a photo of your principal lot, the planting of gladiolii. Somebody's photograph in that picture, who is that? A. That is one of my men, George Thomas.

Q. Now what does that picture disclose? Was that before or after burning? A. That was after the burning, and I believe you have one before that, showing the first effects of the burning.

Q. The picture out here, the one before, so we will get a little chronology. A. That is the one, the burning. Here is the later one, showing the effects after that one there.

Q. Now then, I first showed you, on your own greenhouse, August 7th, 1947, of a principal lot where you had gladiolii planted outside after the burn, and your workman is in there? A. That is George Thomas.

Q. When did the burning take place, approximately, that is recorded here? A. That had taken place over the period of a few days before that there. We had had very dry weather and I would say that had taken place within, — oh, three or four days.

—EXHIBIT No. 26: Photograph taken on August 7th, 1947, showing effect of burn on gladiolii.

Q. Now then, that was at your place. I show you another picture taken the same day on the test trial plot of the McKinnon Industries, on August 7th, 1947. A. That is correct, sir. That shows a better showing of burnings, and that is also George Thomas, the same man.

10 Q. George Thomas is standing outside, behind the wire fence there, and that is the McKinnon test plot, and you say that shows burnings. Are they mild or severe? A. Pardon, sir, but that was only taken a few days after your burnings. Didn't show anything compared to a few days later. That is early in the burning.

Q. So the effect of the burnings was not fully shown in this picture? A. Correct, sir.

Q. What is there in that picture for the benefit of us? A. All these white spots in here are burnings.

—EXHIBIT No. 27: Photograph taken of test plot at McKinnon Industries Limited on August 7, 1947.

20 Q. Now then, a picture on the 5th September, 1947. Where is that taken? A. That is the same plot, only shows the effects of the burnings and now the flowers have not developed or anything at all coming up through there.

Q. Well, but wait, it is not the same plot we were looking at before. This is back in your greenhouse again? A. That is right.

Q. And showing pictures of your greenhouse, and it shows the increased effect of the burnings of which the earlier picture shows the earlier effects? A. That is correct, sir.

Q. And that is taken the 5th of September, 1947, and will become Exhibit No. 28.

30 —EXHIBIT No. 28: Photograph taken September 5, 1947.

HIS LORDSHIP: This is the same plot as shown in Exhibit No. 26?

THE WITNESS: That is correct, your lordship, only about a month apart.

MR. SLAGHT: Q. Now, I show you as Exhibit No. 29, a photo taken also on the 5th September, 1947, but, this time, of the plot at the McKinnon's where you have suggested the devastation would be further advanced. What does that show? A. It shows the McKinnon's plot.

40 Q. And what is the condition of the gladioli there? A. The condition of the gladioli there, as you will see from a view of that, they made perfect flowers.

Q. Is there evidence of burning there? A. Yes, sir, there is.

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Q. And about these that appear to be further from the back of the picture — they look different? A. Well, you see, the flowers are not showing here as much as before. These gladiolii here had also been trimmed. I was there and seen the gardener trimming this bed; shoes off.

Q. So that this is not — A. Is not a true picture of the gladiolii and the condition of that plot as it should have been if it had been left.

Q. But what about these gladiolii showing at the back of this picture? Are they healthy gladiolii, or are they not? A. No, they are not healthy gladiolii. Only the tips are showing.

Q. There are four, I see, at the front, and three or four by the right, which were in better shape? A. Well, this plot is not subject to what we are and they would show naturally a little bit better in the volume and the quantity of flower.

Q. At all events, that was taken on the 5th September and shows the condition which you have described in their test plot? A. Yes.

20 —EXHIBIT No. 29: Photograph taken on September 5, 1947, showing the condition of the gladiolii in the McKinnon test plot.

Q. I show you a picture taken on the 9th September of the McKinnon trial plot again, isn't it? A. Yes, sir.

Q. Who is in the background there? A. That is George Thomas.

Q. And what condition does this picture disclose? A. They have taken out the gladiolii in that picture.

30 Q. So that shows you what you told his lordship earlier to-day that after you took your photograph there, apparently somebody took out the gladiolii so they were no more observable? A. Sir, that is not the same year.

Q. Oh, now, I have confused you, I am afraid. On the back of the picture it says September 9th, 1947, picture of the trial plot at the McKinnon's. A. That is correct, sir.

—EXHIBIT No. 30: Photograph taken September 9, 1947, trial plot at the McKinnon Industries.

40 Q. And that picture shows apparently the ground with a lot of plants strewed around on it? A. They had removed the gladiolii and left the petunias, which are not subject to gas very much.

Q. Left an outer border of petunias? A. Yes, sir.

Q. Now, this was taken on the 9th September, 1947, down there, not cut down, and the trial plot just prior to this was. Was I confused about that? A. I made that statement a moment ago, that those gladiolii had been trimmed previous to when they were taken out.

HIS LORDSHIP: You said something about having not been in the same year. Exhibit No. 29 was taken on the 5th of September, 1947, and, according to the evidence so far, Exhibit No. 30 was taken on the 9th of September, 1947. Now, is there any confusion? A. Your lordship just — if I may have the photos back, just for a moment, I can tell you in a moment.

MR. SLAGHT: Let us avoid confusion. It may be more my fault than yours. A. It will be marked by the photographer on the back.

10 Q. This is Exhibit No. 29 and you told me that was a picture of what — of your place or theirs? A. That is a picture of the McKinnon test plot.

Q. And you spent some time telling us the blooms at the back were not healthy; the few blooms in the front were, and the leaves showed signs of burning? A. That is correct, sir.

Q. Now then, that, I may tell you, was taken on the 5th of September, 1947? A. That is quite right.

20 Q. And, as his lordship went back, you said something about a different year. Well, I may have confused you, because I showed you a picture that was taken a few days later on, September 9th, 1947, and that you told me — if you are wrong, correct it — was also the McKinnon test plot? A. That is quite right, sir. Is that the one in the same year?

Q. Yes. A. That was there when they were trimming it. This was taken after the trimming had took place and they were trimming up.

Q. That is Exhibit No. 30? A. Yes.

Q. So it is the same plot? A. Yes, it is the same plot.

30 Q. Then, I show you a picture taken on October 21st, 1948, showing your big greenhouse and the cupolas and the forge shop looking west and southwest. Do they show up in that picture perhaps better than in the other one? A. That is quite right, sir.

—EXHIBIT No. 31: Photograph showing the Walker greenhouse No. 7 and the cupolas and forge shop of McKinnon Industries, taken October 21st, 1948.

40 Q. It is just really a perspective picture. Then, I show you a photograph of some mums taken in 1946. What does that picture show? You have your record of it there which may help you refresh your memory. A. This shows the effects when they first began to notice the effects of sulphur dioxide on the colour of the flowers. The large mum in that picture is grown 300 feet further north and very close —

Q. A pause there, please. The large mum, — is that the one to the right? A. That is right.

Q. And the mum shown to the left — yes? A. Just one moment, if I might, please. This large mum is grown 300 feet

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distance away from the smaller mum. These mums are both the same varieties. The larger mum shows its true colour, which is a dark pink. The other one shows a whitish washed-out effect, which was our first beginning to notice the effects of sulphur dioxide coming in through the place and turning our colours.

Q. Well then, the mum to the right appears to be the whiter one? A. Yes; the one nearest here, grown in the upper house.

Q. And which, do you say, is in the better shape — the one to the right? A. The larger one, that is natural. It is 85% we will say.

Q. The pink one to the left? A. Yes.

Q. And the white one to the right? A. Shows a washed-out pink, almost a pure white and only half growth as to size and quantity.

Q. And what do you say is the cause of that? A. I would say that those fumes coming through the greenhouse and turning the colours.

— EXHIBIT No. 32: Photograph taken in 1946, of two chrysanthemums.

20 Q. Now, I show you a photograph which I understand you had taken of one of your orchid houses, some sixteen years ago. Is that right? A. That is correct.

Q. In 1932? A. That is correct.

Q. And what do you say that suggests or shows? Who is the man in that photograph? A. That is myself.

Q. You were much younger looking then? A. 16 years.

Q. And what do you say that picture helps to show? A. That shows definitely the large amount of growth that we were getting on our orchid pots and plants, which is very essential to the reproduction of orchid plants.

30 — EXHIBIT No. 33: Photograph of an orchid house on the W. W. Walker premises taken in 1932.

Q. Now then, I show you, as compared with that photograph, one which you had taken on April 4th of this year, 1949, and you are in this picture as well, are you? A. That is correct, sir.

40 Q. And what is disclosed in the beds to the left? A. I would add that very definitely shows that, through the interference of gas and other things, and vibrations, that our orchid plants are suffering very bad. You will notice there are no white roots showing down along those plants, and there are also dead roots showing on the growth over the top.

Q. These two are both before and after the taking of what you complain of? A. That is right, sir.

Q. Back in that first picture, in 1932, you are not suffering from any outside influences? A. I was making very good progress at that time in growing orchids.

selves, show the difference in the orchid bloom in the two pictures?
 A. That is, sir. I could not swear exactly, but it does show, I believe, that we were getting a better quality of orchid bloom and also heavier production of the plant.

Q. Well, heavier production, I think that is perhaps apparent. Now, dealing a moment with vibration. Were you at your plant a week ago Monday, which was the 4th of April? A. I was, sir.

10 A. Yes, sir.

Q. And were the defendants operating their big hammers?

A. I couldn't say the big hammer. They were operating hammers. It might have been the 4,000 pound one.

Q. Were you inside your greenhouses with those two gentlemen, the experts, on that day? A. I was, sir.

Q. And what observation did you make with respect to the effect, if any, of the operation of the defendant's hammers?

20 A. The plants were just dancing up and down and, every time that big hammer came down, you could just see the leaves and everything all move, right through the greenhouse.

Q. The leaves were moving on the plants? A. The leaves were moving on the plants and the plant was going up and down on the — we have stages there, or steps.

Q. Did you, as an adult, feel the vibrations there, yourself? A. Very plainly, sir.

Q. The floors of your greenhouses are largely earth? A. Concrete and earth.

30 Q. And what effect, if any, would that sort of vibration, as you saw it that day, have on the growth of plants? A. It would be very detrimental, especially to the orchids.

Q. Are they a delicate flower? A. Very, very sensitive to anything like that, they are.

Q. I don't think we have heard, but they have their origin from a foreign jurisdiction. Our orchids come from what country?

A. The species come mostly from South America, but our selection is composed of the finest selected hybrids, which is from the best variety of species.

40 Q. Where do you get them from? A. Our best orchids are from the collection of Lord Rothchild's, in England, and the Duke of Wellington collection, and several other large holders. These men, during the war, were only allowed to have coal for 25% of their collection, and they had to sell the extra plants, so we got quite a few of them, but the others came from South American stock.

Q. So I think you did say the vibration affected the orchid particularly, and it did affect other plants? A. Yes, I would say it would, sir, yes, but not as much as of the orchids.

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HIS LORDSHIP: We will adjourn until 2.15 p.m.

—Whereupon Court adjourned until 2.15 p.m.

Tuesday, April 12th, 1949,
2.15 p.m.

EXAMINATION OF MR. WALKER
CONTINUED BY MR. SLAGHT:

Q. Mr. Walker, I want another word about the washing of the roof of your greenhouses. You have washed them on several occasions? A. That is right, sir.

10 Q. And I think we had from Mr. Ure, the square footage of the glass there, some 13,000 feet? A. That is, sir, the amount of the ground covered. It would be more than that; approximately 20% more; around seventeen or eighteen thousand.

Q. Why more? A. The footage given to you is only the amount covered by glass, and the roof sliding on that would mean that I would say approximately 4,000 feet more. Then, you have the sides of your glass that extend down the sides, forming a wall, which is not figured.

20 Q. I see. Well, whatever it is, when you have washed them, do you have any difficulty in washing the glass? Take the large greenhouse, No. 7, and it slants up to an apex like this. What is the length of one side of the greenhouse down to where it starts turning to the ground? A. It is 28 — 30.

Q. On each side? A. Yes.

30 Q. Then, in the washing that you have done and attempted to do, are there any difficulties connected with it? A. Very much so. It is very difficult to get a man to go up there. It is a dangerous job. On several occasions we have had men fall through and lacerate themselves and spoil many panes of glass. Other men cannot walk on an 18 inch plank.

Q. Well, one thing you suggest is the difficulty in securing the proper type of labour? A. That is right.

Q. And another thing is, there is some danger connected with it and the breakage of glass? A. That is correct.

40 Q. Now then, on the occasions when you have washed it, what have been the lengths of time before it begins to become besmirched, so as to get it clear again, or you would have to wash it again? A. If we were to have muggy days and wind blowing from the southwest and gas and oil settling over it, in 10 days we would have a very bad condition again.

Q. Now then, is it suggested that the two pictures them-

Q. Now, have you estimated the cost of one washing of this area of square feet on the seven different glass surfaces? A. Approximately \$350.

Q. I believe your son has gone into that? A. Quite right, sir.

Q. And he will testify. What do you say as to whether or not, in your operation, it would be advisable to wash the roofs of the greenhouses say every ten days, having regard to the expenses and the difficulties? A. We could not do that, sir. We could not stop our own men and could not get men to do that.

Q. What about the economy, or the expense of it? A. We couldn't afford it. That would run up to thousands of dollars.

10 Q. Then, we heard from you yesterday that your system as a grower and a retailer carried on in this way, that your greenhouses, when they sold and delivered plants, sold in the sense of selling to your own store and delivered the plants to the store in the city, you were charged for wholesale prices? A. That is correct, sir.

Q. Was that always done? A. Always.

Q. Then you do your wholesale business aside from that?
A. That is so.

20 Q. Take 1948, your last annual year of operation of the two greenhouses as an operation, is there, having regard to the incidental expenses, heating, the labour, the operation of the greenhouses plus the revenue you took solely from the greenhouses, how did that bring you up — a profit, or in the red? A. We lost over \$4,000 in the greenhouses. We lost reproduction of orchid plants amounting to many thousands of dollars, also.

Q. Now, when you suggest you lost \$4,000 in the operation, cash in and cash out of the greenhouses? A. Correct, sir.

30 Q. And on top of that, you lost in the orchid plants themselves, you say, a substantial amount? A. Well, I could tell you, but it was over \$6,000. I believe I could give you those figures exactly.

Q. Now then, your store, I understand, operated at a profit?
A. That is quite right, sir. It has carried the greenhouse for many years.

40 Q. Now, I am only interested in 1947, 1946 and 1945. What do you say as to whether anything of those years you operated the greenhouses, qua greenhouses, in the manner I have outlined in a profitable way? A. It has not been profitable in the years that you have mentioned now, 1945, 1946, 1947 and 1948, if that is the question you are asking me.

Q. Yes. It is with regard to the greenhouses alone, not with the joint operation, because we will hear something from your son about that. Your son, John, runs the store? A. He is the grocer.

Q. Oh, William is the store man? A. Yes, that is right.

Q. And keeps books at the store? A. That is right, sir.

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HIS LORDSHIP: Do you charge out your flowers to the store at the same price as you charge them out to other retailers?

A. Exactly, sir. It all goes through the sales tax and everything going out of there is charged along the same lines.

Q. And at the same price? A. And at the same price.

Q. You are sure of that, now? A. Yes, sir.

MR. SLAGHT: Q. Then, you have told me the price of washing the glass, and so on. Then, Mr. Walker, you have set out, or there has been set out in the statement of claim, some flowers for which you claim. Now, my lord, till your lordship gives a ruling as to whether we have a Reference or not —

HIS LORDSHIP: Well, I have made up my mind that I am not going to assess the damages.

MR. SLAGHT: Well, then, my lord, I shall refrain from putting in the estimated money losses. I think that might be useful, but I will refrain from that, if your lordship so directs.

HIS LORDSHIP: I do not see what value an estimated money loss can have, and it would be necessarily subject to very considerable cross-examination, if it has any value, as then that must be gone into rather thoroughly.

MR. SLAGHT: Then, I will refrain from asking that at all, my lord, and I will not open it on this issue so my friend will not waive any rights by not cross-examining on it.

HIS LORDSHIP: The question of damages will be one that will be left entirely open for assessment, if there is any liability.

MR. SLAGHT: For both sides?

HIS LORDSHIP: For both sides.

MR. SLAGHT: Thank you, my lord, and in that view of it, I shall rest my case on the physical description and on that of the damage we have sustained because I have an injunction side of my case, of course, as well as my damage side.

Q. Then, Mr. Walker, that relieves us of that for the moment. We heard from you that the raw materials that the defendants used in their cupolas in making their molten hot iron bars for processing, was partly scrap? A. That is correct, sir.

Q. Is that a photograph, taken in September, 1948, of the scrap heap of their raw material? A. That, sir, is only one end of the big pile. There are three photos and it was on their land and taken at that date.

Q. It does not purport to cover all the scrap? A. No. There are three photos to cover that.

Q. Oh, I guess I have got them. Are these three? A. That is one end. This was the centre, and that is the other end.

Q. Well, then, these three photographs purport to cover an indication of the stock of scrap they had on hand on September 27th, 1948. If I may, I will put these three in together.

HIS LORDSHIP: They will be Exhibits 35-A, B and C.

—EXHIBITS Nos. 35-A, B and C: Three photographs representing the stock pile of scrap at McKinnon Industries on September 27, 1948.

MR. SLAGHT: Q. Where are these situated? A. Those are situated at McKinnon Industries on the land east of McKinnons and on H———(?) Street.

10 Q. Do you know whether that is material that they currently use in their processing? A. I would say, yes, because in the cars passing it is very similar to the cars passing with the scrap in.

Q. Will your lordship pardon me a moment? Then, many samples, or some samples of plants and flowers that have been adversely affected, have been taken from time to time in your presence, by some of your experts who have had the custody of them? A. That is quite right, sir.

20 Q. Well, I shall not trouble to ask you anything about that right now. It may be (after they are through) better proven by the men who took them but I will ask to recall him, my lord, just for verification of the fact that he was there when these exhibits, which will be filed as exhibits, were taken. Then, Mr. Keogh, your witness. Oh, pardon me a moment. Oh, yes, my friend reminds me, my lord, you have had taken moving pictures on one or two occasions? A. On a number of occasions.

Q. And those films have been preserved and can be reproduced? A. They have been preserved, both my own and both the commercial photograph.

Q. Oh, you took some of the movies and a commercial photographer took some? A. Yes.

30 Q. And have a projector available so that they can be reproduced? A. I would say in 25 minutes we can supply a man to project the films here.

Q. To reproduce them? A. Yes.

Q. And what do you suggest they would disclose? I ask you that, more properly, in this way: you were there when they were taken? A. Yes, sir.

40 Q. And the conditions which you say you photographed and had him photograph, tell me, what would those conditions disclose if they could have been seen by his lordship or can be seen in the moving pictures? A. If I might say, if it is just plain now to his lordship, they will show him everything with all the different colours and different classes of stuff and bins and different varieties of metals that they brought in, in colour.

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Q. As an illustration, you say a picture was taken of those by colours? A. By a commercial man and —

Q. And that you say would disclose perhaps the discolouration and perhaps rust? A. Rust, and all the different colours in the piles.

Q. Then, when you come to your flowers and plants, would those pictures disclose anything in the procedure, which Mr. Argue will have here, as to whether they have been injured or not? A. Very much so.

Q. Now, my lord, we think this to be the appropriate time, or a little later, if your lordship will rule on this. I understand, in Court proceedings, they have been received. It will be nothing but just closing these two windows here. We do not have to have complete darkness. I am in your lordship's hands, but I should like to tender them.

HIS LORDSHIP: I am not disposed to receive moving pictures of those things that can be well described by experts. Perhaps, on pictures of that sort, the lay mind may very well draw conclusions that are not warranted at all and may see things on the picture that you think indicates something of a thing that may be detrimental to one side or the other and, if properly explained, does not mean anything at all.

MR. SLAGHT: I see. Well, may I ask this then, my lord — I shall not press, in view of your lordship's expression, the undertaking of these movies at the moment. After your lordship has heard the experts, I propose to call him, may I have leave then to renew my application?

HIS LORDSHIP: Yes, you may at any stage, but my disposition always has been, even on matters such as x-ray photographs, that they ought not to be shown to the Court, because I have found that I might think something shown on the photograph was of serious consequences and, when it is explained, it does not mean anything at all; and something else that is really serious, does not show up very well in a photograph and because it does not show up, it is passed over. I think it is really a subject for expert evidence, and we usually get along, in a case of this sort, pretty well by what the witnesses tell us. I will give you the opportunity of renewing your application later on.

MR. SLAGHT: Thank you, my lord. I recall that I have experienced something of what your lordship is now indicating in cases where I have produced, or had occasion to cross-examine medical men on x-rays. It takes a real expert to read a skyograph, or an x-ray of any injury, and, as counsel, I think I got pretty well alert at one time in my practice on that, but it is a task to read what a picture tells us, and it is in that view that your lordship, I think, is expressing yourself at the moment.

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HIS LORDSHIP: Well, I am not ruling that they may be admitted at the present time. I may permit you to mark them, if you wish, for identification, so that if any Court wishes to have an exhibition of them, they may be proved and be available but, as far as I am concerned, I am disposed to rely on what reliable witnesses may tell me.

MR. SLAGHT: Well, thank you, my lord. As I understand it, then, for the moment I shall not press my suggestion and it may be I could re-open it if I see fit, to further consideration by your lordship at a later stage?

HIS LORDSHIP: Yes.

MR. SLAGHT: And in the meantime they are not accepted. Well, perhaps I should have them marked now.

HIS LORDSHIP: Well, you can have this witness identify them.

MR. SLAGHT: Yes, and marked for identification and not presently proved before your lordship.

HIS LORDSHIP: That is what I have rejected.

MR. SLAGHT: Oh, yes.

Q. Then, these three little metal cases, do they contain little moving pictures to which you have referred? A. Two are mine and the other one marked "Cooper," is the man who took the other one.

Q. Well, let us have "Cooper" marked.

HIS LORDSHIP: That will be Exhibit "A" for identification.

—EXHIBIT "A" FOR IDENTIFICATION: Metal tube containing moving pictures taken by Cooper.

HIS LORDSHIP: You say this roll of moving pictures that was taken by a man named Cooper. You have seen— A. I have, your lordship.

Q. Just let me get through with my question, please. You have seen the roll and you can identify it as a roll of moving pictures, showing your plant, is it? A. That is quite right, your lordship.

Q. Showing your plant? A. Plants and surrounding territory. I might add that he took that one that you have. That is the one with those three letters.

Q. That is "A" for identification.

MR. SLAGHT: Q. Then "B" will be taken by yourself along the same lines? A. Quite right.

—EXHIBIT "B" FOR IDENTIFICATION: Films taken by the plaintiff.

Q. I am putting in "C" in the same way. This was taken by you? A. Quite right.

—EXHIBIT "C" FOR IDENTIFICATION: Film taken by the plaintiff.

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MR. SLAGHT: Needless to say it takes a projector to reproduce those. Oh, pardon me, there is one point. This morning you told us that, at seasonal periods, you put whitewash on some of your walls or roofs of the greenhouses to prevent the sun's rays being too hot for the good of the plants? A. That is quite right, sir.

Q. And I don't think I cleared with you how that could be taken off or when you do that. Before you notice any mechanical trouble, do you remove the whitewash? A. We have no trouble, especially if you let it go till the first frost. It would crack and come off quite easily.

Q. Then, what do you use in removing it, anything but water? A. Nothing.

Q. You can take it off by rubbing? A. That is quite correct.

Q. Then, after you came to a period where substances came from McKinnon's which you have described in some detail, was there any difficulty in getting the whitewash off? A. We were forced to use muriatic acid in order to get it down to the glass, and we could never clear the same section of glass as previously, when we only had water.

Q. Yes. Now, Mr. Keogh.

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CROSS-EXAMINATION BY MR. KEOGH:

Q. Mr. Walker, I show you a picture post card bearing the title "McKinnon Industries Limited, St. Catharines, Ontario, as seen from an aeroplane," or, rather, not the two — just "McKinnon Industries." I am informed that was taken between 1917, the date of the incorporation of this company, The McKinnon Industries Limited, which will be proved later, and 1925, the date of the present company known as The McKinnon Industries Limited. Do you recognize that as the McKinnon plant between those two periods?

MR. SLAGHT: Just a moment, please, my lord: without any evidence as to the conditions high, or conditions low, and so on, under which this photograph was taken, I do not think a mere recognition — and I don't know whether the witness will or not — I do not think that it is receivable against me. I think, if my friend places any virtue on it, he ought to prove it first.

MR. KEOGH: It is just a bird's eye view from an aeroplane. It says right on it it is an aeroplane view.

HIS LORDSHIP: As far as Mr. Keogh has gone, he asked the witness if he recognized it.

THE WITNESS: I recognize this quite readily.

MR. KEOGH: Q. And this does contain the old plant and also the old annealing room down on the corner of Carlton Street. There are one or two small buildings there. I don't recollect, but

I believe they were taken away since. I will tender that as an exhibit in a moment, my lord, but there are a couple of questions I wish to ask the witness first.

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THE WITNESS: May I see that one just one moment again?

MR. SLAGHT: I didn't catch the year my friend suggested.

MR. KEOGH: I said it was between 1927 and 1925; between the incorporation of those two companies.

MR. SLAGHT: Prior to the incorporation of the present company?

10 MR. KEOGH: Yes, because it has "McKinnon Industries" on it, instead of "McKinnon."

THE WITNESS: Yes, there is one little thing I recognize on that.

MR. KEOGH: Q. And is the street or particular highway that appears to run diagonally across the lower portion of the picture, is that Ontario Street? A. That is quite right, sir.

Q. And is the building, and trees, written in this picture, that is the right hand end of the picture, with the several smoke stacks, is that the location of the foundry? A. No, that is not.
20 That is the old annealing oven there. The foundry is away — pardon me, have you got the smoke stack?

Q. There are several smoke stacks on that picture. A. This is 1917. There would be their foundry there, I would say. Either the foundry is there or there. That is the annealing oven coming there. It is coming across the back here.

Q. You are indicating in the vicinity of the tallest of the stacks shown in the picture? A. I believe that stack is the one from the end of the second left air furnace they erected. I am not positive.

30 — EXHIBIT No. 36: Aerial photograph of plant of the defendant.

Q. And just before I leave that, will you point out to me Carlton Street on that picture? A. Carlton Street is not shown in any way, shape nor form.

Q. Is it not at the north end of the building? A. There is no showing of any street whatever.

Q. There is right in the middle — perhaps, just to be fair to the witness, — there is right in the middle of the right hand side, — is there not what appears to be the start of the intersection
40 of that street with Ontario Street? A. I wouldn't say that was very plain and, unless you knew that was there, I don't think you could conceive it to be an intersection.

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Q. Doesn't it look like an intersection? A. I wouldn't say so. I recognize that house as Mr. Beer's house.

Q. And that house was on the corner of Carlton? A. No, a little bit this way. On this side of where the N.S. & T. goes through now, with the short cut.

Q. Then, I show you another photograph of the McKinnon plant.

HIS LORDSHIP: Just so that I may understand. What do you say, in the first place, in what direction is this photograph taken or is the camera facing?

10

MR. KEOGH: It is obviously west, looking across Ontario Street towards the canal.

HIS LORDSHIP: Facing northwest?

MR. KEOGH: Perhaps I had better ask the witness.

THE WITNESS: This, your lordship, runs directly north and south, and the end of that building with the big brick stack on, is very close to the cross street there.

20

HIS LORDSHIP: Well, the smoke stack that is seen, the tallest one at any rate, that is at the north end of the building, is it? A. Quite right, sir; within, oh, probably 300 feet of that big stack. You see the brick stack there, the annealing stack, at the end.

Q. Which do you refer to as the "annealing stack"? A. This brick stack and in here is the foundry.

Q. Well, you say "in here" — you say to the south? A. That is quite right, sir. The foundry is in here.

Q. Well, that is to the south of the tall stack? A. Quite right, sir, about 300 feet is their foundry and the other thing here, back behind, I would say.

30

MR. KEOGH: Q. Now, these cupolas that we have heard so much about, they have been put in since this photograph was taken? A. Yes, sir, in 1937 and 1938.

Q. And what about the forge? A. If I may interpose, this here annealing stack, you see it there, was on their own land. Next to that was where the annealing oven stack shows the big chimney.

40

HIS LORDSHIP: That is the square chimney? A. That is quite right, sir. Later, the city gave or conceded to them what is known as Carlton Street which was, I suppose, the country road, 66 feet wide, and along on that, or very close to it, was your present cupolas was built. Then, across north from that your forge shops was built in Grantham. When you cross the street you are in Grantham.

HIS LORDSHIP: So the cupolas and the forge shop have been built on ground that is north of this photograph, — of the buildings shown in this photograph? A. Your lordship, I would say that the forge shops are on a line north of that, and the cupolas might be a little, both on the McKinnon's and on the street.

Q. Were any buildings pulled down? A. No, not at all whatever.

MR. KEOGH: Q. Is it not a fact, Mr. Walker, that the present foundry, and when I say "the present foundry" I include the one that was enlarged in 1937, is erected on land which takes in the site of the old foundry and more land? In other words, was built around and over and larger than the old foundry? Is that not right? A. That is right, sir.

Q. So that when you refer to the tall stack in the picture postcard photo, Exhibit No. 36, as being where the annealing oven was — A. The brick stack, pardon me.

Q. Oh, I beg your pardon. Well, you said something was located in the vicinity of the tall stack in Exhibit No. 36. Was that the foundry? A. That would have been the second air furnace in the foundry.

Q. The second air furnace in the foundry was located in the vicinity of that tall stack in Exhibit No. 36? A. Yes.

Q. So that when, having that location, that takes in part of the location of the present foundry as enlarged in 1937? A. The present foundry was built around that.

Q. Then, I show you another bird's eye — what we might call a bird's eye photograph of the McKinnon plant, which I am informed was taken by Mr. Villiers, our present sheriff, between the years 1930 and 1933, and will be identified later, if necessary. Will you look at that, please, and tell me if that is — do you recognize that as the McKinnon plant as it existed between those years? A. This is not a very clear view, sir.

Q. Well, it seems to be bright enough. A. I am just asking — from the angle it is discernible.

Q. That is taken from the opposite side, looking east from the canal. A. There is your water tower and your foundry, or very close to that. I can't understand or make out — I can't place this here at all.

Q. Well, that is back. A. I cannot verify this here picture.

Q. Well, that is, I am told, the McKinnon plant looking from the rear and looking east across the old canal. Does that help you to recognize it?

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HIS LORDSHIP: Mr. Keogh, unless there is some particular advantage having this —

THE WITNESS: I cannot.

HIS LORDSHIP: Just a moment, witness, I am speaking. Unless there is some particular advantage in having that put in from this witness — you will no doubt have ways of proving that.

MR. KEOGH: I can prove that by calling the sheriff. I thought he might recognize it.

MR. SLAGHT: He says he cannot verify that.

10 MR. KEOGH: I suppose the same will apply to the others. Can you verify this other one which I am told was taken by the same photographer in the same period, between '30 and '33, and looking the same way, or can you not just tell me "yes" or "no"?
A. Sir, when was this taken?

Q. Between 1930 and 1933. Just tell me if you recognize or if you do not, that is all — to save time. A. The Delco was built at that time. This doesn't give you a complete picture.

Q. Well, I don't want to go into details. I asked you first, if you recognize it? A. Yes, but it doesn't give a complete picture of the McKinnon Industries.
20

Q. But you recognize that as a photograph of what you say is a portion of the McKinnon plant in those years? A. Quite right.

Q. Well, possibly I may put that in as an exhibit.

—EXHIBIT No. 37: Photograph of The McKinnon Industries plant taken between 1930 and 1933.

MR. SLAGHT: Well, should we have pictures of portions?

HIS LORDSHIP: Oh, yes. I can see no objection to it.

MR. KEOGH: Q. Now, you worked in the old McKinnon Dash foundry for a year or two, yourself, 1904 and 1905, did you not? A. One year, I believe, and two winters.
30

Q. You worked in the old McKinnon Dash foundry for a year or two, commencing in 1904? A. I believe so.

Q. And you worked the whole of the year 1904 and two winters, that would be 1905 and '06. Is that right? A. I believe the other one year was just short a few weeks, or something like that, and then two winters.

Q. And then the following two winters? A. I believe it was the following two winters.

Q. And you worked as a moulder in the foundry? A. Yes, sir.
40

Q. So that you worked as a moulder in the foundry approximately one year before you established your cold frame florist business there? A. What year are you referring to?

Q. You worked approximately one year in the foundry before you established, in 1905, your cold frame florist business on your present property? A. Sir, I do not think your date is correct. I bought the property in 1903, and established the cold frames in 1904.

10 Q. Oh, I beg your pardon. I took you down earlier as 1905. I might have made a mistake. Well, at any rate, that is the situation.

MR. SLAGHT: He told you his wife worked there the first year.

MR. KEOGH: Q. You established the cold frames, then, in 1904, while you were working at the foundry. Is that right? A. While I was working. That is the way I believe it was, at the foundry, yes.

20 Q. The cold frames are a box covered by window sash of glass and they lie on the ground? A. They are frames about six feet wide and by about six feet three, covered with cold frame sash.

Q. They are like a box covered by a window? A. That is so, sir, only larger, sir.

Q. And then, from time to time, later on you extended in knowledge your business by the erection of a greenhouse? A. 1905 the first one.

Q. And you built your first greenhouse in 1905? A. Correct.

Q. And the first large one about 1909. Is that right? A. That is right, sir.

30 Q. And then you built two more in 1911? A. That is right, sir.

Q. And then the most southerly one across the front in 1912? A. Correct.

Q. And then you built your most northerly greenhouse about 1919? A. Or 1920.

40 Q. 1919 or 1920. And during all this time that you were expanding your knowledge in the florist and greenhouse business, McKinnon's were expanding and enlarging their business, the foundry and machine shop. Is that right? A. The foundry and machine shop.

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Q. I should not have said the machine shop. I beg your pardon. I should have said the forge shop. A. Sir, they were, a good many years, where the McKinnon Industries is to-day, in there for many, many years, the land opposite McKinnon's was farm land; fruit land and garden land.

Q. I am not dealing with that at the moment. But I say is it or is it not a fact that, during all these years while you were enlarging your business, the McKinnon foundry and forge shop was being gradually enlarged over the same period? A. Up to what period.

Q. Up to the last enlargment of your greenhouse, 1919, and since, in 1937? A. Yes, to a considerable extent, but not very much.

Q. In other words, the two businesses enlarged along pretty much over the same period. did they not? A. No. I think I enlarged the most in proportion.

Q. You grew faster, but you both grew? A. That is quite right, sir.

Q. And when you were working in the foundry as a moulder, in the old McKinnon Dash foundry in 1904, I think you told my friend that it had the one stack and an air furnace of 16 tons capacity, for heating? A. That is quite right; two heats a day.

Q. I am instructed that the capacity of that furnace was 10 tons. What do you say to that? A. I would not say that it would be 10 ton, unless they built it up later on to make it 10 ton. For a long time it was 7 ton.

Q. And that it regularly operated for two heats a day and occasionally three heats a day? A. I have no recollection of any three heats being taken off, sir.

Q. And that the furnace burned approximately 20 tons of coal a day. Do you agree with that? A. I would not agree with that amount. I have handled a lot of coal.

Q. You have handled a lot of coal, but you would not agree with that amount? A. Not with 20 ton, no, sir.

Q. What would you agree with? A. I might not be able to size up exactly, still, having had considerable to do with coal; I would say there might have been 12 or 14, 15 ton at the limit.

Q. 15 tons as a limit, and that was, as you have described it, a small air furnace? A. Right, sir.

Q. And that exhausted its smoke and gases and fumes through a stack directly into the atmosphere? Is that right?

A. In that class of furnace there is not much gas and fumes, and that exhausts out of the stack because it is burned when these wind pipes playing right down over it, there is not a great deal of gas comes out of the stack.

Q. Well, whatever gas and fumes, and we will have some evidence about that time, the gas and fumes came from it and went directly out of it into the air? A. Yes, sir.

Q. And through the old stack only 50 feet high? A. I believe that stack would not be over 50 feet high; that is the first one.

Q. And there was nothing in that stack, or in the furnace in the way of a smoke arrester, or a system of smoke control, or water scrubbers like we have in the cupolas now? A. I know nothing about that, sir.

Q. Well, you know of nothing in the stack to interfere or control the flow of smoke, do you? A. I never examined the stack, so I don't know.

Q. Then, in 1908, was a second similar air furnace added in the old foundry? A. That is quite right.

Q. And was the second similar furnace a little bigger than the first one? A. I believe it was supposed to be double capacity. Eventually it reached double the capacity.

Q. Well, as a matter of fact, it was a little more than double the capacity, was it not? A. That may have been later on when they built the sites to carry the bigger bottom.

Q. And did they operate that second furnace for, generally speaking, two heats a day? A. Not being in there, although occasionally I was in there, I believe they did have two heats a day. I would agree to two heats.

Q. So that would give us a total of four heats of metal a day for the two furnaces when they were operating on that basis? A. Pardon me, sir. When the one big furnace was finished, the little one was discontinued, as of my recollection.

Q. Well, are you sure it was, because my instructions are that they operated them both and they had an average capacity of 50 tons of metal a day for the two furnaces. A. I would not agree with that, sir. 55 ton was taking in the two furnaces, and there was double capacity; 24-48, they would only get 7 ton in the small furnace.

Q. What would you say was the capacity when they ran the two furnaces, in 1908? A. They might have run the two furnaces when they had a heavy run on, but I believe it was very, very seldom.

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Q. And if you don't agree with 55 tons, what do you say is the capacity? A. Whatever the capacity of the big furnace was for two heats.

Q. If you don't agree with 55, you must have some other figure in your mind, though?

HIS LORDSHIP: He says he doesn't know. A. I couldn't say.

MR. KEOGH: Q. Then, I am instructed that the second or larger furnace consumed approximately 40 tons of coal per day? A. I do not agree with that, sir. I am a past engineer by trade, and I know coal and coke consumption.

Q. You are a licensed engineer by trade? A. No. I followed engineering and took out the first papers, but never took out the second, although I operated for some years as an engineer, although it was not compulsory at that time to have a certificate.

20

HIS LORDSHIP: Mr. Keogh, I don't know what your examination is leading to. I would rather suppose that you were going to put witnesses in the box who were going to prove these details and the development of the McKinnon plant.

MR. KEOGH: Some of them, yes.

30

HIS LORDSHIP: Do you think there is anything to be gained by cross-examining this witness as to his store of hearsay evidence about it, or casual observation? You have got now far past the time when he worked there and just what can be gained in the way of proof by cross-examining him then as to what he knew about it.

MR. KEOGH: Well, it might have some effect on the plea of acquiescence. That is the only thing I was thinking of, my lord.

HIS LORDSHIP: Oh, well, if you think it has any bearing on that, then, I do not want to restrict your examination. It was just not obvious to me as to why it was of real value to get this witness's knowledge to what extent the plant operated from time to time and the results.

40

MR. KEOGH: Well, I will try to shorten it up, but I do think it might have had some bearing on that plea. Well, I will just mention the main points and get the details later.

Q. And then, in October, 1929, was the firing of those furnaces changed from hand firing to powdered coal? A. You have reference now to the old wind furnaces?

Q. Yes. A. That I don't know.

Q. Then, you mentioned this morning something about the annealing ovens, and I believe that you mentioned there were 60 or, you were not sure, but you think there were about 60. Isn't it a fact that there are only about 10 or 11? A. I don't think the question is put to me in the right way, — in this way; the 60 that were mentioned was furnaces in the forge shop. I don't think I had any reference to how many annealing ovens there was. I don't think I used that term. I said there was annealing ovens, I know.

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10 Q. I thought you mentioned 60, but you say now you didn't?
A. I don't think so.

Q. And then, without going into details about this, is it or is it not a fact that there were core ovens in this old foundry and that they existed in it down to 1937, when the new foundry was built? A. I wouldn't know how long they existed in there. They were in there in my time.

Q. And then, was there not also in connection with the old foundry, a brass foundry and also an aluminium foundry? A. There was a small brass foundry there operating with three or four men, but the aluminium foundry, if it was in there, came
20 in after my time. I never knew the aluminium foundry — or that aluminium was made in there, in fact.

Q. But you knew there was a brass factory with three or four men? A. Yes.

Q. And is it not well known that fumes from a brass foundry are much more severe than any other type of foundry? A. I don't think the gases of castings produced by a brass foundry would have any effect on the outside. I never noticed the odour or anything, unless you went in there.

30 Q. Then, you told my friend that the 4,000 pound hammer was installed in 1939. I am told it was not installed till five years later. A. I don't think that I made that expression, that it was installed in 1949.

Q. I said 1939. I said you told my friend this morning that the 4,000 pound hammer was installed in 1939. A. I am not too sure on that. I don't think I said in 1939. I said it was operating there in 1948, last year, or the year before the big hammer was installed. The other two had been operating there. I don't think I gave the date.

40 Q. At any rate, you won't dispute the statement that it was installed in 1944, will you? A. According to the vibrations and that there, in what we were receiving, I would say that might be correct.

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Q. Then, if I took you down correctly, that you said in 1945 things were getting a lot worse? A. That is correct, sir.

Q. You were speaking, I believe, of fumes and gases and smoke and oil. In what time in 1945 do you say they commenced to get a lot worse? A. I wouldn't say that. I would say during the period when that smoke, gas and oil and other nuisances came over, when they increased in volume, or when we got days —

Q. Well, you kept a diary for 1946? Did you keep any diary for 1945? A. No, sir.

10 Q. Then, I would like you to tell me what time in 1945 you say that the ash, and the smoke and the gas, started to get worse? A. I wouldn't qualify that only in this here manner that, whenever we got a bad wind, a low wind, muggy weather, and the furnaces and the cupolas were operating, we got it.

Q. Well, have you no idea? Can't you tell me the month? A. No, I couldn't tell you that, sir, because winds and conditions of weather don't always come every year at the same time.

20 Q. Well, was it in July, or March, or April, or September, that things started to get worse? A. I wouldn't answer that question, sir, more than to say that it came on from time to time, according to the conditions of the day and the directions of the wind and if the forge shop and the cupolas were operating.

Q. Have you no idea when it started to get worse in 1945, as to season? A. We were not keeping a diary at that time, so I couldn't refer to it.

Q. I know, but can you not tell me whether it was spring, summer or fall? A. I could not. I think I have answered your question.

30 Q. Do you know when the water wash scrubbing system was installed in McKinnon's cupolas in 1945? A. I do not, sir.

Q. I didn't think so. And you have made several statements through your evidence, referring to the change of the cupolas, but you don't know when, in 1945, they were installed? A. In regard to the change in the cupolas, I have reference to the time when Larry Edwards, the engineer, was there, and I only have the outside observations of the different types of heads that come up and are on top of the cupolas, which I was not able to speak of because I had not been over there to see just what they were. I am not a cupola man.

40 Q. Well, do you agree with me that, since 1945, there have been large, rounded heads on each of the stacks at the top of each cupola? A. I wouldn't agree with you on the date. I am not clear on the date.

Q. Well, your own photographs show it. A. Well, if the photographs show it, without working up there, I would agree with you on what the different stacks show.

Q. I will just take one of your photographs at random, Exhibit No. 17. In the left hand particularly it shows the cupola stacks, doesn't it? A. It does, sir.

Q. And it shows a sort of enlarged — a sort of rounded heads on the top of each of those stacks? A. Quite right.

10 Q. And that they have been there since some time in 1945, have they not? A. I couldn't say to that, because I have not kept them. We have photos at that time that will verify it, I believe. We have, a little later on, photos of that showing it.

Q. Well, when did you first notice those rounded heads on the tops of the stacks leading from the cupolas? A. I believe shortly after Larry Edwards left down there.

Q. And when was that? A. That I couldn't verify for you.

Q. Can you give me the month? A. No, I could not.

Q. Can you tell me the season? A. No, I could not.

20 Q. Was it some time in 1945? A. I couldn't say that, but I believe that our pictures there and photos of that date, with the corresponding date from the photographs, will tell us that.

Q. At any rate, when you first noticed the rounded heads on those stacks of the cupolas, from that time on, did you notice any diminution in soot and smoke and gas from the cupolas? A. Any diminished —

Q. Any diminution or decrease? A. No, I didn't notice any less.

30 Q. And you say you didn't notice any decrease in smoke or soot or ash, or gas, from and after the time you first noticed these rounded heads on the cupola stacks? Is that what you say? A. I didn't notice any difference in the smoke and other stuff coming out after the new heads on the cupola stacks had been put there. Sir, the former cupolas, they threw out this here gas and oil and, — at least gas and other stuff along with it, and they had very bad days, and when I began to notice first was when this stuff began to come over. I cannot state to you the date of that. I can refer to the diary and I have told you from that when they were put there.

40 Q. Well, I have no objection to your referring to your diary. A. So if it is roughly that it is 1945 that it was put there, I wouldn't agree. I understand you took my evidence that I made an assertion; to give you a definite date, I couldn't do that.

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Q. You still have not answered my question and I will ask the reporter if he will be kind enough to read the question.

THE REPORTER: "And you say you did not notice any decrease in smoke, or soot, or ash or gas, after the time you first noticed these rounded heads on the cupola stacks? Is that what you say"?

MR. SLAGHT: He did answer that.

MR. KEOGH: No, he answered that — he said there was no decrease in the smoke, soot or gas after the heads were put on. He did answer that.

10

MR. SLAGHT: Well, didn't you hear him?

MR. KEOGH: I did hear him.

HIS LORDSHIP: Yes. I took down that he didn't notice any decrease in the smoke, soot or gas after the rounded heads were put on.

MR. KEOGH: Well, that is the answer. I am sorry I did not hear all of that. And you have been up and looked into these cupolas, have you not? A. I was, sir, a few days ago. The date you have, with the tour we took through there.

20

Q. And the heads of the stacks leading from them are the same, to all outward appearances, as they have been for the last four years, or so? A. I would say so, but merely from observations of standing away possibly 200 yards.

Q. From outside observations? A. I would say yes, sir.

Q. And when you looked in them you saw that there was a system of water washing, or spraying, as is sometimes called, scrubbing, the gas and smoke in each one of them? A. There was a system in there, yes, sir.

30

Q. In each one of them? A. Yes, sir, but they were not placed as it should have been. They were not nearly as efficient as they should have been had they been properly centered.

Q. You were able to get quite close to look inside, were you? A. Fortunately that day the wind was over there from the north-west, and we were able to stand right here and look down, — away probably three or four feet, and look down.

Q. Were you able to see the head right over the stack itself?

A. Yes, sir.

40

Q. Up which all this smoke and flames and gases were coming from the cupola? A. The smoke and the gases, owing to the heavy wind, as it got fairly close to the top, apparently caught it and drove it over and gave us a little chance to bend over like this and look down over the top.

Q. So you could bend over the top to look down and see the position the smoke was coming up? A. Just about like this (indicating).

Q. And about 30 feet below you was this raging fire with this terrible draught you told my friend about this morning? A. That is right, sir, but you will observe we had a very heavy wind coming from the northwest, which was in our favour.

10 Q. My friend says 60 feet, but I still claim it is closer to 30 feet? A. The top of the cupola, I would say it is all of 60 feet, if not 70.

Q. I am not talking about the bottom of the cupola on the foundry floor, where they light it. I am talking about above the top of the fire, inside the cupola; do you say you were 60 feet above? A. Do you mean that space to the top of the cupola?

Q. Halfway up the cupola there is an opening on what is called the charge floor, which is really the second floor? A. Yes.

Q. The cupola starts at the foundry floor, approximately? A. Quite right.

20 Q. And then the fire is still up above this opening. You look up through the opening and see these flames shooting up inside the opening, don't you? A. Yes.

Q. And I am suggesting the top of that opening is approximately halfway up the cupola, and then when you get to the top you were up the other half way. A. That would be fairly accurate.

30 Q. Do you still say you were 60 feet above the top of the fire when you were looking over the top of the stack? A. I have reference, sir, to the bottom of the floor where the cupola starts there. Now, the flames, you may only have a sixth or an eighth charge in there and on the cupola, up 60 feet, you have 54 feet. When I said, "You look over here," the charge place is in between.

Q. Well, it is not that important; if it is, we will prove it. Now then, you gave evidence previously about a lot of your neighbours, mostly I believe people with Armenian names who were, generally speaking, in the block, and also a few north of you, having had some damage to peach trees and vegetation and plants and flowers that you say you observed yourself? A. That is right, sir.

40 Q. And I believe you told my friend in almost every case that, when he asked you the question, that their soil was the same as yours? A. The entire — what do you call it — the surface of that soil up through there is a very light, sandy soil.

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Q. And there is a difference between the texture, or general appearance of the soil and its nutrient and salt content, is there not? A. I am not a chemist.

Q. Well, I am not, either, but is that not the fact, that there is a difference between the feel of the soil and its look on the one hand, and how much, for instance, nitrogen or iron it contains, or how much salts it contains? Those are two different things, aren't they? A. Nevertheless, you ask me a chemical question. I am unable to answer that question.

10 Q. No, I am not asking you a chemical question. I never took chemistry in my life. I often wish I had.

MR. SLAGHT: You are a young man yet.

MR. KEOGH: I am learning something about it, though, yet. That is quite right, isn't it? I say you can have soil that looks alike in texture and feel to the outward purposes, but may be entirely different so far as the salts and the nutrient is concerned for growing purposes? A. Sir, I can answer that question this way. I had known that property for 40 or 50 years, and it has always been the same class.

20 Q. You answer my question.

HIS LORDSHIP: No, I think you must let the witness finish his answer. A. It has always been so. Sow seed there, a light and adaptable soil for the growing of plants and so on, and I would say that that would extend possibly five-eighths of a mile north and, oh, the other way, a mile and it also extended across the road.

HIS LORDSHIP: Well, may I ask you this question, that, up until the time you began to have the difficulty that you say you had after these cupolas were built, did you observe any difference in the development of the vegetation on your land and on that of your neighbours? A. Your lordship, I did notice but really —

30 not really — nothing what was accentuated, but it was there.

Q. Oh, will you listen to my question and answer it. I said, up until the time that you say you began to experience these gases coming over and the sediment, and so on, did you notice any difference between the development of the vegetation on your land and on that of your neighbours? A. No, they were both the same.

MR. KEOGH: Q. Then the peach trees that you spoke of on the Boyagian property, how old were they? A. I would say that they had possibly 12 to 14 years — they had reached the size of seven and eight inch; what we would call fine, mature trees.

40

Q. 12 or 14 years old? A. No, 12 to 14 inches in diameter.

Q. How old were they, I asked. A. Well, I would think roughly 10 to 12 years, all of them.

Q. And what is the prime age of a good average bearing peach tree? A. That will depend a great deal on where they are planted, also depend on under drainage and on the class of soil. I have seen peach trees 35 years old and good —

Q. That is not generally recommended? A. It is not, no, sir.

Q. Isn't it about 15 years? A. No, I wouldn't agree with you there. I would put it at 20, provided the ground is proper.

10 Q. Was there any under draining on the Boyagian property? A. I couldn't say that, but there was never water laid around there. They had surface drains and ways of getting it off there. The mere fact that the tree grew and produced, itself, and proved very good, I think it should be sufficient evidence to prove that the peach tree was not affected by water.

Q. And did you make any comparison of Boyagian's soil with yours, to be able to say as to whether or not it had the same salt and nutrient content? A. I would say it was the same for this reason —

20 Q. I know you would say it is the same, but did you make any comparison?

HIS LORDSHIP: Just a moment. Don't let us have two or three speaking at once. The question was, did you make any comparison for those purposes.

THE WITNESS: I had gone over there on several occasions to Boyagian's. I thought he was not using this here land, and that I might get this extra soil that was there, and it was very fertile.

30 MR. KEOGH: Q. Did you make any comparison of the two soils, to compare the salts and the nutrients? A. I did not, sir. Seen no reason, because everything was growing good.

Q. Then you also spoke about the peach trees on Ciurliunia's, formerly Caleb Steeve's property. How old were the peach trees on that property? A. When they were killed off, I would say they would be about nine years.

40 Q. And did you make any comparison as to the salts and nutrients in that soil? A. There is only a fence between us and I would say the soil is the same. I have never gone over there right directly to make it, but just look through the fence it was exactly the same as our own and he was very careful to keep that trench open so it would not be water loaded.

Q. Do you know what fertilization measures this man took next door to you with reference to those peach trees? A. Nothing, only just ordinary manure and stuff.

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Q. They had a few chickens? A. And they put them out there.

Q. Do you know what he did in the way of spraying those peaches? A. That I couldn't answer. I believe he sprayed them, because I think once or twice he came over to our place to borrow a sprayer. He is working for us now for some years.

Q. Then, you said, if I took you down rightly, that the leaves of the Kalagian peach trees began to turn yellow and in three years they were dead. When was it they began to do that?

10 A. When the first bad gas burns began to come over. I would say just from the period from 1945. That checks out when we last were through there.

Q. That checks up with your period, all right, but when in 1945? A. After the first bad burnings in the spring, which would be after the new foliage had come out and was very tender, and the gas and other stuff it came over and it bleached these here and burned them.

20 Q. Would that be in the late spring? A. That would be in whatever time in the spring which your leaves and blossoms come out. Sometimes they vary a couple of weeks.

Q. Are they out now, this year? A. No, not yet.

Q. The latter part of April or early part of May? A. Oh, I think they get down the early part of June.

HIS LORDSHIP: The 20th of May is the time for peach blossoms in this district, is it not? A. Your lordship, some years Blossom Sunday varies and, if it was early spring, it would be earlier.

Q. Approximately the 20th of May? A. Approximately; quite right, your lordship.

30 MR. KEOGH: Q. Then, you spoke about a house that you said was very black, and I believe that was the Thomas house, was it not? A. Correct, sir.

Q. And do you know when before that house had been painted, if it ever had been painted? A. I am referring particularly now, in my remarks there, to the inside of the house.

Q. That is on Exhibit 11, I believe, with the names on, my lord. What is that? A. I am referring now, in making the remark there, particularly to the inside of the house.

40 Q. Oh, you were not talking about the outside? A. No, I wasn't. I don't think so.

Q. Then, you said it was replastered and redecorated, that house. When was that? A. Last fall. I was in there a short time ago. I went over to get the boy that works there, the son, and Mrs. Thomas took me in and showed me. She said, "This is already beginning to crack."

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Q. Then, of course, it is possible that disease might have an effect on some of these fruit trees and flowers and vegetables that you have spoken of, is it not? A. I wouldn't think so. I wouldn't say so.

10 Q. Did you never have any disease on your own property?
A. Oh, yes, we do get a little bit now and then and if the Armenians have any trouble, they generally come over and ask me, and I generally tell them.

Q. But even with the best of care, you may get disease once in a while? A. That is quite right, sir.

Q. And did you make any examination of any of these peach trees there, surrounding you, or flowers, or vegetables, from the standpoint of disease? A. I think I can say yes, sir. I have been on those properties all around there, — oh, many, many times each
20 year.

Q. And are you able to say whether or not none of this damage was due to disease? A. I would say, your honour, sir, that there may have been the odd case of a tree, but it would be very odd, even peach trees and other trees die, but they don't die very often if you have good conditions.

Q. Then, you also referred to poplar trees along Pleasant Avenue? A. Yes, that is quite right.

Q. At the bottom of Exhibit 11, and if I took you down correctly, you said those had been there for 15 to 16 years on the city property there? A. I said it would probably take 15 or 16 years to produce them. I think I am fairly close in that, although I have not taken it up with the Parks Superintendent.
30

Q. Would you disagree with me if I told you those trees had been there for 20 to 22 years? A. That could be quite right, sir.

Q. And they were Lombardy Poplars, were they not? A. I couldn't tell you. I am not an authority and I don't know that.

Q. Don't you know Lombardy Poplars, the kind that go up— A. I would not pose as a person who could tell you that, no, sir.

40 Q. You don't know whether they were Lombardy, or some other kind? A. No, but we have experts who can tell you that.

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Q. But you cannot, anyway? A. No, I cannot.

Q. And then, I suppose you cannot tell me the ordinary life of a Lombardy Poplar, if you don't know the other, at all? A. All I can say I have planted Lombardy Poplars in the course of my business as a nurseryman and I can take you around to them and they have been there many years and they are still good.

Q. Isn't the average life of a Lombardy Poplar from 22 to 25 years? A. I wouldn't answer that question. I couldn't qualify that.

10 Q. And you say they were cut down by the city, those poplar trees? A. That is what I believe.

Q. And if I took you down correctly, you said that after the cupolas were erected these began to go bad? A. That is right, sir.

Q. And you think the fire scorched them? A. That meaning of fire scorch, it would be the gas and oil would give you the effect of a fire scorch. Generally the tenderest types are caught first and that produces what we call a blight into your tree and they gradually get worse until they reach the point where the city cut them down.

20 Q. And you are suggesting, are you not, Mr. Walker, that these trees were cut down by the city because of some smoke or gas damage from the defendant's cupolas? That is what you are suggesting? A. That will be taken up with the experts, but my opinion is "yes."

Q. And isn't that what you are suggesting when you use the words "after the cupolas were erected those began to go bad."

HIS LORDSHIP: Well, he says that is his opinion. A. That is my opinion.

30 MR. KEOGH: Q. Then I wish to hand you three photographs of what I am told are stumps of these poplar trees, and I ask you if those — they start at the left and then the middle and then the right — and I ask you if those are the poplar trees which you were referring to in those times? That is what is left of them, the stumps. A. That is correct, sir. I believe there are either 45 or 47.

Q. And those are the trees you were talking about?
A. Right, sir.

Q. Then, my lord, may I mark this as an exhibit?

40 —EXHIBITS Nos. 38-A, B and C: Photographs showing stumps of poplar trees.

Q. Then, I also show you some close-up photographs.

MR. SLAGHT: May I ask you — I have not seen them — are your photographs of the stumps?

MR. KEOGH: Yes, that is right.

MR. SLAGHT: After cutting?

MR. KEOGH: Yes.

Q. Then I also show you three close-up photographs of three of the stumps of the same trees along the same avenue.

A. Is the date on here when they were taken?

Q. Yes, the date is on.

10 HIS LORDSHIP: Have we the date on which Exhibit No. 38 was taken?

MR. KEOGH: Yes, my lord. I cannot ask the witness the date, but for the convenience of the Court I can say I am instructed they were taken on May 21st, 1948.

Q. And you recognize those as close-ups of three of the stumps of the same trees? A. Yes, it is approximate — it must be them, because they are the same type as the others.

—EXHIBITS Nos. 39-A, B and C: Photographs of three stumps of poplar trees.

20 THE WITNESS: May I just see those there for one moment?

MR. KEOGH: This is Exhibit No. 39, yes. A. Your photographer has been very careful to pick the best samples along there. He hasn't given you any of them which is dead and are showing very bad signs of decay. He has picked what I would say are the very worst stumps in the lot. I don't think that is a very fair sample.

MR. KEOGH: Well, don't blame me. I didn't do it.

HIS LORDSHIP: I don't think this case will turn on those three stumps.

30 MR. KEOGH: Q. Then, I am told, and you correct me if I am wrong, that, in the same line of trees there were four or five other poplar trees of the Carolina type, which were not cut down and removed, but are spreading leaf poplars? A. You are quite right, but it may be planted there at a later date or they are much smaller than the others, so they may have had a much hardier growth, which accounts for that not being to the same trouble as the poplar tree, which is very much opposed to water, we will say.

40 Q. But there were those four or five other poplars which were not cut down, although they are in the same line? A. That is right. They are there to-day.

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Q. And you said the photographer picked out two or three of what you said were the best stumps to show decay. You do agree, then, that there is decay shown on some of those stumps, do you? A. Pardon?

Q. You do agree that there is decay shown in some of the three photos shown in Exhibit No. 39? A. That you have exhibited here?

Q. Yes? A. I would like to see them once again, if I may.

MR. SLAGHT: He did not say decay.

10 MR. KEOGH: Oh, I thought he used the word "decay."

MR. SLAGHT: No; "three of the hardiest and best looking stumps."

HIS LORDSHIP: Now, please. Will counsel not get into discussions.

THE WITNESS: I would say there is no decay shown on those three that they picked out.

MR. KEOGH: Q. You are pretty sure of that, are you? A. Not being an expert and not having a magnifying glass, I would say from observation and my eyes are fairly good, yes.

20 Q. Now then, you told my friend that at times the gases from McKinnon's irons and other deposits were deposited on your flowers? A. Quite right, sir.

Q. How do you know that iron was deposited? A. That is an answer for experts. They will tell you that.

Q. Well, are you relying on something that somebody has told you when you make the statement about iron? A. No, sir.

Q. Well, then, how do you know it was iron? A. From the effects on the plants.

30 Q. What effects? A. What effects? Well, the growth of the plants and the symptoms that followed after this here deposit was on there.

Q. Well, a certain amount of iron is good for the growth of plants, is it not? A. I would not qualify on that, sir. It would depend on the plant.

40 Q. Well, what was it that you noticed about the growth of the plants that enabled you to come to the conclusion that iron was being deposited on them from McKinnon's smoke? A. Well, my earlier orchid friends came in. Some of these men was fairly well qualified to talk on the question I am talking on now, and they immediately called attention to the fact that iron was going through.

Q. Well, that is what I asked you a few minutes ago. You are relying on some one else's opinion. A. Only after they had asked me, and that was some years back; that is not to-day, sir.

Q. You didn't make any personal test, yourself? A. They made them.

Q. No, but you didn't? A. No, I am not a chemist.

Q. And you say that other deposits and other substances lodged on the leaves. What other substances? A. First a film of oil. Oil is very detrimental to plants, because it formed a basis to catch all this other stuff coming in — to hold it there.

Q. Any other substances which you say were deposited on the leaves? A. Well, practically everything that come over there, flue-ash and iron and other stuff.

Q. Ash and iron. Now, what else do you say? A. That will have to be answered by a chemist.

Q. Well, you say "other stuff." Do you know what it was? A. Not till after the experts told me.

Q. And you mean to say you have been working on this case for two or three years and you don't know what the other stuff is yet? A. I didn't work on that. I thought that their evidence — not being qualified to answer that question in a proper manner, I thought I should leave it to the experts to answer. It was detrimental to plants. That is the main thing I found.

Q. Then, you told us about the damage to the tulips and to the bulbs, the tulips and the daffodils in a certain plot, commencing in 1945, and that by 1946 there were only a few leaves, and that by 1947 hardly any came out? A. Sir, we plant bulbs in the fall.

Q. Now, just please don't go off into the history of something that I am not asking anything about. I am suggesting that it is not good practice to grow daffodils and tulips three years in a row in the same ground. What do you say about that? A. I will qualify that; I do not agree with you there.

HIS LORDSHIP: Well, whether it is good practice or not, if there is any outside interference, will they grow freely in the same ground, year after year? A. If your bed is properly prepared, and you prepare your bed and use your bulbs, figuring that you are going to get an increased cut over the years, and you are not looking for quality, because you won't get quality every year, but you should get quantity, and it is a known fact you can place a daffodil by itself and, in three or four years, you will get four or five.

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MR. KEOGH: Q. Is it not also a known fact that if you grow the same type of flowers, year after year, that that ground becomes infested with diseases which particularly affect those particular plants? A. No florist or man growing stuff would plant stuff in ground which had shown a sign of infestation the year before. We generally rotate from one place to another.

Q. So good practice is to rotate from one place to another?

A. Certain plants, and if there is no reason for infestation, it is all right.

10 Q. But don't you generally get better results by rotating?

A. I would agree with you, yes, but you cannot always do that.

Q. Then, these cold frames that you had the pansies in, is it not a fact that generally, in the florist business, they never wash cold frames? A. They never wash cold frames?

Q. Is it not the usual practice not to wash them? A. Well, any florist that had any knowledge of them, would wash his frames. I wouldn't agree with that. It would be very bad practice.

Q. The glass sash over the frames is on an angle, isn't it?

A. Quite right, sir.

20 Q. And that is to let the rain run off and dry? A. Quite right; stop the drip.

Q. Well, if you don't have the rain running off, it would go through and damage the plants? A. That is right, and we always put one end six inches higher.

30 Q. Rain is not the only method that you have of washing these cold frames, do you? A. Not until the time we began to be bothered with the deposits and the stuff coming over; we do only in case the frames showed dirtiness, which we have, but, if it had been the year before and you had sufficient rain and there was nothing come over only the interference in 1937, — only smoke, your rain water washed it off.

Q. And when did you wash these cold frames for the pansies? A. For the pansies?

Q. Yes? A. Oh, I should say possibly we might have one, two years, sometimes; only one year we washed them when they needed it. That is all I can answer that. If they were not clean, we would wash them and if they were clean, we didn't wash them.

40 Q. It might have been two years, it might have been one year? A. It might have been two years and might have been one year, yes.

Q. And I suppose there are growers who have cold frames and greenhouses both of which have never been washed — florists? A. Florists? I might say our own experience down here previous to this year, I believe we operated for 20 years without washing the greenhouses, because there was very little deposit coming over from industries except coal and water and rain coming down would take that off.

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10 Q. And, as a matter of fact, at certain seasons of the year, you put lime on your greenhouse glass to keep out too much sun from getting in on certain plants, don't you? A. That is right, sir. Our houses are covered now for a short time to cover our Easter crop.

Q. And do you use any mixture with the lime, such as cement or glue? A. No, we use nothing but pure lime. It comes off easy. That is, it came off easy previous to 1937.

20 Q. So, although you use nothing with the lime, you say it does not come off easy since 1937? A. That is right, sir. I might add one other thing. Since we have been growing orchids, when we put our lime on for the first ten days we disconnect all the pipes leading to the big tank. We turn our hose over these here houses so any sediment, or lime, or anything would come down through,— would run off, connected to the sewer. We have to separate the waste one, leading to the other, very often. We clean our big tank out and that is the reason.

Q. You scrape it off with a long wire brush? A. Well, you scrape it off with a pail and a brush. One man stands on it and softens it up and the other one scrapes it down. That is with the smaller one; with the big one, you have to have a catwalk.

30 Q. Then, did you take any steps to sterilize by steam, or any other product? A. We have had no occasion, for this reason, because all our soil brought in in the fall is gone over and then the test is sent over to the Agricultural College, and if they are too heavy and we have to thin out, we leach it.

Q. What does "leach it" mean? A. Means to wash the cells out through.

40 Q. And you do that with water? A. We do that, providing they advise that, but with new soil practically every year, we don't require that. We don't follow the procedure of some of the florists by steaming and using the soil year after year. I am not an advocate of that.

Q. At any rate, you do not sterilize any of your soil either inside or outside your greenhouses, with steam? A. We never had occasion.

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Q. Whether you had occasion or not, you never did. Is that right? A. That is right, sir.

Q. Then, you told my friend about some carnations which you grew very well on, I believe, the Dwyer's farm, one mile north of Ontario Street? A. I might just qualify that, if I might say we grew that on Dwyer's own farm, also on James Fraser; Fraser was a little closer to our greenhouses in a direct direction and we grew there, and then on Dwyer's for some years.

10 Q. And you give the impression, or, at least, I got the impression that you grew them as a sort of a test to compare with others that you left growing on your own place? A. No, just the opposite. We grew a few up at our greenhouse so as to compare with the others and, last year, when the cessation of the industry was closed, we were able to grow plants at this greenhouse and ship them two or three weeks earlier than the stuff down on the farm and a better quality. That is the first year in four years we have been able to do that.

20 Q. You have been growing carnations at various times up on Dwyer's farm as long ago as 25 years ago, haven't you? A. Oh, I think that year — what happened there, we were going to make some changes. We had expected an extra place and at the last minute I sent a few down there. I wouldn't say — that was only possibly one year — I don't know whether I had two years there or not, but they were very fine plants.

Q. But you did grow carnations on Dwyer's farm as long ago as 25 years ago? A. Yes, but there has been a big space that we didn't.

30 Q. And while you mentioned Fraser, didn't you grow carnations on his farm about six years ago? A. About six or seven, I don't know which.

Q. Before there was any thought of this lawsuit? A. No, not before; before there was any trace of this, we already had indications there that our carnations were not doing good and we also — that is in the period of 1941-2-3, we knew that we were not getting the growth and that is what caused us to go to Fraser's and then to Dwyer's.

40 Q. But the earlier times had nothing to do with it? A. No. I think we were getting ready for something. We wanted to under-drain a piece and could not get a piece of land available. We only grew a few thousand there.

Q. Then, you told my friend that you cut, during the McKinnon strike, if I took you down correctly, \$501 worth more mums, and sweetpeas in the cloth house than in the previous year? A. That is right, sir, or in the previous average year.

Q. What is your total cut of mums in the cloth house in 1948? A. We would average about \$700.

Q. And what was your total cut of sweetpeas in the cloth house in 1948? A. Just a moment, now. Our cut previous to the damage —

Q. No, I am talking about 1948. A. What was cut in 1948? Well, one bed was here and the other bed was here.

Q. I will start over again. What was your cut of sweetpeas in the cloth house in 1948? A. We are going to combine the two together, because they were cut together.

Q. Well, I would rather separate them, because you said you cut \$501 more of mums and if you give the separate increase, why cannot you separate the cut?

HIS LORDSHIP: I think he said mums and sweetpeas.

MR. KEOGH: Well, all right, then. Combine them. What was your combined total cut of mums and sweetpeas in 1948, in the cloth house? A. I believe around \$700; very close to that.

HIS LORDSHIP: That is in 1948? A. Yes, your lordship.

Q. You cut about \$700 in 1948, or was it \$700 the year before? A. It was \$700 and some odd dollars in 1948, the two combined, and the extra cut of \$501 more than the year previous. We had made an average.

Q. We can start all over again. I am trying to get it straight. I understood you to say that you cut \$500 worth more during 1948? A. Right, your lordship.

Q. That is the year when they had the strike? A. Yes.

Q. Than you did on the previous year? A. That is quite right, your lordship.

Q. Very well, then. What was the cut? A. The average previous year, your lordship?

Q. In the average previous year? A. Around \$200; that is the three years preceding 1948, when we had the damages.

MR. KEOGH: Q. And what did you sell the mums for in 1948? A. What did we sell mums for?

Q. Yes. A. Just at the same value to the stores as we were buying from our —

Q. How much apiece? A. Well, I couldn't tell you that right here. We will furnish you all that right here, furnish everything that went forward to the Sales Tax Department.

Q. Well, the Sales Tax Department are not in this case. Don't you remember whether you sold them at 20c, 40c, or 50c? A. I wouldn't answer that right offhand but we give you that statement as they went to the store.

Q. Well, if you have these records here, can't you turn them up?

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HIS LORDSHIP: What Mr. Keogh wants to know is, were the mums selling at a very much higher price in 1948, this particular mum, than they did in previous years? A. Well, your lordship, I wouldn't say very much; a little bit, but these were sold at the same comparable price, at the same quality you bought from the wholesale, where you had to buy to fill in, you see, the varieties.

Q. You say sold a little bit higher, but not much? A. Yes.

Q. In 1948? A. That is quite right.

10 Q. And how much did you charge your store for them in 1948, more than you did in 1947? A. I would say approximately 25c a bunch on the poms. The poms might have averaged 5c more a flower.

Q. Well, can you give us the percentage increase? What would be the percentage increase in price? A. 15 and 20%.

Q. Between 1948 and the previous average year? A. Right, your lordship.

20 MR. KEOGH: Then, have you any detailed production record that you kept of cuttings from your cloth house, daily or weekly or monthly? A. No, we didn't keep that production. When our cut is made, it is taken in and entered in the store and entered in the Sales Tax book. We do not state whether we cut 100 carnations. But if we take 500 carnations that day and they go to the store, there is 500 showing. The man might account for three days, but every plant and flower that is produced there is booked, and what it —

Q. It is entered up in the Sales Tax book when you take it to the store, or when it is cut? A. That is right, sir. We usually take a slip along with us when we cut and there is no fooling about that.

30 Q. Have you that book here? A. No, sir, we have not.

Q. Where is that kept? A. In the store, and it has been checked over up to a short time ago with our Sales Tax Department. We never had any trouble.

Q. Well, I would like to see that book in connection with this \$501 item. I am just curious how you got the \$1. Do you know how many flowers it represents? A. I couldn't tell you that.

Q. Well, how you got the \$1, if you please. You have got \$501 and that will show in your Sales Tax Book? A. Yes, sir.

40 Q. Perhaps you will be kind enough to have that to-morrow so I can see. Then you spoke about third grade cyclamen which turned into No. 1, and what price did you get for the No. 1 grade cyclamen? A. These are five inch cyclamen. You mean what price did we charge to the store?

Q. Yes. A. I believe the invoices was \$1.35, or \$1.50. Remember, that is only a five inch, not a six inch now.

Q. Is that what you call a No. 1 grade? A. That is a No. 1 grade, five inch.

Q. Did you sell any of those same cyclamen to dealers, other than around the store? A. No, we just sold to the store.

Q. You didn't sell any outside? A. We didn't make a speciality of cyclamen and try to produce a big plant in a small pot, which very often is done.

10 Q. Then you spoke about "Detroit News," and "Good News" mums, which changed colour slightly? A. That is right.

Q. "Detroit News" is a bronze variety? A. That is right.

Q. And you said it had marks — that it turned to yellow? A. That is right.

Q. And I believe you said "Good News" mums were a yellow variety and they had turned a lighter yellow? A. A very dark yellow and the gas bleached them out to a lemon yellow.

20 Q. They are not two of the most uncertain varieties of mums, so far as colours are concerned? A. I wouldn't say so. I have never experienced any time — we have some photos showing mums produced from the same stock as the year before showing us perfect colours when they were not interfered with.

Q. Are they not known in the trade as a difficult mum to handle, to get exactly the same shade all the time? A. I wouldn't say so. You might increase the shade a little by adding some stuff. We never had any trouble.

30 Q. And the same way with the pink mums, as you said here, that one was a washed out pink. Is the pink not an uncertain colour in forcing, to have in the cloth house? A. No. It is not the cloth house. This is in the upper greenhouse, in the inside, and also we say the changes are from a dark pink to a light pink and they are inside, too.

Q. And are those three varieties or shades not uncertain colours to get? A. No, I would not say so.

Q. When you are forcing them, I mean; when you are bringing them ahead for the market? A. I don't think any qualified florist would attempt to force them to such an extent that they would lose their colour. I think that would be bad management and it would not be good for the people who buy your stock.

40 Q. When was it you noticed those colour changes in the "Detroit News" and "Good News"? A. Along in October.

Q. What part of October? A. The latter part. We had had some very bad days of gas and oil.

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HIS LORDSHIP: Q. What year was this? A. 1947, sir.

MR. KEOGH: Q. Didn't we also have a number of hot days in October, 1947? A. Sir, I left shortly after, just the first few days in November, to go hunting. I was away a week but, before I left, I went over these here plants and called my son's attention to it, also the other man, and said, "There is something wrong with the 'Detroit News' buds, and the 'Good News'." Still there was no yellow. First they started to go bronze and they gradually opened up and come out and there was nothing but a rug of bronze and when I came back, even the bronze had gone and all that was there was pure yellow, and the same way with the "Good News."

10

Q. Didn't we have some pretty hot days in October, 1947? A. Oh, there might have been, but it wasn't anything you couldn't handle if you properly understood handling mums, keeping your ventilators open there.

Q. Well, mums are a flower that mature, apart from forcing, late in November? Isn't that right? A. That would depend a great deal on the grower's ability.

20

Q. No. I say, apart from forcing, without any forcing at all, in their natural state. they mature late in November? A. That would depend on conditions and temperature, and so on, how you run your houses.

Q. Well, say from the middle of November on? A. That would be quite right in the ordinary sense of the word.

Q. Well, you force them? You use special treatment to bring them to their peak of perfection a month or two earlier if you get a market, don't you? A. No, sir, not on mums. Mums, of late years, has been a glut throughout Canada. Our procedure is to hold them back to get the cool weather.

30

Q. You first noticed those markings on these mums in October, if I understood you? A. Quite right.

Q. And I am suggesting to you that hot days in the fall, before November, will scald or bleach, or mark mums of these two varieties. What do you say to that? A. Not if you have taken proper procedure, no.

40

Q. Well, if you have curtains of lime, I suppose, or something like that, but, apart from that, if you do not take some special precaution, hot days early in the fall will cause these markings on these two varieties? A. A man that understood his business, and I figure I do, will take his precautions enough to prevent those things.

Q. I say if you do not take these precautions, such as shade, or lime, or curtains, and you run into hot weather in the early fall, which you are liable to run into, the markings on these two varieties will appear. Isn't that right? A. I couldn't altogether agree with you on that.

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10 Q. Then, I believe the lily-of-the-valley, they were not helped in any way. They are one of the things that were not helped by the strike? A. The lily-of-the-valley, as far as regards the strike, they were in a state of — they began to go down. It was natural for them to have a rest. They were not affected by the strike. There was nothing there at that time, except gas, coming over at that time.

Q. I took you down as having said they had been gradually deteriorating for the last couple of years and this year you might not possibly find any at all? A. That is correct.

Q. But you took some off your son's, 500 yards south, and they have grown well? A. Yes, I seen them every day.

Q. Of course, your son has a new house down there, hasn't he? A. Oh, 12 or 14 years.

20 Q. And has he put in any new soil? A. Not at all. This valley is growing right alongside the house, and I would give him a calling down for not getting in new soil.

HIS LORDSHIP: Lily-of-the-valley will grow anywhere at all, as long as it has shade? A. That is right, sir.

MR. KEOGH: Q. You get it in the woods quite often, don't you? A. You do, sir.

30 Q. Then, you spoke here about sweetpeas in the earlier years, although you had a good cut of them in 1948, is it not a fact that sweetpeas are very difficult to grow in this climate? A. That is quite right, unless you plant your plants early enough and get your crop in before the hot weather comes on, or if you are fortunate some times to get a couple of weeks cool weather; under the cotton and shade, and maybe moisture and keep the temperature down, you will sometimes cut sweetpeas well into the middle of July.

40 Q. Isn't it generally conceded that sweetpeas, from a florist purposes, are all over by the 1st of July? A. That sir, might be qualified in two ways: that would be inside grown stuff. They would not be outside, but in the cloth house, where they have protection.

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Q. I am talking about under cloth. A. No, I wouldn't say so.

Q. You say they go into the 15th of July? A. Very often, if you get a couple of weeks of cool weather.

Q. And if it happens to be a little dry and get a hot day, they will turn an obvious yellow, won't they? A. That may be so, but I am very particular, both in the spring to watch that cloth house.

10 Q. What I took you down as saying about sweetpeas is that you went out one morning and next morning you found they had all turned yellow? A. Well, that is the tops of them. That is the first signs of burning by gases.

Q. I suggest to you, on a hot day, if they are not kept well watered, that would have the same effect; a wind very hot? A. No, I wouldn't say so, because in a gas burn, you will only burn the tips. You will not burn the other part. Those peas that were here and we cultivated them, they turned out wonderfully last year although they had had two severe burnings during the time the McKinnon Industries was closed down.

20 Q. Burnings from what — heat? A. Gases and that coming over; no, sir, not heat.

Q. Your suggestion that you cut \$501 more of mums and sweetpeas because of the strike, I am suggesting to you that the sweetpeas were all over before the strike started, on July 15th? A. Last year, sir, we had a very late season. In fact, I am almost positive I can show you entries where we sold sweetpeas almost as late as the 1st of August. You will remember, Mr. Keogh, that your production — if you get a couple of cold, wet days, or if not cold, wet but cold days, that will give you almost twice the amount of your production, so that if you are able to maintain ten days longer than the usual period, you may get a 40% more cut.

30

Q. You say, at any rate, that last year when the strike was on, your sweetpea season ran at least two weeks later, until the 1st of August? A. In my opinion that is what I would say, but I would qualify that by giving you the date when I give you the other book, to tell you we were selling sweetpeas at that time.

Q. I am not talking about selling, I am talking about cutting them in the cloth house. A. In my memory and in my opinion, I believe that would be correct, but I will give you the dates we cut our last peas.

40

Q. I would like to get that date in 1948 in the cloth house? A. Correct, sir.

Q. Then, you filed a schedule of costs, which I believe was Exhibit No. 12, of the greenhouses, office and shed, boiler house, dwelling house, and land and location, being an item of \$5,000 for special value, totalling \$62,360. Now, this dwelling house that is shown on this statement, Exhibit 12, you bought that with the parcel of land, did you not? A. Yes, sir.

Q. Now, right near the commencement of this matter?
A. That is right, sir.

10 Q. And you didn't pay \$3,500 for the land and the dwelling house which was on it, did you? A. No, sir, but, nevertheless, that house would cost to-day — the same identical house has been sold within a period of a few months for \$3,900. That is the land and the house, and that applies — I mean, the place now is very much larger.

Q. Oh, yes, but your house was on the land when you bought it. It is about 45 years old, isn't it? A. One year on the land.

Q. That would still make it about 45 or 44 years old.

20 HIS LORDSHIP: Mr. Keogh, I really do not see what difference it makes whether the house is worth \$3,500 or \$2,500 or \$500.

MR. KEOGH: No, just a question of credibility.

HIS LORDSHIP: Well, I can well understand, on the question of the valuation of the house, there are lots of houses that are 40 years old that are worth \$3,500, that were probably bought for about \$1,200. As far as to-day's value is concerned, when the statement was put in, I did not see what value it was, except to show in a rather general way that he had a substantial investment in the business he had developed.

MR. SLAGHT: That was the purpose, my lord.

30 MR. KEOGH: Well, I can shorten it up by filing another statement. Is that your signature on a statement which was filed as Exhibit No. 2 on your examination for discovery; a statement of costs of the various buildings? A. Well —

Q. I just asked you if that was your signature? A. Yes, sir, that is mine, down here.

— EXHIBIT No. 40: Statement of costs of various buildings signed by the plaintiff.

40 Q. Now, referring to the second item in your diary, April 13th, 1946, where you said you took observations. You were speaking about oil and gas. What sort of observations did you take?

A. Mr. Keogh, first, may I have one more look at that. This is an estimate given earlier in the filings. At that time I did believe this was made up approximately, but it was not made up from the information which I was able to get later from the Lord & Burnham Greenhouses Construction Company, and in which there is some difference.

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HIS LORDSHIP: You are referring to the last exhibit, No. 40? A. That is this one, yes, your lordship.

MR. KEOGH: It has a stamp on it and it was filed, a stamp signed by the Registrar that it was filed on your discovery on the 9/4/48, which I take it would be the 9th of April, 1948, just about a year ago. A. The only thing that, as I tell you, Mr. Keogh, I believe that that estimate was made possibly without enough information from the proper authorities, the construction company. There may be some difference in that estimate and the other estimate.

10

Q. Then, on April 29th, 1946, you said the tulips were affected. What was the nature of the affection of the tulips? A. This, sir, is in 1945, when the tulips began to come up. They came up quite nicely and all of a sudden they stopped, and I naturally began to look for flowers. There were no flowers and the leaves had not developed, — only half size.

Q. And anything else wrong with them? A. Well, they were covered over with kind of a grey ash and an oily substance on top of that.

20

Q. Anything else about the tulips? A. I couldn't say anything else that was discernible out there.

Q. Then, during your evidence you were continually referring to your diary and you used the words there "defendant's plant," or "from the defendant's cupolas," speaking of gas and oil and soot. Are you arriving at that conclusions from observations of your own, or from reports of your tenants and other employees? A. That remark that I made there was in reference to McKinnon's Industries and was records made by my own self and signed by my own self at the time they were taken.

30

Q. The records being in the diary you had this morning? A. Yes.

HIS LORDSHIP: What Mr. Keogh is asking is, are the observations made by yourself? A. Observations from standing across the road.

Q. Observations made by yourself? A. Yes, sir.

Q. Just answer the question and let us get on with the next one.

40

MR. KEOGH: Q. And I take it that was a matter of watching the way the wind was at that time and seeing some smoke coming towards you from McKinnon's? A. That was the observations taken was along this line. I started down in the morning. I have occasion to go down past McKinnon's, and can notice the

cupolas long before I get there, and how the wind is going over. If the wind is coming up northeast, I know then the stuff is not going over, but if it is coming across, west or southwest, as soon as I get down there, in fact I usually go up on top of our boilerhouse and you have everything before you there about 650 feet away.

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10 Q. And this observation of gas, is that a matter of smelling, or is there any other instrument that you had to record the presence of gas? A. That is a matter, I would say, of smelling, and some days being hardly able to breathe, and it is also a matter of oil coming over. In fact, you can take your hand there, if it is coming over very bad, and just rub it, and you have got a film of oil right over your whole hand.

Q. What I mean is, these observations you made and entered in your diary, are all matters of smell and sight on your part. You did not have any instrument to measure or anything like that?

MR. SLAGHT: He just told you. smell, as well as touch and sight.

20 THE WITNESS: Some days you didn't stay very long out there. It has been so bad the men have had to go inside, the gas has been so bad.

MR. KEOGH: Q. Have you had any men quit on you because of the gas? A. No, I have not. I have had men that have had to leave their hoeing.

HIS LORDSHIP: Oh, just answer the question.

30 MR. KEOGH: Q. Then, on November 6, 1946, you said there was smoke and gas from the morning until five o'clock. Did you personally observe that, yourself? A. That is personal. If I made that note, that is what I observed, and many times I went down at night when they were operating, but not as late as 11 o'clock, and it had been going all day from the morning.

Q. Then, on December 8, 1946, you said, "My stock was suffering very much." What stock? A. That would be the begonias and ferns and the more susceptible, or softer stock.

Q. That would be inside the greenhouse? A. Inside the greenhouse at that time.

Q. And ferns, would they be the Boston ferns? A. Well, mostly Bostons; yes, same line.

40 Q. And then in 1947 under date of May 16th, you said "Burns beginning to show on gladiolii," and then later you said on an entry you made on June 13th "I was taking it as June 13th." Will you describe those burns that began to show on the gladiolii? A. A gas burn.

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Q. I want you to describe those burns that began on June 13th. A. All along your side, all along the dagger-like leaf, there will be a different colour come right along the sides up to the tip, both sides, which will gradually increase, day by day, as you go further on.

Q. And you say a different colour, what would be the colour of the burn, as compared with the rest of the leaf? A. Well, when you first got it, it is not so easily discernible.

10 Q. What is its colour at first? A. Just, we will say four or five different shades of green — lighter.

Q. A sort of fading of the green? A. That is quite right.

Q. And then, as it develops, will it turn to brown subsequently, to a brownish red? A. I wouldn't say a brownish red. I would say a dirty yellow, a yellowish brown. It will wind up almost a melon yellow, if I might say so.

Q. A melon yellow you wind up with? A. Yes.

20 Q. And these burns on the leaves, did that affect the flowers of your gladioli, in any way? A. Absolutely. I don't think that where we planted especially extra large gladioli bulbs and giving them every care, that we ever cut at the most 5% saleable stuff on flowers.

Q. 5% of what you planted? A. If you planted 500, that would be 475. That applies, Mr. Keogh, to the plot north of No. 1 greenhouse and the plot down east of the greenhouses.

Q. In other words, of the gladioli that you planted in 1947, you say that you sold only 5% of that, was it? A. I didn't sell them. I said you couldn't sell. I give them away, they were too bad.

Q. Oh, you didn't sell any? A. No, I didn't sell any. I give them away to a couple of parties to put on the graves.

30 Q. You could not even sell them to your own store? A. No, you couldn't get anything for them.

HIS LORDSHIP: Q. Where was the plot? A. The plot, your lordship, was located south of No. 1 greenhouse and east of the greenhouses. May I interpose here?

Q. Yes. A. The balance of those gladioli were taken down and planted at Dwyer's farms, from which we had 85% No. 1 production, and we sold them.

40 MR. KEOGH: Q. As a matter of fact, in every year you have always bought from outside sources a lot more gladioli than you have grown? A. Oh, yes, many times, because we had to give up when it got so bad.

Q. And you never did grow on your own property anything like the number, or even close to the number of the gladiolii that you sold through the store? A. I would say that our last big plant was along in 1940. We probably had ten to fifteen thousand down there on the lower lot. This upper lot, above the No. 1 greenhouse, that is south of No. 1, was only used for the earliest, because using a large bulb there, we were always able to get it two or three weeks earlier.

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10 Q. But it was not unusual for the last two or three years for you to buy from outside sources, some 20,000 gladiolii? A. We have bought that, yes, from the same sources, from which our bulbs come from.

Q. And you do not claim to be a specialist in the growing of gladiolii, would you? A. No, I would not claim to be a specialist, but I have grown them for 40 years, and I think our production of the quality is equal to anybody that grows around here.

20 Q. But what I am driving at, for the last three or four years, the gladiolii you grew on your plot were a negligible part of your business in selling gladiolii. Most of it was done by buying from outside sources. Isn't that right? A. That is right, sir.

Q. Your gladiolii were a small item. The gladiolii grown were a small item compared to the gladiolii sold in the store? A. As your estimate will show.

30 Q. Then, you told my friend in the early part of 1948, January 20th and April 1st, you saw a blue haze all through your greenhouses? A. That is one of the times when we got our worst burns in the greenhouses. I don't know how it happens unless it might be that the gas and oil travelling over the greenhouses, they seem to leave this here haze a little bit behind, and this here haze, with the ventilator being open, whether it is the suction of that draws in — you can stand —

Q. The ventilators on which side? A. We have only the one side. On account of the General Motors industry being there, we never open the other two ventilators on that at all.

Q. The ventilators on the east side, you say, drew in this blue haze, and what was the direction of the wind when you observed this blue haze? A. That was west, a little southwest.

Q. West by southwest? A. Just in between the two; just bearing on southwest. It was coming in all our upper houses.

40 Q. Between west and southwest? A. That is right, sir.

Q. And you were in the greenhouse when you saw this blue haze? A. Many days.

Q. I am just talking about this one date. A. Well, that is where I made one note of it.

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Q. I am just talking about this April 1st, when you said it was all through the greenhouses. A. That is correct, sir.

Q. 1948 as I have it down here. A. That is correct, sir.

Q. And did you look outside to try and trace it to see where it was coming from? A. When I came down that morning, the odour was very strong and I had occasion to go across into our shipping room, which is the end lot across the road, up through this here, and my son being up there working on some stuff, I looked through and it was just like looking through some gas main.

10

Q. When you were looking in what direction? A. I was looking then south, but I was looking up through No. 1 to the east one and the three there.

Q. South — that would be across Carlton Street, would it? A. Yes, up towards that way.

Q. Down the east side of Ontario Street, or towards? A. Yes, I was looking up from the house next to Ontario Street, and the No. 1 greenhouse.

20

Q. And could you tell, from that look, where this blue haze started or originated, or where you claimed it originated? A. Well, the only thing I could see up at the ventilator here was the start right there, at the ventilators.

Q. I know it was being sucked in through the top ventilators of your greenhouse, but I am asking you if as the result of your looking around, were you able to tell where it was coming from? A. Well, from my own observations of other days and the same thing occurring —

Q. Oh, that is argument. Did you trace it up this morning? A. Yes.

30

Q. Where to? A. Well, it was coming through the ventilators.

Q. And that is as far as you went with it? A. Well, there was no other occasion, because I had already seen with this here smoke and gas was coming in from the McKinnon Industries.

Q. Then, you spoke about June 17th, 1948, where the gladioli in the McKinnon bed in front of the forge shop had very severe burns? A. I told you —

Q. Now, just a moment, listen to my question. I am just trying to get your mind back and then I will ask the question. Will you describe the nature of those burns? A. They were the same as I told you before. There was a wide margin, probably half an inch, running right up alongside this dagger leaf, and to the end, and you could see three or four different degrees from the centre which had been coloured before.

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10 Q. And what was the general colour of these burns in the McKinnon gladiolii on June 17th, 1948? Was it sort of a yellow colour? A. It had not reached that stage.

Q. It was a pale green then, was it? A. Just one moment, sir. You are referring now to the bed that was planted by General Motors the second time?

Q. As I told you, in front of the forge shop on June 17th, 1948? A. The date, sir —

20 Q. Well, let me read this to you. I want to get you on the right point, and then I will ask the question. Here is what I have down: "1948, June 17th, McKinnon bed in front of forge shop, very severe burns of gladiolii." My friend says you didn't give that evidence. Did you not give that evidence?

HIS LORDSHIP: No. My note is that gladiolii were planted out by the defendant about June 17th, 1948, "good stock. They were badly burned and the bed was in front of the forge shop." I do not think that he identified the date of the burning last June.

30 MR. KEOGH: Q. Well, did you mean the gladiolii were not planted until June 17th? A. That is right, your lordship. I would say in reply to that there, I had taken a picture a few days before and there was nothing in those beds except old gladiolii. Along about that time, on the 17th, I came along on Tuesday and seen these here planted. On Thursday I came along and they were very, very badly burned, and taken out next morning.

Q. Was that Tuesday, June 17th? A. I couldn't tell you that. I am just referring now to the date.

Q. Well, what you say is that, two days after they were planted, they were badly burned? A. No, I am not saying that I observed them two days after they were planted. Four days after I had observed them I came by and they were very badly burned.

40 Q. Well, they must have been planted as plants and not from any bulb? A. I think they were the finest lot of gladiolii, especially prepared. They had been started in pots, and must have been wonderful bulbs to have the sort of gladiolii they were starting there.

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Q. And when you say that they were planted four days before, what you mean is they were starting to come up off the ground? A. No, sir. They were that big, and put right in there.

HIS LORDSHIP: What he suggested is that they were planted out as plants and that they had been started in pots, that is what you mean, is it? A. That is what I mean.

Q. Your suggestion is that they were put in there as whole plants, grown plants, and not grown from bulbs? A. That is correct.

10 MR. KEOGH: Q. And this was in June, 1948, in the plot in front of the forge shop? A. Correct.

Q. And then you say that four days later, which would be about June 21st, you came along again and saw them severely burned? A. I observed them two days later.

Q. I don't care whether it is two or four days, but anyway either of those days, they were badly burned? A. Correct.

20 Q. Then, I want you to tell me, if you can, particularly the nature and extent of the burns? A. The nature and extent of the burn is this here as always happened, and I won't say that there was a wide margin up the side, and you began to see already the different colour along the side of the gladiolii leaf to what the centre leaf was, and that is typical of a burn.

Q. And this wide margin was a palish colour? A. A palish colour.

Q. And sort of turning toward a yellow? A. Not towards a yellow. They first go to a sort of very light green, a chartreuse green.

Q. Well, to a greenish yellow? A. Well, it will burn to a greenish yellow.

30 Q. All right. When did you next see those gladiolii in this bunch? A. I brought down my camera and took those pictures next morning, although some of them had already been removed. However, we did take pictures, but the McKinnon Industries gardener removed the gladiolii badly burned up alongside the Delco and they had been sheltered but they were badly burned.

Q. And what was the colour of those burned by the Delco? A. They were not badly burned, but it was easily discernible to a person who had experience.

40 Q. Were they the same sort of chartreuse green? A. Yes, I would say so, but not showing quite as plain, because on this side of the wall the gas had to come over and down and hit him.

Q. The Delco is across the road, on the east side of Ontario Street, is it not? A. And probably 300 yards —

Q. And 300 yards south of Carlton? A. That is right.

MR. SLAGHT: May I ask, is Delco controlled by McKinnon?

MR. KEOGH: It is one of their departments.

Q. Then, you rather suggested this morning that the McKinnon test house, being on the south side of Carlton and opposite your property, that because of it being straight east from the cupolas instead of a little bit northeast as yours is, that that was not a very good location? A. For a test plot?

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10 Q. Yes. A. No, it was not, because they would only get about 35% of the stuff coming over from the prevailing winds.

Q. As a matter of fact, they asked you through your lawyers, to put it on your property, and you wouldn't let them? A. Why should I let them come on? They never did —

Q. Just answer my question. You were asked to put this test plot on your own land and you refused? A. Under the advice of my first lawyers, I did.

20 Q. Then, you mentioned an instance this morning, or early this afternoon, of when you got gas and oil which was very bad on your property, although the wind was from the north and from the north to northwest, and you spoke of some separation of some of the gas, some coming to you and some going some place else? A. I would like to qualify that. You have the wrong directions; northeast; coming from the northeast — if it is a little off the west and that is —

Q. From the northeast? A. Yes, crossing over south of the McKinnon's test plot, nevertheless, there will be a certain amount of that there stuff seems to blow back, that blue haze particularly. That is very seldom that occurs, but that does occur.

30 Q. And it was this separation of some of the gas that you mentioned this morning that accomplished that, though I was wondering if you could explain that a little more? A. I couldn't explain that, sir, but it does occur sometimes. Gas is lighter and goes away. That is where we get that blue haze and stays there; whether it is lighter than air or not, I don't know.

Q. Have you actually seen this separation business that you speak of? A. I have seen that, not on many occasions, but a few.

40 Q. On what kind of wind? A. Well, if you take a direct east wind, now, that would not normally come over, only a little bit of our No. 1, and we will say two and three and four houses, but if it comes over very close to it and this here haze is separated, it goes over these four houses and it might not affect the big house at all.

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HIS LORDSHIP: Witness, I think if the wind was directly from the east, it would blow all the haze and everything else from the plant away to the west, and you would not get any of it at all.
A. Your lordship, I stand corrected; it should be west.

10 MR. KEOGH: Q. Then, I don't know what you are talking about, because I have been trying to figure it out for a long time. When you are talking about the wind from the east carrying the blue haze around your place, what do you mean? A. Your lordship, I mean this here that, when the wind comes, — I stand corrected — from the west, it has a tendency to come down, cut across only one, possibly two, three and four greenhouses, but even although it only crosses over the end of them, it does — some certain content of this particular blue haze seems to hang back in there and that it carried over a little more farther —

Q. Well, I think you are getting into some kind of whirlpool. A. Mr. Keogh, I think you have answered it right there, — your own question. I think there is some kind of whirlpool.

20 Q. Then you spoke of scraping one pane of glass with another pane of glass and delivering something to Mr. McAlpine. Was it scrapings that were delivered to him? A. That is correct, sir.

Q. And when was that? A. I believe my counsel will tell you. It is only a few days ago, not very long. My son made that delivery right direct. It never left his hands.

Q. It was more than once, my friend Mr. Slaght says? A. Twice, and I believe Mr. McAlpine also took a few samples, himself.

Q. And they were all within the last month or something? A. Oh, yes, not very long ago.

30 Q. And then this business of 35% off centre? A. That is up at the cone.

Q. Just wait a moment.

HIS LORDSHIP: Let Mr. Keogh ask his question before you start to answer it.

40 MR. KEOGH: Q. How did you determine that 35% off centre? I mean, did you actually measure it or is that just your guess from looking at it from one side? A. The answer to that question is, I think I would be fairly accurate in judging fairly close to that there and on being over and so easy to see, that is what I would estimate. That is the one only.

Q. And the same thing applies to this business of the space of one foot in the water curtain? That is only your estimate?

A. I don't think I said one foot, sir.

Q. Well, you put your hands up, and I believe somebody said one foot. A. That I would say would be from 8 to 10 inches.

Q. And that is also an estimate. You did not attempt to measure it? A. Well, I don't think it is much off.

Q. But you didn't take a ruler? A. No, it is an estimate, but standing directly above it.

10 Q. And then, I believe you said, if I took you down correctly, that as you came to the door of the forge shop, the ground outside would raise you up and down? A. That is right, sir. You could stand right there and can go like that and the pounding inside would make you do like that.

Q. You are sure of that? A. Yes.

Q. There were a number of others on that inspection, too, and they have a different opinion. A. Well, that is all right. I stand by mine.

20 Q. And there were others and they went inside and were standing right by it? A. Yes.

Q. And were you shaken up and down as you say? A. Yes, I would say, yes, but you get used to it, because as you came along, the ground was vibrating more or less and you get used to a certain amount. It was not particularly as discernible as outside because you were away from the hammer.

Q. And you actually saw the floor in the forge shop, because you jumped up and down or bounced up and down as you have illustrated? A. I would say that because — not as much as outside, because you had already walked in.

30 Q. Well, you were making a motion of going up and down of, I would say, two or three inches? A. No, not two or three inches.

Q. Well, how much? A. Well, it is very discernible.

Q. Would it be an inch or two that it made you go up and down? A. No, I wouldn't say that.

Q. Well, how much would it make you go up and down? A. It was quite discernible, I would say.

Q. But you wouldn't estimate it in inches? A. No, sir, I wouldn't.

40 Q. And you said you were standing on an earthen floor in the forge shop? A. That is what it was; it was earthen.

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Q. Did you take a good look at the floor? A. Well, I just drew my foot along across through it and I thought that is what it was.

Q. There is a cement floor in there, isn't there? A. I couldn't qualify for that. I just drew my foot across over and loose particles came and I thought it was an earthen floor.

Q. And we were in the forge shop on that day together, for about half an hour? A. Quite so.

10 Q. We walked down one lane between a set of hammers and back up the other lane, between the hammers? A. Quite so.

Q. And did you notice — you mentioned the 4,000 pound hammer, did you notice it was built on cinders between the edge of the concrete floor and the foundation, and the hammer built on packed cinders around each hammer? A. No, I didn't, but that may be there.

Q. You didn't notice then, that the foundation of each hammer is not directly connected with the cement floor? You didn't notice that? A. No, I wouldn't say. From observation of other hammers, that would be the procedure, not to have it connected.

20 Q. Then, if I took you down correctly, you said the 5,000 pound hammer was bouncing up and down? A. That is how I would describe the method. It was steam driven and so it blew up going down there and when it was struck, it went up again.

Q. I am not talking about the thing that delivers the blow going up and down. I am not talking about that. Is that what you mean when you say it was on the bounce? Is it? A. Well, it just made the blow and began back up, and then it made the trip and up and down.

30 Q. But you didn't mean the bottom of the hammer was bouncing up and down? A. Oh, no. You couldn't mean that, because the die is on the tray in there and that is where you get the casting.

Q. Then, I believe you said something about small ventilators in the top of the forge shop. Did you notice there was a monitor of openings on both sides of the roof of the forge shop? A. That is usually customary, and I believe it is down there.

Q. You wouldn't call those small ventilators? A. Yes, I would. They are small for the amount of smoke that has got to go up through them.

40 Q. When they run the whole length of that forge shop, all along the roof? A. Quite so, and I have seen many forge shops and they were not creating one-tenth of what they are creating down there, with that amount of oil.

Q. And you may have noticed that those two monitors on each side of the roof have far more ventilation than you had in the old McKinnon foundry? A. I believe the old foundry had better ventilation, in comparison with the oil and stuff, than what they have there to-day, compared with the oil and stuff.

Q. And did you notice there were sliding doors along each side of the forge shop and several of them were open the day we were there? A. I believe they are there, but I don't believe that they are always open.

10 Q. And, in the cold weather, are those doors on each side of the fore shop, not open pretty nearly all the time? A. Well, sir, I don't know, but I can tell you one thing; on the south side, this gas coming down very low on the men there, they can't stand it hardly. They have to close the door.

—Whereupon Court adjourned until 10.30 a.m. Wednesday, April 13, 1949.

Wednesday, April 13, 1949, 10.30 a.m.

20 CROSS-EXAMINATION OF MR. WALKER
CONTINUED BY MR. KEOGH:

Q. Once again, Mr. Walker, I remind you you are still under oath. You understand that, of course? A. Yes, sir.

MR. SLAGHT: My lord, if my friend will permit, before he starts, Mr. Walker tells me he has brought to Court as requested by Mr. Keogh, his record showing the amount of sales of chrysanthemums and sweetpeas in October, 1949, and a similar record for October, 1947. That was one request. The second is that he also bring a record showing the dates of the actual sales as recorded in the month of August, of both years.

30 MR. KEOGH: October.

MR. SLAGHT: October — sweetpeas. So if you want to have him produce them, they are available at any time convenient to you in your cross-examination.

MR. KEOGH: Yes. I will ask him about that later on.

Q. Mr. Walker, this sulphur dioxide you claim that came from McKinnon's, could you see that in the air? A. That would have to be haze and the other stuff coming. I am not a chemist, that I could test it, but there is no question about it.

40 Q. What does it taste like? A. You could easily taste it on very bad days, when the humidity was very low, and it was coming over and it tasted very much like the old type of sulphur match — if you ever got a whiff of that just before it was burned off, the sulphur.

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Q. Could you smell it in the air? A. Yes.

Q. What did it smell like? A. Similar.

Q. Like a sulphur match? A. Yes. Of course, Mr. Keogh, there were other ingredients and other gases coming over at the same time and that may have impeded the odour and that there that you couldn't get it separately.

10 Q. Now this cotton swab that you made for Mr. McAlpine, that you rubbed around the glass and took off this smudge. or whatever it was with it, and returned that to Dr. McAlpine. You had no trouble taking it off with the cotton swab? A. Mr. McAlpine provided the materials with which we took the samples from there and you had to bear very hard to get a clean surface. We tried to take in the different panes; wherever we took a fifty-six square, and so on, we tried to clear it down to the glass to get all the substances off the glass.

Q. But I mean, you didn't have to use any muriatic acid to take the swab? A. No, sir. We used nothing else but water, provided by Dr. McAlpine.

20 Q. And elbow grease, I suppose. Then, you said yesterday your store has carried your greenhouse for many years — how many? A. That we will have to clarify. We are able to give you one instance last year, when we can also give you other ones that will give a similar thing; we can furnish them, if you wish.

Q. I am just asking you how many years your greenhouse has been carried by the store? A. I would say '45, '46, '47 and 1948.

HIS LORDSHIP: You are referring to 1945, 1946 and '7 and so on? A. Quite right, your lordship.

30 MR. KEOGH: Q. Then, as my friend says, you have produced here to-day Sales Tax records showing the \$501 worth of mums and sweetpeas? A. Yes, sir.

MR. SLAGHT: Well, they are not exactly Sales Tax records. They are his book in which the entries of the sales are made for him as a merchant, and it is the same book that the Sales Tax Inspectors have gone over and approved, but for no date. I don't know how far, but it is more than the Sales Tax book. It is a record of the sales from the greenhouse to the store, on which price the sales tax is based.

40 THE WITNESS: This also shows the chequing from the store to date by the amount, and also is the checking down as it is here. That is the last one. That is the cheque — if you will start from the back at the top, you will find —

MR. SLAGHT: Well, I just want you to show him where you got the \$701, which you say was \$501 in excess. A. That is very easily done.

Q. Just a moment — what you got from mums and sweetpeas in the cloth house, the year before. A. This is a comparison of 1947, October, and 1948, October, and the picture is here, sir. I can give it to you there, too, but I think I can very easily give it to you right off this here.

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10 Q. Well, I don't want you to get mixed up in too many papers. Let us take the book first. You say in this book is the record from which you make up your Sales Tax returns? A. That is correct.

Q. And I understand you, now, then, this is the book for making up your returns, so I won't ask that it be filed. A. This is.

HIS LORDSHIP: Mr. Walker, do let Mr. Keogh get through with his question before you start to answer. A. I am very sorry, your lordship.

Q. Well, try to remember that.

20 MR. KEOGH: Q. Now, you have shown me a page here, and will you point out to me on those two pages that you have shown where appears the record of the cuttings and sales of mums and sweetpeas from the cloth house in the fall of 1948? A. Mr. Keogh, this doesn't include in October, sweetpeas, because they were over, but it does include the sales of outside plants grown in that very house in the two years — in fact, three years. I will show you this here.

30 Q. Now, before we get into some other thing you told me yesterday that you cut and sold \$501 more of mums and sweetpeas from the cloth house, in the fall of 1948, as a result of the strike having been on, than you did in the previous fall. That is what you said yesterday, isn't it? A. There is a little correction there in this respect; that \$501 more was cut from the cloth house in the month of October, but sweetpeas didn't enter into that there in the month of October, but it was produced from the cloth house. We will show you this here, and these records are all in here.

Q. Then, can you show me any figure on these two pages in your book, which you have produced, of \$501 or \$701? A. Yes, sir. That is merely where the Government man checked, but this is his check further. There is the 1948 cut of —

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Q. The total 1948 cut, \$915.35, and then you have a figure underneath that — total cut — A. 1947.

Q. October, 1947, \$415.16, leaving a net balance as shown in this book of \$500.19? A. That is correct, sir.

Q. Well, that is close enough.

MR. SLAGHT: He has got the dates in 1948 of the sweetpea sales.

MR. KEOGH: Yes.

10 Q. Then, my friend says you have the dates shown in your book of the sweetpea sales in October, 1948?

MR. SLAGHT: No, in August.

THE WITNESS: Mr. Keogh, yesterday you asked me a question, isn't it right that sweetpeas are over usually by the 1st of July?

20 Q. Yes. A. And I asked you if that question was also that they would be over in the cloth house. I told you I didn't agree with you that they would if they were managed right, and handled right. Now, I will show you here, in 1947, we cut the last sweetpeas — we cut on August 3rd, \$400; August 7th, \$350; August 11th, \$300; August 18th, \$115. A note in our book will show you that August 18th the last cut of sweetpeas. Now, we have 1948. On the 12th of August we cut 30 bunches. Now, we will have to tell you both there is 28 in a bunch, but we will explain it a little farther on. August 16th, we cut 40 bunches; on August 19th we cut 40 bunches; and August 30th, 30 bunches.

Q. The 21st, a Sunday? A. Yes, I stand corrected; August 26th the last cut, 170 bunches, or 4,760 sweetpeas, which is —

30 Q. And the 4,760 was 170 bunches and is the total of all those cuttings you have just read out? A. The total of all that there, according to the other, is 4,760 sweetpeas.

MR. SLAGHT: That is in the strike period.

THE WITNESS: That is during the strike period. In the fall before we cut 1200, making the total balance.

MR. KEOGH: A difference in favour of 1948 of 1960? A. Yes, — look, the sweetpeas 300% more, and that is due to the McKinnon Industries being closed down.

Q. And you have read those figures off momentarily, which you have prepared from the extracts of a book you have previously mentioned? A. Quite right, sir.

40 Q. I am not asking that the book be filed, my lord, because my friend explained to me that it is required for future use.

THE WITNESS: Your lordship, may I answer one more question?

HIS LORDSHIP: I think you had better just wait till you are asked questions. You have been asked a good many in the last three days and will probably be asked a few more yet. Don't be so impatient.

MR. KEOGH: Q. Then, Mr. Walker, you have a boiler house on your property? A. Correct.

Q. And in that you have four furnaces? A. Correct, one which very seldom operates. I burned less than 75 gallon of oil in the last three years — is only equipped for emergency.

10 Q. And two are stoker fed and burn soft coal? Is that right? A. They all burn soft coal.

Q. I thought you had one oil burner? A. I mean, that is an emergency. That only burned 75 gallon of oil in four years; one night we had trouble.

Q. And the other three are stoker fed and burn soft coal? A. The other three — two are stoker fed and one hand fed, but they burn soft coal.

20 Q. Then, during the colder months, in the late fall, winter and early spring, you have those three coal burning furnaces running practically all the time, do you not? A. No, I wouldn't say that. We usually put in the second boiler along, oh, possibly the 15th or 20th of November, and we discontinue that second boiler along in — it has been discontinued for some time now — I would say approximately — this is April — possibly if it is a mild spring, the 10th or 15th of March.

30 Q. You speak of the second boiler, do you mean the third? A. We have three boilers there. When we first start them, we only use one boiler. Then we put in the second boiler along about November, and the third boiler goes in possibly two weeks before Christmas. Our plant is very efficient and we don't have to crowd our boilers.

Q. Then, you have all three boilers operating till what time in the late winter, or early spring? A. I would say, as I have just said to you, the 10th or 15th of March. Then, there is two —

Q. And then you drop down to one boiler about when? A. Well, that depends very much on climatic conditions.

40 Q. I know, but roughly speaking? A. That controls the orchid house and I would say you get sufficient heat along in the middle of June — there is about ten weeks there when that boiler is only on the odd day.

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Q. Then, from the middle of June on you keep one boiler on all the time for the orchid house, do you not? A. Not all the time, sir. If it looks, and the probabilities are that we are going to have a mild spell, we will drop that, because it is only a few moments for our man there at the house for that purpose with a blower to start the fire up, I mean, so the amount of consumption of coal in this mild weather is about one ton — less than one ton; 1500, possibly 250 pounds a day in 24 hours.

Q. And that is ordinary soft coal? A. The high grade —

10 Q. But, I mean, it is not smokeless? A. No, it is not smokeless coal.

Q. Then, you have a smoke stack leading from these boilers? A. We have, leading into the main stack.

Q. And how high is that stack? A. It is either 28½ or 29½ feet.

Q. That is the top of it, above ground? A. That is right, sir. It was built originally for a 50 horse power steam boiler.

20 Q. And is it about 22 inches, inside diameter? A. I would say it would be approximately 24; maybe two inches one way or the other.

Q. And the top of your highest greenhouse is about 19 feet high? A. Between 19 and 20, correct.

Q. So the smoke comes out of your stack, when it does come out of it, at a point about nine feet above the top of your highest greenhouse? A. Mr. Keogh —

Q. Is that correct? A. That is correct. May I answer one question further?

30 Q. Yes. A. Before putting in this chimney, great consideration was given to the contrary of the wind. That is one thing, in the warm months, so that in order to overcome anything from our boilers when our ventilators would be open in the warm weather, it was placed almost within 11 feet of the one side of our first greenhouse, so that if we would get a wind there at all, a south wind at all, it invariably goes nowhere near those greenhouses at all, and if it does come the other way it is in the winter time when our ventilators are closed, and it is stated, even then, that it very seldom crosses over 35 or 40 feet of the house.

40 Q. Did the test which you had made in the summer of 1945, show that ash from smoke had greatly decreased? A. Was that — I am going to answer that question in this way that, when the McKinnon Industries, Larry Edwards, the engineer, took precautions to hang chains, known as bafflers around their cupola stacks, it eliminated quite considerable ash.

Q. And did that test —

HIS LORDSHIP: Excuse me, that is in 1945? A. Your lordship, I could not say that. I might vary the year, but that may be.

MR. KEOGH: Q. Well, to save time, were you asked these questions and did you make these answers on your examination for discovery, question 243, the top of page 22:

“Q. Did the test made in the summer of 1945 show that ash from smoke had greatly decreased?”

“A. I would say yes.”

10 THE WITNESS: I would go with that, yes, sir.

Q. You would go with that? A. Yes, sir.

Q. And then, I suppose probably this will be the quicker way of doing it, were you asked these questions and did you make these answers on your examination for discovery, question 386 to question 390 at page 34:

20 “386. Q. Is it correct to call it an industrial or manufacturing area where your property is located? A. Might consider it that at the present time. I did not consider it that “when I bought it. I considered it farming land. It was farming land 25 years after I bought it.

“387. Q. There has been no substantial change in the character of the area in the last five years as far as manufacture is concerned, has there? A. In the last five years it has “been in the mode of manufacturing.

“388. Q. There have not been any factories leave there? “A. The General Motors have increased some of their plants. “McKinnons, you call General Motors.

“389. Q. McKinnons have enlarged their plant? A. Yes.

30 “390. Q. Outside of that, the manufacturing industries in “the area of say a quarter of a mile around your property, “are the same now as they were five years ago? Is that right? “A. I believe so.”

Are those the answers to the questions you were asked? A. Mr. Keogh —

Q. All made by you on your examination for discovery? A. That is quite right.

40 Q. Do you want to make some explanation? A. The little Ensign Company down there, they have two or three employees; that is, I would say — maybe not that time, and they operate one day a week packaging stock.

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Q. They make enamel and paint, do they not? A. I don't think so, Mr. Keogh. I think you can check that up and find that is not right. They receive their stuff in and package it and bottle it, possibly once a month. They have a small fire on there, which don't bother anywhere near our property.

MR. SLAGHT: What is the name of that property?

MR. KEOGH: The Ensign Industrial, I think it is named, it was named earlier.

HIS LORDSHIP: That is on the east side of Garden Place?

THE WITNESS: Right, sir.

Q. And south of Manchester? A. Yes, that is right.

MR. KEOGH: Q. Then, there are railway tracks in front of your property on Carlton Street, are there not? A. Yes.

Q. And freight trains run along there frequently into McKinnon's? A. Yes.

Q. And into McKinnon Columbus Chain, do they not? A. Regarding McKinnon Columbus Chain, no, they would not. They would come in at the other entrance up on — the entrance where their diamond is up there.

20 Q. About those N.S. & T. railway tracks on Carlton Streets?
A. Correct.

Q. And then, has the same railway also tracks on Ontario Street commencing at Carlton Street and going to the McKinnon Chain? A. Correct.

Q. And do freight trains come on those tracks from time to time? A. Yes, sir.

30 Q. And then, west of McKinnon's, between their plant and the canal and also behind you, or back of you, that would be to the north of you, is there another line of railway tracks of the same railway which goes to Port Dalhousie? A. Possibly two miles, or two miles and a quarter; a line which is used very little, yes.

Q. Two miles or two miles and a quarter north of you?
A. Yes, sir.

Q. But how close to you on the west? A. On the west, the N.S. & T. track is across the canal — oh, probably three-quarters of a mile.

Q. That is the track that goes up along between McKinnon's and — A. Correct.

40 Q. — and crosses Ontario Street just below the McKinnon Columbus Chain? A. Just south of McKinnon's goes up Louisa Street.

Q. Then, is it right to say that Ontario Street is one of the main traffic exits from St. Catharines to the Queen Elizabeth Way?

MR. SLAGHT: Before my friend leaves that last railway, he mentioned, I ask him, my lord, whether that is an electric railway?

MR. KEOGH: It is both electric and a steam railway, is it not?

10 THE WITNESS: Neither one of them have had any steam for, to my knowledge, for 15 years.

Q. Have they electric locomotives? A. They have.

Q. But it is the ordinary railway freight cars that are brought in and out of it? A. That is correct, sir, for the last 15 years.

Q. It is a subsidiary of the Canadian National Railway. I don't think there is any doubt about that. A. I think I would go with you on that. I don't know, though, I am not positive.

20 Q. But it is correct, is it not, to state that Ontario Street is one of the main traffic exits from St. Catharines to the Queen Elizabeth Way? A. I would not be able to answer that correct without telling you that you would have to procure the number of, we will say, bicycles, passing up and down.

Q. I didn't say the main; I said one of the main. A. Yes, that is correct.

Q. And it is quite frequently used by heavy trucks of the Consolidated Transport Limited, Direct Winters Transport, Shell Transport and several other transports that make their headquarters locally in St. Catharines? A. That is correct. They use others also.

30 Q. And these trucks frequently have very large trailers which they pull and are attached to them? A. Correct, sir.

Q. And I suggest to you that from these railway trains on these two streets and from these heavy trucks that you get quite a bit of vibration from those sources? A. I would like to say that your N.S. & T. electric railway on Ontario Street also runs — they are still running their passenger cars down there. You don't get too much vibration. You get more vibration, I believe, up where I am situated, where the pavements are.

40 Q. Well, do you agree or disagree that those two are sources of vibrations to you? A. To a small extent possibly. They don't carry very far back off from the road.

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Q. On this 28 foot smoke stack of yours, on your property, is there not a smoke arrester, or a smoke control system?

A. Nothing whatever, sir.

Q. The smoke from the boilers just goes out into the air, without any interference or control? A. Yes, but you must give consideration that the stoker control controls the amount of air for combustion. A stoker boiler, once it has started in and has reached a certain peak, you get nothing from there at all. It is like the cupola when the first amount of their charge is dead, you get much more smoke when they are starting through than you do afterwards, and the stoker boiler is the same way. If your fire has been down, your temperature is dropped and it becomes necessary for the fire to start and there is a few minutes there when you get the discharge, and then it clears.

10

Q. Now, then, generally speaking, your gladioli were grown in the same location for each of the three years from 1945 to 1947? A. With the varying of a few feet, possibly.

20

Q. But outside of the few feet on the edges every one in the body of the plot was in the same location in each of the years 1945, 1946 and 1947? A. That would apply —

Q. Is that right? A. That would apply to the plot south of No. 1 greenhouse. It would not apply —

Q. To the outside gladioli, I am talking about. A. I am telling you it would not apply to the plot east of the greenhouse. That was changed sufficiently far away. We had ten, fifteen feet apart each year. We had room there.

Q. And the plot south of No. 1 greenhouse is the plot of gladioli immediately north of Carlton Street which can be seen from the street? A. Quite right, sir.

30

Q. Then, you do not interchange your carnations, do you, or remove them from one location to another? A. In what years?

Q. At any time? A. Yes, we did.

Q. The carnations that you grew on your own property? A. When we started the bed and took over the James Fraser place, we then had a large extra place for a carnation plant, so we rotated them. We never planted in the same order. It might be one section, and then the next year it would be 30 feet over the other side.

40

Q. Then, on your examination for discovery, were you asked these questions and did you make these answers, questions 464 and 465 on page 41:

“464: Q. Do you interchange the carnations too? A. Never
“had a change — always had good carnations over 40 years
“there.

“465. Q. Grown them in the same spot every year? A. The
“same spot.”

Were you asked those questions and did you make those answers
on your examination for discovery? A. Yes, but that was meant
that we grew them on the same plot of ground. You have asked
me now, and I have defined to you, while we grew them on the
10 same plot of ground, we left spaces between them. It was on the
same plot of ground, but there were spaces between them each
year, because we had an opportunity to space our stock.

Q. I was not talking about spacing; I was talking about
one spot. You never used any chemical fertilizers, did you?

A. We never used any chemical fertilizers, unless after our soil
tests that were sent back from the Ontario Agricultural College
and they advised us that we might have too much of some portion
in and we should leach out and add so much to bring our soil up
to what is known as a balanced soil, after which we used most
20 entirely Vigoro, which is a balanced fertilizer. Possibly we might
use a little bit of bone meal in the fall, but very little, when the
sod is sowed.

Q. Were you asked these questions and did you make these
answers on your examination for discovery, questions 474 and
475:

“474. Q. Do you keep a record of the soil test? A. I think
“I could give you that there. I might say we have almost no
“drainage at all. We don’t use the soil over two or three times.
“We use new soil; consequently we don’t get into difficulty
30 “that some of the big houses do — last year a good many of
“them did — we never use chemicals.

“475. Q. You are referring now to chemical fertilizer?
“A. Chemical Fertilizer.”

A. The second question there, first, may I have it again?

Q. Pardon? A. My second one there, may I have that re-
peated?

Q. Question 475:

“You are referring now to chemical fertilizer? A. Chemi-
“cal fertilizer.”

40 A. Is there not another one in there that has something about
damage in it?

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Q. No, these are the two questions, here. A. I thought one there had no damage, or something.

Q. Questions 474 and 475. A. Mr. Keogh, in regards to the word "chemicals," there, there are a good many other things that we call chemicals besides fertilizers. If that question had been put to me as "fertilizers," I would answer it as I have just done.

Q. Then, in 1947, you used an optox spray on your gladiolii? Is that right? A. Optox, formerly known as hy-tox; both the same spray.

Q. And that was the spray that you used on your gladiolii, in 1947? A. One time.

Q. Once in the latter part of June? A. I believe so, yes.

Q. And did you not use any other spray on the gladiolii that year? A. There is only one other time —

Q. Well, never mind. You didn't use any other spray on your gladiolii that year? A. Not in my recollection at the present time.

Q. Then, you used a nicotine spray and a vita spray on the outside mums in the same year, didn't you? A. We had quit both the nicotine and the vita spray for a period of I would say almost ten years, but we had these small bottles, about two ounces — we had some of them at the store, sufficient for to spray our cloth house once. That was all the nicotine we have ever used in the last 12 or 13 years, or vita spray.

Q. And you say you only used nicotine spray once in that year? A. Now, we have that little bit, and I think that would only give us eight gallon of nicotine and four gallon of vita spray. Now, I think they would have had to use in that one spraying — afterwards, anything left, it would have been a very small amount.

Q. Well, in fairness to you, perhaps I had better read your answers to questions 491 and 492, on page 43:

"Q. When did you use nicotine? A. From — about — we "plant the 24th of May to the 1st of June. I would say about "three times — three or four times — during June, July, "August and September or October, once a month.

"492. Q. When did you use vita spray on outside mums? "A. That would be varied in there. Vita spray is a very good "thing for green fly. If we have sweetpeas and see anything "on them we spray them and sometimes the mums at the "same time."

40

And, to make the picture complete, I had better read the next two, 493 and 494:

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"493. Q. Were there any others besides these three sprays that you used last year on the outside plants? A. I would not say there was. I would like to draw your attention to the use of nicotine — that was under cotton shading.

10 "494. Q. That was in the cloth house? A. Yes, because if you use nicotine it would show a slow burn if you use it at the wrong time of day — in the heat and sun — we gener- ally spray at four o'clock in the afternoon when the sun has gone down."

Did you make those answers to those questions on your examination for discovery? A. I made those answers, but I had not had a chance to check that with the man, which I have done since. We had no nicotine, so we couldn't have used it to that extent at that time.

Q. So you say this answer, three or four times, is wrong, and the right answer now, by reason of checking it since, is once?

20 A. It would be once, unless there was a little, small portion left over, and that was used the second time.

Q. You made no tests, yourself, of the gladiolii bulbs that you planted in the years in question in this action? A. Oh, yes, I have grown gladiolii for 25 years.

Q. Listen to the question. You did not, yourself, test the gladiolii bulbs that you planted in the years in question in this action, did you? A. I answered that, yes.

30 Q. You say you did test them, yourself? A. Cut them apart and possibly they were — if we are a little dubious of anything, we set them earlier inside and see if they will get a start and show you how they are going to grow.

Q. You say now, as a matter of fact, you did test them, yourself? A. You do, to see what they look like.

Q. You say you did test them? A. That is the procedure always, around there.

Q. You say you had done it? A. I might have, but I might have —

Q. Answer that question. Listen to it. Question 498: "You did not test your gladiolii bulbs? A. No, sir."

Did you make that answer? A. I made that answer at that time.

40 MR. SLAGHT: Oh, yes, but read Question 499, please.

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MR. KEOGH: Yes, I will read 499.

"499. Q. You did not test them in any of the three years
"you are claiming for, — that is, you did not test them your-
"self — is that right? A. Not any more than to make a
"good examination of them to see they were clean of any mite
"and so on, to see they were clean and no mite on them and
"watching when they came up to see that they were clean."

A. That question is answered right there.

10 Q. That answer is different to-day, isn't it? A. I made an
examination to see they were clean. In that test it was necessary
to cut one or two bulbs down in one part, to see where the roots
came from.

Q. Oh, yes, but you say you cut them down at that time?

A. I didn't, but I made an examination.

MR. SLAGHT: He used the word "good examination."

MR. KEOGH: Q. You did practically no leaching or wash-
ing of the soil used in your greenhouses? Is that right? A. Not
unless we are advised by the Agricultural College, at Guelph.

20 Q. And in the years 1945 to 1949 inclusive, did you ever
leach any of your soil that you used in your greenhouses? A. Pos-
sibly one or two benches.

Q. When was that? A. After the crop of mums we use
new soil, and you don't get an accumulation in one crop.

Q. And the one or two benches that you leached, when was
that? A. Oh, that would be after the first crop of chrysanthem-
mums; I would say along in November.

Q. In what year? A. I couldn't tell you that from mem-
ory. I don't believe we have ever leached over three benches in
the last five years.

30 Q. And the benches that you leached at this time, in Novem-
ber, were benches for what plants to go in them? A. There had
been a crop of chrysanthemums in that, and we were going to
plant snapdragons and, knowing snapdragons don't like soils of
that kind, we were very particular about size of flower.

Q. Leaching is watering to take out excessive salts, isn't it?
A. That is correct. You put the water in the top and it goes down
through.

40 Q. Then, you didn't do any steaming of your greenhouse
soil? Is that right? A. Nothing, Mr. Keogh, except last year
we had a few plots steamed because we believed it might help out
in the growing of stocks. That is one thing I will go with any
grower and say leaching is a fine thing. It seems to kill some virus
in there.

Q. You said you steamed some few plots last year to help in the growing of stocks? A. Mr. Farmer leached it for us.

Q. What stocks are they? Is that the name of the flower?
A. That is the name of the flower. They are very susceptible to virus or other things in the soil.

Q. And when you noticed as you told us in, I believe it was it started in June, 1947, did it not — these markings that you tell us about that you noticed on your gladioli — On May 16th, I think one date the burns begin to show on gladioli. Oh, I beg your pardon. You corrected that later and said it should be June 13th.
A. That is correct; I was wondering that.

Q. About June 13th, when you noticed those markings on your gladioli — about June 13th, 1947, you did not make any special test of your soil to see if it had anything to do with it, did you? A. No, because we had had some experience years before. We knew what was happening.

Q. Oh, I see. And did you make any special test of your soil when you first noticed that thing in the two years before, to see if the soil had anything to do with it? A. Mr. Keogh, samples of that soil was sent to the Agricultural College, and we were assured that it was perfect and correct for the growing of gladiolus.

Q. Have you a record of that test from the Ontario Agricultural College? A. We don't file records, but I believe it would be possible to give it to you for last year. Those were the only ones we have filed.

Q. No, but I am talking about the first test you made when you first noticed those markings on your gladioli. Would you get a record of that, sent from the Ontario Agricultural College to you, — at least later? A. You mean in regard to our gladiolus.

Q. Of your soil? A. We sent them a sample and they sent it back and told us what to do with the soil and the contents, and so on.

Q. And they sent you a report on the soil test? A. Yes.

Q. And you say you have that report, have you? A. I believe we have only one year. We thought it wasn't worth while keeping the report. Whatever they advised us, well, that was followed there and there was no use keeping it.

Q. And you didn't keep it? A. No.

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Q. These tests, whatever tests you got back from the Agricultural College, they would just show the salts and nutrients in the soil? They wouldn't show any virus or diseases? Is that right?
A. They just said — the gist was, "We have your test here," and they put it through the process of making the test, "and we see no reason, —" or sometimes, "The soil is suitable for gladiolii." That is about all; it was sort of —

Q. Didn't go into details? A. No, sir, unless it was, as I said, on the benches.

10 Q. Then, did you make any soil tests on your greenhouses, the outside soil, from time to time during the growing seasons?
A. Not outside, sir, but my own boy possibly might make two or three tests in the course of a season and that will only be if any are known — the bed showing something that it had not ought to.

Q. You spoke about Vigoro, and I believe there was some mention also of manure? A. Oh, manure is put in your soil in the fall, when you lay it up.

Q. And you mentioned bone meal? A. Bone meal, a small part is put on the part we are going to use for carnations.

20 Q. I was just wondering whether you and your boy made tests from time to time to see if you had too much or too little of these various fertilizers in your soil? A. Not very many tests, sir, because the growing of our stock showed whether we needed it or not, and it was very seldom we needed it. As I explained to you, our soil is always nice soil, every year, with the exceptions of possibly a bench or a bench and a half of carnations which are carried over, and those samples are sent from them benches to the College.

30 Q. And is it or is it not a fact that every fertilizer, or Vigoro, or putting manure on soil, produces burned markings similar to the markings you have described on your gladiolii, and on McKinnon's? A. Mr. Keogh, I have answered that question this way; the man who knew what he was doing, would not use other fertilization.

Q. That was not the question. Would every fertilizer produce similar markings? A. I would answer that question and say not. I may tell you I have never had any experience.

40 Q. And I suppose we can get these records of your son's tests from him when he brings the books? A. Those tests will be in the same way the test was made, and if it was found deficient in nitrogen or phosphorus, or so on, — we never kept test beds. We just left —

Q. You never kept records of any of those soil tests? A. No, sir; it was not necessary.

Q. Then, there was no glass broken in your dwelling house on this property, was there? A. I will go with you in saying no. There was one big window, but I wouldn't say anything about that.

Q. Well, I don't want you to say "yes" or "no" at the same time. Let me read you — A. No.

10 Q. What do you say? A. No, unless it was this one glass. This question would have to be decided at the time that occurred.

Q. Then, may we take it for the purposes of this action, there was no glass broken in your dwelling during the period of your claim? A. You could and say "glass," yes.

Q. Glass I am talking about. A. Yes.

Q. Then, in the business of operating greenhouses, you expect a certain normal breakage of glass each year, do you not? A. At one time, Mr. Keogh, a box or a box and a half would do our entire breakage from natural causes.

20 Q. I mean, apart altogether from any alleged vibration of breakage? You would get breakage from frost in the wintertime, heaving panes, didn't you? A. I would say some, yes.

Q. These panes are not puttied all the way around? They are only puttied on the side and then they overlap each other down the slope — are they not? A. That is quite right.

Q. So frost around the edges of them, could cause damage? A. That is so.

Q. And sliding ice during the wintertime could have some effect? A. That could be the same.

30 Q. And high winds in the wintertime, if a pane had already been cracked, that might have something to do with it? A. Very little, because in the fall we are very careful to go over our houses and see they are in good condition. I would say in the last five years, we would have not lost 75 panes, all during those years, from high winds.

40 Q. Then, I suppose your own employees, from time to time, have accidents and break panes? A. That is the great trouble that we have. When we go to clean the greenhouses, the large one especially, as to that, what is known as a cat-walk, that is two-inch pieces of plank and eight inches wide, let a man walk along any of these and, unless these men are what we call it, very well balanced, or not dizzy and that, very frequently they will fall

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through when they are cleaning this here glass. We had one man, I believe — I am not positive, fell through a pane of glass. He was cut and lacerated very bad. Sometimes they forget. They have a long pole and they lose the other end and it will go down through a pane of glass.

Q. Now, the whitewash that you told my friend about is lime that you put on the glass panes on your greenhouses for shade. You were able to take that off with a wire brush and hose and the ordinary tap water, weren't you, instead of muriatic acid?

A. Up until the time when the cupolas were erected and the forge shop.

Q. Well, just listen to these questions, 621 to 622:

"621. Q. And what method do you use to take the lime off?

"A. We just use a wire brush and hose.

"622. Q. Hose and ordinary tap water? A. Yes."

There was no limitation in there by you, up to the time that the cupolas did something or other? A. I believe one of your questions there, Mr. Keogh, states that we used fluid in there. I think if you will go further there you will find it.

20 Q. No. I never asked you about fluid or acid either. You say now that taking that off with an ordinary brush and hose water that that only applied up to a certain time and even after that you had to use acid. Is that correct? A. That is correct.

Q. And when did you start to use acid? A. After the forge shops and the cupolas were started.

Q. And when was that? A. That was after 1937 and 1938.

Q. How much after, or when? A. Well, that was noticeable just as soon as these places started in operation, particularly as it applied to the whitewash.

30 Q. Well, how soon after 1937 and 1938 did you start to use muriatic acid to take the lime off? A. I would say if the forge shops started previous to our usual time of cleaning, in August or September, we would have had to use it that fall.

Q. Well, I don't want the "if," and "would have had," and so on. Can't you tell me when you first started to use acid to remove the lime from your greenhouses? A. We used it directly after the operations of the forge shop and the cupolas.

40 Q. And when was that? A. That would be whatever date the forge shops and the cupolas started, or, if you wanted just a blanket, ten years ago, or more.

Q. Ten years ago you started to use muriatic acid to take the time off? A. That is correct.

Q. Then, how do you explain this answer in your discovery that I just read out to you about the wire brush and hose and ordinary tap water? I was not talking about ten years ago. I was talking about the period for which you were claiming in this action. That is what the whole discovery was about. A. If you will take your book there, you will find one place you mentioned fluid.

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Q. I cannot find it. Maybe your counsel can find it. I cannot.

10 MR. SLAGHT: What page are you on? I am on page 42, questions 621 and 622.

MR. KEOGH: Q. Now, you said something yesterday afternoon or the afternoon before about in some cases having to clean the glass of your greenhouses every ten days. You made that statement earlier, didn't you? A. That would be correct, in order to get proper light, which we are entitled to, and which we would have had if it had not been for the interference of this stuff coming over from McKinnon's.

20 Q. Well, that was not the practice you followed in 1946 and 1947, was it? A. No, sir. I explained that it would be impossible to get a proper man to do that and also that it would be impossible for the cost involved to get men to clean it that way.

Q. Well, whether you explained it or not, in the year 1947, you cleaned your largest greenhouses only once? A. That would be correct.

Q. And in the year 1946, you cleaned that greenhouse only twice? A. That could be correct, sir.

Q. And that was once in the spring, and once in the fall of 1946? A. I would take it so. I might answer, sir —

30 Q. And in the smaller greenhouses, most of them were cleaned once or twice a year and, with the exception of one house closer to Carlton Street, which was cleaned three times a year? A. That would be correct, sir.

Q. So there was not any mention of ten days there, was there?

HIS LORDSHIP: Well, the witness does not say the greenhouses were cleaned every ten days. What he says is, if you were to have the proper light through their interference, you would have to clean them every ten days.

MR. KEOGH: Yes, my lord. Thank you.

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Q. Then, did you notice thrips on your gladioli and onions in July of 1946? A. I believe that would be correct. They had received bad burnings, and we had not taken the precaution because we didn't think, from the quality of the burn, it was worth while to go any farther and try to clean them up.

Q. They were heavily infested with thrips? A. They would get so afterwards, because the prospect of getting any returns from them had been lost, due to the damage that had been given to them.

10 Q. And I suppose it will be explained later, but a thrip is a small insect that attacks the plant? A. Green onion.

Q. And gladioli? A. I believe there are two different kinds; onion is one and gladioli is the other.

Q. And as far as the gladioli are concerned, they eat the leaves and the stalk and so on? A. Well, they stop them coming up and producing a quality bloom.

20 Q. Now, you have made a claim in this action for vibration. First, I take it that you allege, as part of your claim for vibration, that a certain amount of glass in your greenhouse was broken by vibration? A. Well, yes, some.

Q. You used the word "earthquake" in your statement of claim.

MR. SLAGHT: Well, he didn't use it.

MR. KEOGH: Well, I mean he is responsible for what his solicitor put in.

MR. SLAGHT: Well, that is not the solicitor.

MR. KEOGH: Well, we have had "whirlpool"; we might as well have an earthquake.

30 Q. Anyway, can you tell me how much of the breakage of glass in your greenhouse was due to vibration and how much due to other causes? A. I couldn't say, sir, but I would say 65% was due to vibration.

Q. 65%? A. 50 to 60% was due.

40 Q. That is just a wild estimate. You have no records? A. It is not exactly a wild estimate. It is just an observation; my being there every day, I think I can speak of that, although it would be substantial — by going across every day. Nevertheless the fact remains when we had frost in the ground and solid ground and the vibration from the hammers came across to us, we always had a number of panes broken.

Q. Well, how do you know it was not the frost that broke them, rather than the vibration? A. I would say by — over a period of 40 years there, not having anything like that — we had frost previous to when the McKinnon Industries came there.

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Q. Would it be of interest to you to know that records will be produced to show that the vibrations were either not as severe or not more severe in frosty weather or wintry weather, than they were in any other weather? A. It might be interesting to know, but I answered your question a few minutes ago.

10 Q. And you say you are in a position now to give an estimate of 50 to 60% of breakage? A. In my opinion that would be.

Q. And you have no records for that? A. You couldn't have records, unless you went over every morning.

Q. On April 9th, 1948, when you were examined for discovery, at question 978 on page 100, were you asked this question and did you make this answer:

20 "978. Q. You were to find out and let me know how much "of the breakage of glass was due to — you claim was due to "vibration and how much you claim was due to other condi- "tions? A. Mr. Keogh, I could not verify that; nobody "could. I could not say any certain period. We used to get "through there with one and a half cases a year."

Were you asked that question and did you make that answer? A. Yes, sir, and I answered that just now and that was the answer to it.

Q. Now, you say it was 50 or 60%? A. That is the only opinion I could give.

30 Q. And when you issued the writ in this action, you said nothing whatever about vibration, did you? A. I couldn't say that.

Q. Well, let me read the endorsement on the writ to you.

MR. SLAGHT: Well, my lord, may I take this objection? We have pleaded vibration up to the limit in the paragraphs and set it out in detail, and there was no motion to strike out the plea of our statement of claim, and if our endorsement on the writ does not accord with our statement of claim, it is too late for my friend to raise it now.

40 MR. KEOGH: I am not raising it as a pleading. I am suggesting to this witness the vibrations in this case were a pure afterthought and mentioned in the statement of claim for the first time more than a year after the writ was issued.

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HIS LORDSHIP: Proceed.

MR. KEOGH: Let me read the endorsement on the writ on March 19th, 1946:

"The plaintiff's claim is for the sum of \$100,000 damages caused to the property of the plaintiff by the defendant, all due to the operation by the defendant of its plant and for negligence in emitting into the air noxious gases, fumes, oil and other materials, which cause damage to the property of the Plaintiff and injuriously affects and continues to injuriously affect the plants, bulbs, etc., as well as the property of the Plaintiff."

HIS LORDSHIP: That would surely include vibration.

MR. KEOGH: I submit not, my lord.

MR. SLAGHT: The operation of the plant.

HIS LORDSHIP: Mr. Slaght, please.

MR. SLAGHT: I beg pardon, my lord.

HIS LORDSHIP: It is the conjunctive operation of the plant and the vibration is surely due to the operation of the plant.

20 MR. KEOGH: Yes, but it says the operation of the plant in emitting.

HIS LORDSHIP: No. Is that not "and emitting"?

MR. KEOGH: May I read it again: "due to the operation by the defendant of its plant and for negligence in emitting into the air noxious gases, fumes, oil and other materials."

HIS LORDSHIP: Well, it is conjunctive. It is for the operation of the plant and negligence in emitting these gases. Surely the vibration comes from the operation of the plant. Mr. Keogh, I do not think you can get very far with that.

MR. KEOGH: Oh, it is not a vital point in the case.

30 HIS LORDSHIP: It is certainly a point to prove as part of the operation of the plant, that there are vibrations that injuriously affect the plants and buildings.

MR. KEOGH: Well, I am just pointing that out with these other things, noxious gases, fumes and all those other things are specifically mentioned, and vibration is not mentioned.

HIS LORDSHIP: Well, that is certain particulars of negligence, but that is not the real basis of this action. This action is based on nuisance.

40 MR. KEOGH: Oh, I am not arguing the pleadings are improper or anything else. I only mention it for that one point.

Q. Then, you could not remember these figures at this late date, so I will read them to you, question 1167, near the end of your examination for discovery.

MR. SLAGHT: The page?

MR. KEOGH: Well, it says page 4 on my copy. The stenographer apparently started over again. It is question 1167.

"1167. Q. Then you were to produce records showing total "retail and wholesale business during the three years for "which you are claiming; that would be 1945, 1946 and 1947?"

10 "A. 1945, \$60,150.08; 1946, \$60,759.90; 1947, \$60,577.44."

Then question 1168:

"Then at question 999 you said you would produce your income tax returns for the year 1945, 1946 and 1947.

"A. Those are over in Toronto now.

HIS LORDSHIP: Excuse me, Mr. Keogh. Is this business done?

MR. KEOGH: This is the total retail and wholesale business done by the plaintiff in those three years, 1945, 1946 and 1947.

20 Q. Did you make that answer to that question on your examination for discovery? A. I believe those are correct, sir, taken from the book.

Q. And there is not very much difference between those three figures? A. There should not be. Our business is very stationary.

Q. And can you give me some figure for 1948 that corresponds to these figures? A. We haven't it here, but we would be glad to give it to you.

30 Q. Well, can you give it to me approximately within \$500, or \$1,000, do you think? A. I would give it to you right after dinner, when we get the record from the boy.

Q. Well, that is satisfactory. And, when you are getting that figure, would you also get me some figures for 1943 and 1944, so that I can compare them with those two years before the period for which you are claiming? A. Mr. Keogh, might I have your permission to give you that possibly after Monday? You know, we are in Easter week; this is our heaviest week, and you know my boy will have to make those up, and I will have to go up, and he is running the store, so if I could give them to you perhaps Tuesday —

40 HIS LORDSHIP: It probably will be satisfactory to you, Mr. Keogh, if the witness prepares the figures and gives them to his counsel and, unless you wish to examine on them, they may be put into the record by agreement.

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MR. KEOGH: Yes, my lord, that would be all right. I think I am nearly through now with the witness.

Q. Then, you have advertised from time to time in the magazine called the "Canadian Florist," Mr. Walker? A. Correct, sir.

Q. And I show you page 267 of the Canadian Florist for June 5th, 1946. Is that your advertisement with the name "W. W. Walker & sons" on the bottom? A. That would be it, sir.

Q. And may I —

10 MR. SLAGHT: Is there a page number?

MR. KEOGH: Page 267. And may I read it to you:
"4,000 root mum cuttings; best commercial pom; pom and
"single varieties ready in ten days; lot \$100."

Then there is something about the Sales Tax and the deposit, which I won't read, and then "W. W. Walker & Sons, St. Catharines." A. That would be correct, sir. That was the surplus and we offered them that to clean them off the benches.

Q. Then, I show you the Canadian Florist for October 5th, 1946.

20 HIS LORDSHIP: It would be small plants you were selling? A. It is just cuttings. You stick a cutting down in the sand, and we sell it as a small cutting. It has not been budded up yet. It is a small plant yet, but it has not been budded.

Q. It has not got to the stage of blooming? Would they cut the bloom in the same fall, or would it be the year afterwards? A. No, sir. If it was going to produce a flower, it would produce flowers that year, but that was a cutting that we were offering, and that is the reason we made that offer. You would get a percentage of —

30 MR. KEOGH: That is the organ of the florists of Canada, isn't it, this "Canadian Florist"? A. Correct, sir.

Q. Then, I show you an issue of the same magazine for October 5th, 1946, at page 480, and is that your ad at the upper left corner of that page, "W. W. Walker & sons"? A. Yes, sir.

Q. And then, reading out the advertisement:

"500 carnation plants ready; dark pink, light pink and white.
"\$15 per hundred. 100 extra heavy five inch bench plunged
"Boston ferns ready for six to seven inch beds, \$1 each."

40 and then, down at the bottom, "Selected orchids of all kinds, at all times." I have read those words correctly? A. You have, sir.

Q. There are some other things about licence and Sales Tax I am not troubling to read. A. Those prices in that place are in there for the reason it is covering the same plants and the prices quoted there are for the surplus. That is the reason they may vary a few dollars in there.

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Q. That is, a surplus in carnations and Boston ferns?
A. That is correct.

Q. In other words, you had grown more than you needed?
A. We had not disposed of them, sir, and we had more than we
10 needed.

Q. Then, I show you the same magazine for October 21st, 1946, page 157. Is that your advertisement? A. Quite right, sir, and the orchids there —

Q. Now, let me read it, and then you can say what you wish to say about it after:

20 "Orchid plants, 12, five inched shaped orchid plants of mixed "varieties, Harrisona Triane Gaskelliana", — and three "other names of brands of orchids — \$100; larger plants "available and hybrids at prices according to varieties. Re- "member, these plants are here in Canada now. You take no "chances on the perils of importing, for you pay the money "at shipping point and after that the responsibility is yours."

Thene there is a line and below the line:

"100 extra fine ferns, five inches plunged, ready for six or "seven inch pots,"

and another line below the second line:

"500 choice carnation plants, red, white and pink, \$15 per "hundred."

I have read that correctly, have I? A. Correct.

30 Q. Now, what do you want to say about that? A. What I want to say about that is that 12 orchid plants being offered for \$100, where, as stated, five inch, — that is what we call really a No. 2 plant, and that is why those plants were offered on that date and at that date orchid plants were procurable very much cheaper than as of today. The South American countries have now put on a restricted giving of permits; the consequences that I would say that these varieties, all known as a species — a species are plants that are natural to those countries — have risen at least 50%.

40 Q. Then, you have a large ad. that I cannot very well read. It has a couple of figures in, in the issue of the Canadian Florist of November 20th, 1946, at page 563? A. That shows the importation coming in from South America and the perils of im-

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porting. If you will notice at the bottom of the cases, there are large numbers of orchid plants showing as being dead, so they were examined by Mr. Chapper, our plant inspector, and passed by him as being unfit. He came back also and re-examined these here, and I would be safe in saying that we lost 40%. That is your peril.

Q. And this was an importation of orchids which you made from South America? A. It is not up here — just a minute — pull that side out.

10 Q. Somewhere close to November 20th, 1946? A. That is right, sir. The two photos up above are some that were imported. I think they are Gigantia and that had been imported maybe a year or so before. Mr. Keogh, in giving —

MR. SLAGHT: Well, suppose you just wait for the questions.

MR. KEOGH: Some of these I am trying to pick out. I don't want to duplicate them. Yes, we had some complaint about cyclamen. I show you an issue of the same magazine of January 20th, 1947, page 50, where you are advertising cyclamen plants?

20 A. May I interrupt here to make one addition to what I have just told you? You have in that ad. stating that hybrids may be procured or for sale at — I believe it says higher prices, or whatever the prices were at that time. A hybrid is usually considered twice the value to start with, and some hybrids are not very high.

Q. When you say that, that is referring to the previous ad. about importation? A. "One dozen for \$100."

Q. Then, this ad. — may I read it.

"Cyclamen plants, 1000, very bush, 2½ inches; Cyclamen
"plants, named varieties."

A. Those are named.

30 Q. And then it gives their names and then:

"Shipment after January 15th, \$11.50 per hundred; 500 for
"\$50."

Have I read those parts of that ad. correctly? A. Correct. Mr. Keogh, that alludes to a number of cyclamen which we grow, keeping only for ourselves a certain number. I am very glad you brought this here item up. These are the cyclamen that began to show, I believe, as our cuts will show, very early in May, the effects of the gas coming over and had to be entirely destroyed for turning a pale yellow, along, I would say, about the latter part of
40 July. We can produce those dates for you.

Q. Then, I am skipping a bunch of these, my lord, but there is an issue for July 1st, 1948, of the same magazine. The ad. is at the bottom of page 17. Is that your ad. on page 17? A. This is in 1948?

Q. July 1st, 1948? A. That is correct, sir.

Q. And may I read that:

"Cut orchids. We regret that we cannot accept any extra orders as we are all booked up till fall."

A. That is correct, sir.

10 Q. "Mums; 3,000 R.C. mums." A. That is root cuttings.

Q. Just let me read it and you can say whatever you like after:

"3,000 R.C. mums, best commercial and poms. Poms, \$3.50 per head in lots of 250; in thousand lots, \$32.50 per M."

That means per thousand? A. Correct.

20 Q. "Carnation plants, 18,000 best varieties, filled early, write for prices," and then there is a list of varieties including largest Virginia (Hercules, light pink), "also a few yellow variegated and special varieties. Orchid plants in all varieties. Write for prices." I have read those parts correctly? A. In interpreting that, of course, the "R.C." stands for root cuttings. "H.R." stands for price per hundred. The carnations over here, is approximately what we would have and which was planted down at Dwyer's place, and then we got our orders in and they were practically all sold. Now, the orchid plants, we would quote them in all varieties and prices because you couldn't give a definite picture and give the plants, and so forth. We have many plants from Baron Rothchild's cyclamen in England, and also the Duke of Wellington, and from other famous places, which they were forced to sell, when they could only get 25% of the coal they wanted during the winter time in England.

30

Q. Were carnations hard to sell in 1948? A. Our carnations were never hard to sell. We are the ones who brought in new varieties. We have got more or less an experimental station for the sale of these new varieties.

Q. Well, without going into all that, I was just wondering the reason for your advertisement of the 2,000 carnations? A. That is before —

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Q. 18,000, I beg pardon. A. That is correct, sir.

Q. What was the reason? Was there any special reason for that? A. Nothing more than to let the people know that had been in the habit of buying from us for at least 20 years, that we had that many available. In most of the cases, we get repeat orders, and then we sold the surplus.

Q. Then, I show you another issue of Canadian Florist for February 1st, 1949, page 16. An article signed apparently by W. W. Walker entitled, "So you want to grow orchids." Did you submit that article? A. I have been asked from time to time to write that article. That is my article, sir.

Q. I am not going to read it all, because I am going to file this one as an exhibit, but it says in here, in one sentence, "For years I have leaned on the other producing plants and flowers of the retail store to carry on and they produce now some of the finest available orchids in the Dominion of Canada." I have read that sentence correctly, have I? A. We took that —

Q. I have read that correctly, have I? A. Yes. Can I interpret it?

20 — EXHIBIT No. 41: Copy of Canadian Florist for February 1st, 1949.

Q. Yes, you may. A. We have leaned on them in this way, that I have always been a lover of orchids, and what surplus money we had, when we could spare it, we put into orchid plants. I think that answers you.

Q. Then, I show you an advertisement from the "St. Catharines Standard" of March 23rd, 1948.

30 MR. SLAGHT: Well, I am afraid I interrupted the witness. He was saying something, and if he has nothing more he wants to say, we may go on.

HIS LORDSHIP: You can bring it out on re-examination, if you wish.

MR. KEOGH: Q. Did you put that advertisement in the Standard on that date, "W. W. Walker & Sons"? A. What date is it?

Q. March 23rd, 1948, or about that time? A. Yes, that is the last one in.

40 Q. Well, it is last March, and it refers to the finest assortment of various kinds of plants which are listed here, and I will file this as an exhibit, and it also includes South African Violets, carnations, and tulips and daffodils and so on. That is your advertisement, is it? A. Would you like me to clarify it?

Q. I will in a minute, but I just want to ask you one thing about the South African violets and then you can say anything further you want to say. Are they not a very sensitive, delicate and difficult plant to grow? A. The South African violet, or Santa Paula requires very special attention and a real man who understands growing them. I believe — no, I won't say that — we are producing as fine a violet as was ever produced in Canada, by my son, who is superintendent for the past six or seven years. — EXHIBIT No. 42: St. Catharines Standard, Mar. 23, 1948.

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10 Q. Now, is there anything you want to say about this advertisement, Exhibit No. 42? A. With the exception that when this here gas and smoke comes over, we do find them suffer on that, sir. That is all.

Q. Excuse me a moment, my lord — I am nearly through, but I just want to make sure. You furnished us shortly before the trial with some further particulars of your statement of claim and included in that was the last of the days in 1947 when you said that I believe this vibration was incorporated in the record. Isn't that right?

20 MR. SLAGHT: It was by letter, wasn't it?

MR. KEOGH: It was by letter.

MR. FERGUSON: They were furnished in reply to answers on examination.

MR. KEOGH: Further information that formed part of his discovery, not part of the pleadings.

MR. FERGUSON: That is right.

30 MR. KEOGH: And we received last from your counsel, a number of days in 1947 when it was claimed on your behalf that gas and oil and smoke existed for more than seven hours over your property, and I don't need to go over this on those dates. I just want to ask a general question. Did you make this up for your solicitors as a result of some record that you kept of the durations of more than seven hours, or did you make it up from memory? A. No, I made it up from notes.

Q. And you have the notes, have you, substantiating this list of durations of gas for more than seven hours? A. I would say almost all of them; possibly all of them.

Q. Well, I would like to see those notes, if you have them? A. They are procurable, and can be read off.

40 Q. I am not referring now to some note or memorandum you made up recently. I am referring to notes and records that were made up at the time. A. That is what I am referring to.

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Q. Well, I would like to see those, then. While my friends are looking into that, we also in the same letter, received a list of comparative productions from September, 1947, to February, 1948. In the 1947 year, starting 1947 and in the 1948 year he started in September and did not give us any comparative productions for the months of July and August, and when you are getting those other things that were agreed to be submitted to your counsel and probably incorporated as part of your evidence, will you also get the figures for those two years, for July and August. You know what I mean, Mr. Ferguson? That is to complete this statement which starts in September.

THE WITNESS: They are all here, Mr. Keogh. He gave them to you.

MR. KEOGH: Well, if you have them, and they have been handed in — A. Well, I would rather you would compile them. They have been Government checked.

MR. SLAGHT: What are those figures for?

MR. KEOGH: For the months of July and August in the year 1947 and in the year 1948, just to complete this statement you gave us.

20

MR. SLAGHT: Figures of what?

MR. KEOGH: Of the comparison of sales and production.

HIS LORDSHIP: Now, are these being put in? There is a great deal of discussion going on about figures that makes no impression on my mind at all, because it is entirely nebulous, as far as I am concerned.

MR. KEOGH: They are not being put in on the question of damages at all.

HIS LORDSHIP: Are they being put in on any question?

30

MR. KEOGH: Yes, depending on the result of those figures, I may have argument as to whether this man was damaged at all or not.

HIS LORDSHIP: Yes, but at present we have not anything except a discussion that some figures exist.

MR. KEOGH: Oh, I beg your pardon. I see what your lordship means. I am talking about a statement that is not before the Court unfortunately. I have some notes of my own.

HIS LORDSHIP: Well, probably you can do this. You can have a complete statement made up and file it as an exhibit when it is complete, so that we can make what use of it we wish.

40

MR. KEOGH: That would be the best way. With these figures for July and August, we will incorporate those figures with the statement given by Mr. Ferguson later, and we will incorporate the whole thing. All right. Thank you.

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RE-EXAMINATION BY MR. SLAGHT:

10 Q. Mr. Walker, you asked me this morning to ask the Court to give you an opportunity to make a correction to the Court which you desired to make. Would you be good enough to let his lordship have Exhibit No. 1. Yesterday you answered a number of questions with regard to conditions that would exist when there was a north wind, and a north wind means a wind blowing from the north to the south. Now, you did not have before you a map. I have a map for you now and I call your attention to the surveyor's chart on the map where he shows on this map an arrow, which is north, which cat-a-corners across, and then he shows east and west. Now, will you slowly and carefully make such explanation as you wanted to make regarding those statements you were asked, by the questions and make an answer, "Well, the wind on the north, and north and so on." Just make such explanation as you think will clear up in accordance with the facts of your observations from time to time, whatever you may have said yesterday.

20 A. Your lordship, yesterday I stated that a wind from the north would cause certain things to come over and around our greenhouses. I was wrong. I believe that, being tired and confused, having passed the age of 67 —

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HIS LORDSHIP: Don't give us your excuses at all. Tell us what the correction is. A. The correction is that I said winds from the north and the gas and stuff would come over. It would not. It should have been another direction.

30 Q. What did you intend to say? A. I intended to say west. I don't know why I got the other and said north.

Q. I thought you were confused at the time and it was not the only time you got confused in your directions. A. Thank you, your lordship.

MR. SLAGHT: Q. Then, you are making it clear now that you did not mean when the wind blew from the north to the south that it affected your greenhouses? A. None whatever, sir.

Q. Well, that is all of that.

40 HIS LORDSHIP: I take it you were most affected by the wind from the west or from the southwest? A. Correct, your lordship.

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MR. SLAGHT: Q. You spoke of not making soil tests on examining it. Did anybody at your request make — or did you give samples of your soil rather to any one in order that he might make tests of it for you? A. Yes, sir.

Q. To whom? A. To L. McAlpine, Toronto.

Q. Mr. McAlpine, who is here as one of your experts?
A. Yes, sir.

Q. And how many samples did you give to him? A. I just forget how many, but I think there was around 25 or 30. I could tell you if I had the book here.

Q. And where did you take those samples from, — partly from your own place and partly from others? A. No, sir. Those were taken practically we will say surrounding our location and also north, and then west, and north of General Motors, and then —

Q. McKinnon's, you mean? A. And then again, west of General Motors; then south of General Motors; then east of General Motors, completing a circle around the centre of which would be — pardon me, McKinnon Industries Limited.

HIS LORDSHIP: Now, let me understand that. These samples that you gave to Mr. McAlpine, were some taken from your own property, some taken from property of others in this semi-circle around — A. Yes, your lordship, completely encircling the plant.

MR. SLAGHT: Q. And, I would think, from some of those Armenian homes that were referred to yesterday? A. No, I believe, and we will have the number — yes, it was. There was a number of them included.

HIS LORDSHIP: Q. Did you have some method of labelling the sample of where you had taken it from? A. The sample was taken, put in an envelope, a notation made on that envelope, and sealed.

MR. SLAGHT: Q. And you gave it to Mr. McAlpine?
A. Sent it to him.

Q. And did you correctly label the samples as they are, where they were taken? A. Each sample was labelled before we moved to another place.

HIS LORDSHIP: Q. Would it be possible for you to answer a question just "yes" or "no" some time before we get through? I asked you, did you correctly label the samples that you are saying were taken there? A. Yes, sir.

MR. SLAGHT: Q. Then, this morning, you were asked about trains backing freight cars on two electric railways, as I understood it. I thought you told my friend that they were not coal-fed locomotives, but electric engines that do the shunting of those cars? A. Correct, sir; none since 15 years, I believe.

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Q. Then, my friend asked you about the dwelling house on your property that is occupied by a young man named Scott, since he came back from the war? A. My tenant, yes, sir.

10 Q. And he asked you whether there was glass broken in the dwelling house by vibration, and you told him you couldn't say for sure; that some glass you had in mind was broken by vibration? A. That is correct.

Q. Was there any other injury to that house which you suggest was caused by vibration? A. Yes.

Q. What was it? A. Vibration has caused the walls to be cracked. The different rooms, the plaster to fall.

MR. KEOGH: I don't think I went into this in cross-examination.

HIS LORDSHIP: I think you opened the door, Mr. Keogh.

20 MR. KEOGH: I mentioned the breaking of glass.

MR. SLAGHT: And also the painting which very apparently would have to be done, and which would not have to be done if they had not suffered the injuries from the McKinnon Industries Limited.

Q. Then, there was one article put in here from the "Canadian Florist," Exhibit No. 41, where my friend read out the expression, "We have produced now some of the finest orchids," and you did not get a chance to make your comment on that advertisement that was published.

30 HIS LORDSHIP: It was an article written by the witness.

MR. SLAGHT: Oh, yes, written for the magazine on February 1st of this year. What comment would you make on that statement contained in the article? A. The statement would be as given 100% correct. I was asked to make that for publication in the magazine.

40 Q. Well, having produced some of the finest orchids, my friend had in mind, I think, coincident with the evidence you have given, about some damage being done to some of your orchids at certain times. Can you elucidate that, or help us know how both could be true, your evidence of damage to the orchids, and also

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the statement you have produced some of the finest? A. Owing to the vibration and other nuisances, we only got a production of some of the finest orchids. That meaning is this, that we may have 25 or more of this or that variety, but owing to interference we may get only six or eight of that quality. Does that answer your question?

Q. I think it does. Now, that is all my lord, I think.

HIS LORDSHIP: Next witness.

10 THE WITNESS: Your lordship, may I answer one more question.

HIS LORDSHIP: I think you had better leave the asking of questions to your counsel.

—Witness excused.

MR. SLAGHT: I am sorry. I have not a short witness that would take ten minutes. My next witness is Mr. McAlpine, who will be a couple of hours before the Court.

HIS LORDSHIP: Well, start him.

KENNETH McALPINE, sworn,

20 EXAMINED BY MR. SLAGHT:

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Q. Mr. McAlpine, you are a chemist? A. Yes, sir.

Q. A graduate of Queen's University with a degree of B.A. in the chemistry course in 1923? A. Yes, sir.

Q. A graduate in 1925 as an M.A. from the Toronto University, in bio-chemistry? A. Yes, sir.

Q. And you put in two years in bio-chemistry? A. Yes, sir.

30 Q. Then you were on the staff as a research chemist in the Connaught laboratory, in research work on insulin under Dr. Banting and Dr. Best? A. Yes, sir.

Q. And obtained an M.A. degree in bio-chemistry in 1925? A. That is correct.

Q. Then, you were employed for one year, while on the chemistry course, with Professor J. L. Rogers, of the University of Toronto? A. That is quite right.

40 Q. He is a well known Provincial chemist. Then, you became an employee in the Chemistry Department of the H. A. Melfort Company of Pennsylvania, who were licensed by the University of Toronto to manufacture insulin in the United States? A. Yes.

Q. That will be 1926 to 1931 — five years? A. That is correct.

Q. Then, was that Philadelphia work also connected with chemical research? A. It was.

Q. Then, in July, 1933, you were ill. Is that when your automobile accident occurred? A. No, sir.

Q. Then, in July, 1933, you took a position of chief chemist of the E. R. Shuttleworth, Toronto, to manufacture chemicals and pharmaceuticals? A. That is right.

10 Q. And I think till 1939, and in 1939 you became chief chemist for the Synthetic Drug Company of Toronto? A. That is right.

Q. And you are a Fellow of the Canadian Institute of Chemistry? A. Yes, sir.

Q. You received an honorary award by the profession? A. Yes, sir.

Q. And you have had experience in all the distinct fields of chemistry, one being biological and the other synthetic? A. Synthetic organic chemistry.

20 Q. Then, I believe you wrote a paper for the British Orchid Review, which was published on the growing of orchids? A. I did, sir.

Q. And Mr. Walker, apparently having seen that article, contacted you in July, 1947, resulting in your coming over to visit his plant and being then engaged by him to assist him in his preparation of this case? A. Yes, sir.

Q. In an expert way? A. Yes, sir.

30 Q. Then, have you had any experience in or just out of Toronto, over a period of years, with the practical cultivation and growing of orchids? A. I have.

Q. Where? A. At Colonel Flannigan's, at Divadale, on Bayview.

Q. That is just a few miles out of Toronto? A. Yes.

Q. What experience did you have there? Did he have a collection of orchids? A. He had an exceedingly fine collection of orchids.

40 Q. And what part did you have to do with it? A. I visited his orchid ranches almost weekly over a period of two or three years, and discussed very freely with his two orchid growers their problems in the cultivation of orchids.

Q. Then, the Colonel later sold out, and I believe you purchased part of his orchid collection itself? A. I did. I had the first chance on his plants, which I now own.

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Q. And you have maintained the production of orchids with that as a base, ever since, down to the present time? A. I have, sir.

Q. Now, were the Flannigan greenhouses or orchids ever subject to vibration? A. No, sir, definitely not.

Q. Well, we will come to your view about the Walker plants. We have heard that Mr. Walker submitted some samples to you of soil, a part from his own property and part from adjoining properties? A. That is correct.

10 Q. Have you analyzed those samples? A. I have, sir.

Q. And how many were there, do you remember? A. I believe there were 49.

Q. And I am not going over them sample by sample, or your analyses, but what was the general purport of your analyses covering the entire group of samples? A. At the time we were interested in the acid or alkalinity of the soils.

20 Q. Is that important in plant growing? A. Very much so, and these results are commonly reported as P. H. values, ranging from zero to 14, zero being intensely acid; seven, half way, being neutral and fourteen being extremely alkaline, and all of these samples had the reaction or degree of acidity very close to the neutral point or very slightly under. There was very little difference in any of the samples.

Q. I see. They were pretty uniform and they were close to the neutral point, or slightly under. Well, what does that mean in a layman's language, as to whether it was a desirable soil or otherwise? A. The P. H., of these soils was very similar to that obtained at a large greenhouse in Toronto, and their P. H. values is only found in soils —

30 Q. Whose is that large greenhouse? A. W. B. Miller & Company, on Dufferin Street.

Q. Then, I am afraid I did not make it clear. Is that soil, in your opinion, a desirable or an undesirable soil? A. Desirable.

HIS LORDSHIP: Mr. Slaght, you were going to start something else?

MR. SLAGHT: Thank you, my lord, I am just starting a fresh branch.

HIS LORDSHIP: We will adjourn until 2.15 p.m.
—Whereupon Court adjourned until 2.15 p.m.

Wednesday afternoon, 2.15 p.m.

EXAMINATION-IN-CHIEF OF MR. McALPINE
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Q. Then, Mr. McAlpine, you paid a visit, as you told us, in 1947, in July, to the greenhouses here, and I want to have you run through very briefly what you did that day. You came over with Mr. Ferguson from Toronto, I think? A. I did, Mr. Slaght.

Q. And met Mr. Walker at his property? A. I did.

HIS LORDSHIP: July of what year? A. 1947.

10 MR. SLAGHT: Q. And did you go through three of the greenhouses? A. We went through all of the greenhouses, Mr. Slaght.

Q. And were you shown the orchid plants? A. Yes, sir.

Q. Did you see any ferns? A. I did.

Q. And what conditions were the ferns you saw in? A. I noticed that the margins of the ferns in some cases were discoloured in that they were a brownish yellow and lacking in green colouring matter.

20 Q. Having regard to seeing them then, and from information you have personally acquired, can you suggest what that discolouration was due to? In other words, where did it come from? What was the source of it; disease within the plant or outside, and, if outside, where? A. It could have been disease in the plant; it also could have been disease coming from outside.

Q. Then, did you see the lily-of-the-valley? A. I did, Mr. Slaght.

30 Q. What shape was that in? A. The upper half of the leaves were very much discoloured. There seemed to be no chlorophyll in them whatsoever, and the colour of them in general, of the upper half, was a yellowish brownish grey colour, being devoid of any green at all.

Q. Was that a healthy or an unhealthy condition? A. Decidedly unhealthy.

Q. Then, did you see any grape vine on the property? A. Yes, sir.

Q. What condition were the vines in? A. This grape vine was along the fence and many of the leaves along the margins were brown.

Q. A natural brown or unnatural? A. Unnatural.

40 Q. And did you see a small bed of gladioli? A. I believe I did.

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Q. What condition were the lily-of-the-valley in that you saw? A. The upper halves of the leaves had no green colouring matter in them, they were a greyish, brownish, yellow colour; dead, as far as I could see.

Q. Was that a defect or not? A. That is a decided defect.

Q. Then, did you go on some other properties, there? Did you examine any peach or plum trees on the side away from McKinnon's — that would be farther away from McKinnon's than the Walker property? A. We examined fruit trees.

10 Q. And what was their condition? A. In some cases the leaves were decidedly curled and yellowish.

Q. And was that a healthy or an unhealthy condition? A. Unhealthy.

Q. And did you examine the fence around the park there? A. Yes, Mr. Slaght.

Q. And would that be closer to or farther away from the McKinnon plant? A. I am not well acquainted with St. Catharines, but I believe it would be farther from the McKinnon plant than Mr. Walker's greenhouse.

20 HIS LORDSHIP: East or west, or south? A. From Mr. Walker's greenhouse, if my sense of directions are correct, was south and east.

MR. SLAGHT: Q. Yes. And was it a galvanized iron fence? A. It appeared to be.

Q. And what was the condition of the galvanized iron? A. The upper part appeared to be in good condition. The fence, near the ground, was decidedly corroded.

30 Q. Then, I now want to ask you whether you visited the Walker plant a few weeks later, in the early fall of 1947? A. I did.

Q. Did you take any samples of deposits you found on the roof there? A. I did.

Q. And any samples of water in his tank? A. I did.

Q. And about what date was that? A. May I consult these notes to refresh my memory on that?

Q. Yes, to refresh your memory. A. On October 18th, 1947.

Q. What date? A. October 18th, 1947.

40 Q. Then, did you analyze the samples from the roof? A. I did in part.

Q. And what was the colour of the sample you took? A. A brownish, black colour.

Q. And have you your analyses? A. Yes, sir.

Q. And you took that in the lab of, I understand, the Synthetic Drug Company, is it? A. Yes, sir.

Q. With their production, is that a well equipped lab? A. Very.

10 Q. And can you give us briefly — I don't want to run over all the items, can you give us your analysis and file it? You are able to swear that this is a correct analysis that you took? Have you an additional copy there? A. I have, Mr. Slaght.

Q. This is a correct analysis? A. Yes, sir.

Q. I see this is dated November 18th, 1947, headed, "Analysis deposit Walker's greenhouse," and you have signed it here? A. Yes, sir.

—EXHIBIT No. 43: Analysis prepared by Kenneth McAlpine of samples of water and samples of deposits taken from roof of the Walker greenhouses.

HIS LORDSHIP: Just a moment, Mr. Slaght.

20 MR. SLAGHT: Have you got another copy you can work from, so his lordship can have that? A. Yes, sir.

MR. SLAGHT: Just get the other copy before you.

HIS LORDSHIP: This is an analysis of the sample taken on what date? A. October 18th, 1947.

MR. SLAGHT: And I see the first factor is ether soluble extract. I will read them all out. The first item, ether soluble extract, 0.8%. That is mysterious to me. What could that be? A. Ether has the property of dissolving oils, tars and similar substances.

30 Q. Could that be an oily or a tarry substance? A. It could be, yes.

Q. Then magnesium carbonate, 4%; calcium carbonate, 14.4%; iron and iron oxide, 43%. What comment have you as to the iron content there, 43%, if any? A. At that time the iron content was definitely the outstanding item in the whole analysis, the oxide being almost one-half the total sample.

40 Q. There is an ash not soluble in acid, 11%; carbon loss on ignition, 24.3%; maganese, 0.2, and sulphur as sulphuric acid, 1.7. Now, will you comment on that analysis, having regard to the plaintiff's suggestion that the trouble is caused by McKinnon's, and that it was found on the roof of the Walker greenhouses? I

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won't say "comment," as a scientist, on it. A. First, 43% of that material was iron oxide. McKinnon's operate an iron foundry. Second, .8% was other soluble substances, hydrocarbons, which are one of the typical —

HIS LORDSHIP: Excuse me, have you an extra copy of this? A. Yes, sir.

MR. SLAGHT: Yes. Have you a copy for his lordship? Have you another copy? A. Yes, sir.

10 Q. Oh, well, you are armed with copies, then we can go on. And after mentioning a point there, did you, at some stage of your investigation, see what is described as the scrap iron heap, put in in a photograph here, or did you see a photograph of it as the raw material on the premises of the McKinnon people, which they used in the cupolas? A. I did.

Q. You saw that scrap heap? A. Yes, sir.

Q. And what was its condition when you saw it? Was it out in the open? A. It was, sir, entirely.

20 Q. What was its condition as to iron rust, or otherwise?
A. All the pieces there, to the best of my knowledge, which were iron, were coated with a deposit of a yellowish brown rust, and they stood out in distinct contrast to other materials.

Q. Yes. Then you were here and heard the evidence since the trial opened? A. Yes, sir.

Q. Were you one of those who were on the visit of inspection on March 14th? A. I was, Mr. Slaght.

Q. At the plant, under the Court Order? A. Yes, sir.

Q. Along with — A. Mr. Walker.

30 Q. And you perhaps learned on that visit that this scrap iron was part of the raw material that they used in the cupolas on top of the coke, to reduce it to a red hot slag for pressure purposes and for product? A. Yes, sir.

Q. You learned that. Then, you saw the cupola in operation that day? A. I did.

Q. I may have to come to it in a minute or two. Then, you found these particles on the roof? Have you seen fumes coming from the cupolas and the forge house in the direction of the Walker plant? A. I have, Mr. Slaght.

40 Q. Then, having those facts before you, what do you say as to whether or not in your opinion, the deposit on the roof originated in the scrap iron pile and was treated and came out of the chimney and was lodged, part of that operation was on the McKinnon roof —

HIS LORDSHIP: Mr. Slaght, I do not think that is a proper question for an expert. I think that is a question of fact that I have to determine myself.

MR. SLAGHT: Thank you, my lord.

10 HIS LORDSHIP: He can answer, or may be allowed to answer a question of this sort. Having regard to the nature of the operation that he saw being carried on there and the material that was being used in the foundry, the process that material was being put through in the foundry and what he observed as the result of his examination of the sample, would the deposit in his scientific opinion be consistent with it having come from the foundry.

MR. SLAGHT: Thank you, my lord. My impetuosity, as an advocate, carried me perhaps too far. As your lordship points out, I will be glad to adopt your lordship's question.

Q. As his lordship pointed out, would that be consistent as having come from the defendant's plant? A. It would be consistent, Mr. Slaght.

20 Q. Now, I stopped you, I think, when you were going to comment on the decimal point of the manganese. What comment have you to make on that, having regard to the iron content also? A. The sign of 0.2% of manganese is that the ratio of manganese to iron in the sample is comparable to the ratios of manganese and iron found in materials such as pig iron.

Q. And scrap iron? A. And scrap iron.

Q. And then, having regard to the sulphur of sulphuric acid, 1.7% on the roof, what would that be consistent with? A. It would indicate that at some time sulphur dioxide had, in all probability, been absorbed by the deposit and converted by the oxygen of the air and water, into sulphuric acid.

30 Q. Had been deposited on the roof from the air, do you mean to say, or with fumes passing over the roof? A. By fumes passing over the roof.

Q. It would be consistent with that, you are telling me? A. Yes, sir.

HIS LORDSHIP: Q. Is sulphur dioxide given off in the process that you saw being carried on the foundry? A. It is, my lord.

40 Q. Can you tell me why, or what happens? A. Because the products which are heated contain sulphur compounds, both the metals and the fuel.

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MR. SLAGHT: Q. Now, you have in there a soft coal furnace? A. It would be possible for sulphur dioxide to originate from the soft coal furnace.

Q. Well, could a deposit with the contents you found on your analysis as such — A. The deposit I cannot conceive of originating from a soft coal furnace, due to the iron content and the manganese content.

Q. I see. Then I will take you, if you will, to your practical visit there on March 14th. We have heard you went with Mr. Ferguson and Mr. Walker and another engineer? A. Yes, sir, Mr. Beaumont.

Q. And then some of the representatives of the defendant company? A. Yes, sir.

Q. Did you make an extraction from or during the analysis which you have with you, of some of the contents? A. I did.

Q. And have you got it? A. I have.

Q. Let me see it. A. It is down here. May I get it?

Q. Yes, with the Court's permission you may go and get it.

HIS LORDSHIP: Proceed.

20 MR. SLAGHT: Q. You have got a little bottle there. What is in it? A. This is the ether extract which has been evaporated to free it from the ether, leaving a residue which, the ether being extracted —

HIS LORDSHIP: Now, excuse me. I want to know there what you mean. An extraction. You said you made an extraction from something? A. From the deposit on Mr. Walker's greenhouse roof, my lord.

Q. That is the deposit is a sample that was taken in October? A. That is correct.

30 MR. SLAGHT: Q. And then what do you say this is now that you have extracted it? What is that in the bottle there? A. It is a brownish, yellow, oily greyish material, non-soluble in water, viscose, sticky, and has a very strong smell of crude oil.

Q. I see. Now I can have that marked as an exhibit, if your lordship pleases?

HIS LORDSHIP: It had better go in. It has been referred to.

—EXHIBIT No. 44: Bottle containing a sample of the deposit taken from Mr. Walker's greenhouse roof.

40 MR. SLAGHT: Q. Now, Mr. McAlpine, —

HIS LORDSHIP: I want to understand a little more about it.

MR. SLAGHT: Yes, my lord.

HIS LORDSHIP: You took the sample, did you, from which this extraction was made? A. No, sir.

Q. It was a sample taken by — A. Mr. Walker.

Q. One of the samples he took and handed to you? A. It was mailed to me.

Q. On October, 1947? A. Yes, my lord.

Q. So that you do not know what area was covered in taking the sample? A. I do not, my lord. I may say I have taken
10 subsequent samples and found similar results.

MR. SLAGHT: Q. Which you took yourself? A. Yes.

Q. And found similar results? A. Yes, sir.

Q. After an analysis? A. That was part of the analysis.

Q. But after analyzing the samples you subsequently took yourself, did you get an analysis which was in effect the equivalent to these in this exhibit? A. Yes, sir. I have the results of another analysis here, in which I took the sample myself.

Q. Then, you had better give them to me now and I will put them in so we will not have to cover the same ground with it. Then,
20 you show me an analysis dated March 31st, 1949, headed "Analysis of deposit on roof of Walker's greenhouse in St. Catharines," signed by yourself; and you took this one personally? A. Yes, sir. May I have one of those copies?

Q. Yes, certainly. How long before March 31st? A. A day or two.

—EXHIBIT No. 45: Analysis of deposit on roof of Walker's greenhouse in St. Catharines, dated March 31st, 1949.

Q. That is a couple of weeks ago, and I see — well, it differs slightly. Iron shown here is 45.4; manganese is .2, just the same; and the sulphur, as sulphuric acid, is 2.3; and the ether soluble 2.5; a slight difference but, as you point out, it is practically the same? A. In my opinion the material is essentially the same deposit.
30

Q. Now, tell his lordship where you took your sample and what area you covered to get it? A. This sample was taken from what Mr. Walker refers to as the big house; that is the most northerly house.

Q. No. 7? A. It was taken from the roof, at the south end.

Q. And I show you perhaps one of the panes that was close to where the wall started up? A. Where I could conveniently get at it, yes.
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Q. And how much area of glass or pane did you uncover to remove this particular sample, — approximately? A. I worked on several panes, probably three or four, in order to get sufficient material. It is very difficult to remove.

Q. And how did you remove it? By what process? A. By means of a microscopic slide, which is a piece of glass about an inch wide and three inches long, thin, which one can use as a chisel and scrape the deposit from the glass.

10 Q. Then, did you take parts of four panes, or did you take the whole content of four panes? A. I took parts of the four panes.

Q. You would scrape out one where you could get some, and then scrape it from another? A. Yes, sir.

Q. You cannot tell us accurately, or can you give us any idea, of how many square inches or square feet you covered of glass in taking the sample up on the south side? A. Probably a foot by eighteen inches.

Q. Yes, a foot or a foot and a half. Now then, I interrupted you when you were describing the bottle with its contents.

20 HIS LORDSHIP: You have not another copy of this Exhibit 45, have you? A. I will be pleased to let you have this one.

Q. I don't want to interfere with your material for your evidence.

30 MR. SLAGHT: We can get along with the one, my lord. Give that to his lordship, as an extra copy of the exhibit. I won't have much on this, because it is so similar to the other one. Then would your comments or not, that you have already given on the other, having regard to slight variations in percentages, but in the main similar to the comments you have given on the other, apply to this sample you took yourself? A. Yes, sir. There is no difference.

Q. Now, I think I was guilty of interrupting you. You were dealing with the deposit that is shown in Exhibit No. 44 when you got off on to the sample that you had taken yourself. Did you say that you had reduced the sample that was taken, the analysis of which is shown in Exhibit No. 45, in the same way? A. The first —

Q. Let me see Exhibit 45. A. That was taken.

Q. You have not a comparable exhibit with reference to the analysis that is shown in Exhibit 45? A. No, my lord, I have not.

MR. SLAGHT: May I ask him this? Is this content in Exhibit 45, ether soluble .45%, — is that the same raw material from which you took the sample, Exhibit 44, from the other roof sample? A. It appears to be that way very much. I could tell no difference by looking at that or by smelling that.

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10 Q. Then, having regard to these other factors that we have discussed, what would you say as to the possibility of the second sample — would the deposit that you last took and analyzed, yourself, be consistent with the material that was coming from the defendant's plant, having regard to your personal inspection of the plant and finding out what was going on in it? A. It would be entirely consistent, Mr. Slaght.

Q. And again, could the contents of that sample, as disclosed by your analysis, with iron as much as 45% and manganese, could that or not originate in the soft coal furnace? A. In my opinion it would never originate in a soft coal furnace.

Q. You took some other samples, or did you, which are contained in this box? When were those taken, and what are they? A. Those are samples taken by Mr. Walker.

20 Q. And given or sent by him to you? A. Yes, sir.

Q. And how did you receive those — by hand? A. I received these by mail.

Q. Then are they as they were when received by you? A. No, sir.

30 Q. Well, what have you done to them? A. These are the samples which Mr. Walker was instructed to remove from the roof of his greenhouse, by means of absorbent cotton and distilled water. I personally gave to Mr. Walker the absorbent cotton and the distilled water with the instructions that he was to remove from the moistened cotton the deposit on an area of glass having a diameter of six inches; that is to say, a circle, which is much easier to work with than a square area.

Q. Then, when you received the samples, what did you do with them? Did you analyze them? A. I did, sir.

Q. And have you brought here some results of the analysis? A. I have, sir.

40 Q. Let me see — what are they? And I assume they have a bearing in an attempt to solve this problem? A. As an example, this deposit was taken, according to this label, "Walker's No. 2, east side, St. Catharines."

Q. And what is that bottle?

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HIS LORDSHIP: Just a moment. Probably we can get this dealt with in the ordinary way. They are apparently all numbered, are they? A. No, sir. This No. 2 refers to No. 2 greenhouse of Mr. Walker's designation of his greenhouse.

Q. Well, they are distinguished in some way? A. They are distinguished.

Q. Well, how are they distinguished? If we can deal with that in some order —

MR. SLAGHT: Yes. Put a letter on — in other words, you are a scientist.

HIS LORDSHIP: No, don't start marking them up yet. As I understood Mr. Walker's evidence, he took a series of samples?

A. That is correct.

Q. And he sent them to you in separate envelopes, each of which were sealed? A. Not in envelopes, in clean jars, which were sealed.

Q. In jars that were sealed; and were they labelled in any way? A. Each was labelled exactly as the labels on these bottles.

Q. As you have labelled them here? A. That is correct.

Q. Then you made some analysis of each one and you labelled the little jar that you have suggested was labelled by Mr. Walker. Is that correct? A. Yes, sir.

Q. Well, I think you will probably have to recall Mr. Walker before we are through, to tie up some of the details of this sampling.

MR. SLAGHT: Well, I could call him now, though that might disrupt —

HIS LORDSHIP: He gave his evidence in rather a general way.

MR. SLAGHT: Yes. I should have been more specific.

HIS LORDSHIP: You will have to be more specific in identifying the sample and, on undertaking to do that, you may proceed.

MR. SLAGHT: Yes. I will undertake so to do, my lord.

Q. Now then, take this one you have produced out of the box as being a sample from No. 2 greenhouse. What is that, and what is the comment on it? Tell us what it is. A. The brownish gelatinous material is iron hydroxide; ferric of hydroxide.

Q. And what comment do you make on finding that in the sample? A. My comment is that it was the first indication that I had that the material contained iron. This was not a quantitative test; it was merely a qualitative demonstration, which showed me that the material contained iron.

Q. And I think your assay showed, on this second one we are speaking about, 45% of iron? A. That is correct. That was a quantitative test.

Q. And that is qualitative, to make sure what you believed to be iron, or that was disclosed on your first numbered analysis was iron; is that it — pursuant to reaching a further degree of certainty? A. That is correct.

—EXHIBIT No. 46: Sample of material taken from the roof of Mr. Walker, s greenhouse No. 2, the east side.

10 Q. Now, what next comes out of the box? A. I also took samples, myself —

HIS LORDSHIP: Well, deal with Mr. Walker's samples first. A. Yes, my lord.

MR. SLAGHT: Exhaust any bottles that came from Walker's samplings. Just describe what they are as specifically as you can, with clarity.

20 HIS LORDSHIP: Deal with them one at a time and we will put them in. We will get the record confused if you refer to them as this and that. A. The second bottle label reads, "Walker's east side No. 3, centre, St. Catharines."

MR. SLAGHT: Q. And what are the contents of that? A. A suspension of ferric hydroxide.

Q. Of what? A. Iron hydroxide.

Q. Is that just a duplicate of the other one, then? A. Not a duplicate. It is an additional sample.

HIS LORDSHIP: Well, this is a sample taken from No. 3 on the east side of No. 3 greenhouse, according to Mr. Walker's information? A. Yes.

30 —EXHIBIT No. 47: Sample of material taken from the east side of No. 3 greenhouse of Mr. Walker.

MR. SLAGHT: Oh, I see. That is another spot?

HIS LORDSHIP: Another place.

MR. SLAGHT: Q. Now, the next? A. Walker's south end, east side, St. Catharines.

Q. Is that the same content? A. Same type of material, yes.

HIS LORDSHIP: Q. Is that the south end of No. 3? A. South end, east side.

40 Q. Yes, but what building? A. It does not say on this. "Walker's south end; east side."

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Q. Probably Mr. Walker can explain it.

—EXHIBIT No. 48: Sample of material taken from roof of greenhouse on the south end, east side of No. 3.

MR. SLAGHT: Q. And the next? A. Walker's, east side No. 2.

Q. Is the content, in effect, the same type? A. Yes, Mr. Slaght.

—EXHIBIT No. 49: Sample of material taken from roof of Walker's greenhouse, east side No. 2.

10 Q. The next? A. Walker's No. 1, east side.

Q. Same content? A. A similar one.

—EXHIBIT No. 50: Sample of material taken from roof of Mr. Walker's greenhouse No. 1, east side.

Q. I notice in all these there seems to be quite a deposit lodged on the bottom of the bottle until you shake it up. What does that deposit indicate? Is that material of some kind? A. Yes, Mr. Slaght. That is ferric hydroxide, which is sticking to the bottom, because it is heavier than water.

20 Q. The next? A. Walker's front side, end of big house.

Q. Same content type? A. Yes, Mr. Slaght.

—EXHIBIT No. 51: Sample of material taken from roof of Walker's greenhouse, front side, the big house.

Q. And the next? A. Walker's east side top, orchid side.

Q. Same type of content? A. Yes, sir.

—EXHIBIT No. 52: Sample of material taken from the east side, top orchid side, of Walker's greenhouse.

Q. Now come to the two bottles that you took yourself or, if more than two, give them to us? A. I have one more from Walker's, which I took myself, recently.

30 Q. Oh, well, give us that. A. This was taken by myself; Walker's large —

Q. You have finished those taken by Walker that came to you? A. Yes, sir.

HIS LORDSHIP: Now, just a moment. These that you have been dealing with, they were taken by Mr. Walker and were taken in October, 1947. Is that correct? A. Yes, my lord.

Q. Yes, proceed. When was this sample taken? A. This sample was taken on April 4th, 1949, by myself.

40 MR. SLAGHT: Q. That is last week? A. Yes, Mr. Slaght.

Q. Where was that taken from? A. Walker's large east roof, nearest the chimney.

Q. When you say "large," is that the big greenhouse?
A. The one to the north, yes, the large greenhouse.

Q. Up here near the chimney. And what is the content of that?
A. Very similar to each of the other samples in amount and appearance.

Q. But the type of content is iron? A. Yes, sir.

HIS LORDSHIP: Q. Now, what area did you cover in taking this one?
A. Six inches.

Q. That is, a circle six inches in diameter? A. Yes, my lord.

10 MR. SLAGHT: Q. How did you get it scraped off? A. I didn't scrape it, Mr. Slaght. I removed it with a piece of clean absorbent cotton and distilled water, by rubbing it, with considerable difficulty.

—EXHIBIT No. 53: Sample of material taken from Mr. Walker's big greenhouse, on the east roof, on April 4th, 1949.

Q. Now, the next one there — a sample taken by yourself?
A. This sample was taken by myself.

Q. When? A. On October 19th, 1947, from the W. B. Miller greenhouse, on Dufferin Street in the city of Toronto.

20 Q. And what does it contain? A. It has a very small amount of ferric hydroxide in comparison with the St. Catharines samples.

—EXHIBIT No. 54: Sample of material taken from the W. B. Miller greenhouse, Toronto, on October 19th, 1947.

HIS LORDSHIP: Is this taken from the same area, six inches in diameter? A. Yes, my lord.

MR. SLAGHT: A six-inch diameter area. The next bottle there, a sample taken by you, where?
A. A sample taken by me from the Manton greenhouses, on Blythewood Road, in the city of
30 Toronto.

Q. A very similar size, or, six inches in diameter? A. Yes, Mr. Slaght.

Q. And what does the content indicate? A. If there is any iron in it, I am unable to see it, in this light. There may be some; it is very small.

—EXHIBIT No. 55: Sample of material taken from the roof of Manton greenhouses, Toronto.

Q. Yes. A. This sample was taken from a greenhouse in Oakville, near the station, in October of 1947.

40 Q. Do you know who owns that? A. I believe his name is Doughby; he has been there for a great many years.

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Q. And what does that indicate? A. There is a minute trace of iron hydroxide. It is very small.

—EXHIBIT No. 56: Sample of material taken from roof of Doughby greenhouse, Oakville.

Q. Well, have you any comment? Well, finish with this first.
A. This last is from the greenhouse of Mr. S. Lorimer, at the Clover Leaf in Port Credit, taken in October of 1947.

Q. A very similar area, six inches in diameter? A. Yes, Mr. Slaght.

10 Q. What does that indicate? A. I am unable to see any brown discolouration in that sample at all.

Q. Now, is that the lot? A. Yes.

—EXHIBIT No. 57: Sample taken from the roof of greenhouse of Mr. S. Lorimer, Port Credit.

Q. Then, what do you say as to the difference between these other greenhouse samples and the samples that come from the Walker greenhouse? What comment have you to make which you might think would be helpful? A. The difference is most conspicuous in that the samples from the Walker greenhouse in every case are strongly discoloured with the iron hydroxide.
20

Q. Now then, we go back to your little bottle of the tarry substance, the number of which is Exhibit 44, and what significance, if any, having regard to plant life below the roof, has the content of that bottle with material that came off the Walker roof?
A. The significance is that the leaves of the plants would be coated by the same type of oily substance coming in through the ventilators, exactly as it is deposited on the roof of the house and by sticking and adhering it would cause particles to adhere to it and block off sunlight from reaching the leaf.

30 Q. And what effect, generally speaking, does sulphur dioxide gas have on plant life? A. To the best of my knowledge, sulphur dioxide is highly deleterious to plant life.

Q. Is there any other way you know that sulphur dioxide would come over other than in gas form to cause the lodgement on the roof that we have discovered? A. Yes, sir.

Q. How? A. Sulphur dioxide is strongly absorbed by the deposit which I have personally removed from the roofs of Mr. Walker's greenhouses. By that, I mean that if we place some of that deposit in a vessel, containing sulphur dioxide, we will find that the amount of sulphur dioxide gas becomes much smaller and that it is confined in the deposit. It acts as a gas mask exactly.
40

HIS LORDSHIP: I am afraid I don't understand that. A. Oh, I will try to explain it. I have filled a test tube with mercury and inverted it. The test tube will remain filled with the mercury. I have then bubbled into that, sulphur dioxide, and then I have noticed from below some of the deposit which immediately rises through the mercury and comes in contact with the gas and, immediately afterwards, the mercury begins to rise in the tube, because the gas has been absorbed — has gone into the deposit material.

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10 Q. The deposit which you introduced into the tube was a deposit taken from this roof? A. Yes, my lord.

Q. So that you say the deposit absorbs sulphur dioxide in a gaseous form? A. Yes, my lord.

Q. If it should be present in the air, the deposit absorbed it? A. Yes, my lord.

MR. SLAGHT: Yes. Now then, I believe you recently took a part of a light of glass, yourself, out of the Walker greenhouse roof. Have you got that with you? A. I have, Mr. Slaght.

20 Q. With your lordship's permission, I would like you to get that. Bring in other samples, too, at the same time, so that you do not have to make a trip back. Is that another taken at the same time? A. Yes, sir.

Q. Well, the glass samples that you took from the Walker roof, what date did you take them? A. This sample was taken at 5.00 p.m. on Sunday, April 4th, 1949.

HIS LORDSHIP: April 3rd — Monday was the 4th. A. I am sorry, my lord. It was the 3rd.

MR. SLAGHT: Q. Which was it? A. It was the 3rd.

30 Q. You say this sample—which sample is that—the larger one? You took that out with Mr. Walker's permission? A. I did, Mr. Slaght.

Q. He was there, was he? A. He was there.

Q. Now, what comment have you to make on that sample taken on Sunday, the 3rd of April? A. On the glass there is a very heavy deposit. One can see through it with difficulty. I doubt if one could read small print through it. It has a yellowish brown appearance and gives off a very large amount of incandescent light.

40 Q. What is that in appearance, as regards the places on the roof where you took your samples from? Is it dissimilar or similar to — A. This particular pane was taken from what I believe Mr. Walker is referring to as the cloth house.

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Q. The cloth house? Then, you took that from what we call the cloth house? A. I did.

Q. You saw the cloth hanging around there, perhaps? And then, what do you say would be the effect of plants which were sought to be reared under glass of that character? A. If plants were reared under glass of that character, and if the plants were the type demanding an abundance of sunlight for their proper development, they would not develop normally.

Q. Well, you are an orchid grower? A. I am.

10 Q. What about orchids as demanding an abundance of light? A. I have read very extensively about the native habits in which —

Q. Well, I am assuming you are qualified. I don't want to interrupt you too much, but if you can tell us whether orchids or not, in your growth and study of them, do or do not require an abundance of light? A. Orchids require, at certain times of the year, an abundance of sunlight.

20 Q. And then, could they receive, in your opinion or not, under glass of that type, sufficient sunlight to permit them to make a healthy growth? A. In the fall and early winter months, they would be receiving but a minute fraction of the optimum amount of light.

Q. Yes. Perhaps I can mark that, my lord.

—EXHIBIT No. 58: Pane of glass taken from the cloth house of Mr. Walker's greenhouses on April 3rd.

HIS LORDSHIP: Q. Which side of the glass was exposed to the air? A. The dull side is the upper side. I believe the dull side is that in the —

Q. And the deposit is on the upper side? A. Yes, my lord.

30 MR. SLAGHT: Q. Could the Registrar have the paper, if you will, to protect his fingers. And, now, attention, please, to the small piece of glass. What you say applies to that. Did you cut that? A. I did, Mr. Slaght.

Q. On the date of Sunday, the 3rd of April? A. The same.

Q. And this was from what building? A. I believe this is an adjacent pane.

Q. An adjacent pane to the other one? A. Yes, Mr. Slaght.

40 Q. Has it any features to comment on to make it worth while for us to put that in, or is it just the same type of piece of glass? A. As far as I can see, it is exactly the same. I can discern no difference whatsoever.

Q. Now, what can you tell us as to an experiment which will be of use in the problem we are discussing, if any? What can you do with that, in a moment or two of time, to demonstrate anything further that might be helpful towards the problem we are wrestling with? A. I can do this experiment. I can place on this deposit a drop of pure hydrochloric acid, which will immediately turn a brilliant yellow colour due to it dissolving the iron and producing an iron chloride, which is really a compound. I can then wash off the hydrochloric acid with water into a beaker, and I can demonstrate that the beaker then contains iron by an official tester. I can then dry the piece of glass and, on examining it, you will notice that the spot covered by the hydrochloric acid is but very little changed in appearance from the rest of the glass. There is still a deposit. The only difference is this. The spot covered by the acid is now grey, whereas the rest of the glass still has the yellowish brown colour, because very many iron compounds are a yellowish brown. When the glass is dry and without it having changed materially in appearance, if I brush my hand across the dry glass, the path upon which the hydrochloric acid had previously acted is changed so that it brushes off with the greatest of ease, leaving the glass perfectly clear.

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Q. Now then, have you done such an experiment? A. I have, Mr. Slaght.

Q. And with the result you have now indicated? A. Yes, sir.

Q. You determined the iron and then the glass became clear with the treatment you gave it? A. Yes.

HIS LORDSHIP: Q. What does that indicate? When you brush the portion that has been treated with hydrochloric acid and it becomes clear, what does that indicate? A. It indicates to me that the iron content was the responsible material which prevented the deposit being brushed off because, on removing the iron, the deposit then brushes off most readily.

Q. And the deposit that would be left there would be magnesium, would it, or these other elements that are shown on your analysis — magnesium? A. It would not remove the acid, the insoluble ash. It would not remove the material, the loss of ignition, the carbon; it would not remove the ether, the soluble material. It could remove the magnesium and the calcium, but the major part of the deposit, almost half of it, is the iron.

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Q. Well, I just wanted to find out what would be left, and I think you have answered my question sufficiently.

Mr. SLAGHT: Q. Now, then, you could, if necessary — you have the acids and so on to do that in Court, if his lordship desires? I do not propose to ask him to do it, my lord.

HIS LORDSHIP: I do not think any advantage would be gained by having an experiment performed here.

MR. SLAGHT: Then, my lord, I shall not ask him to.

Q. Then, did you make any magnetic tests which are helpful? A. Yes, Mr. Slaght. 10

Q. Tell us about those? When did you make the magnetic tests? A. I believe the first magnetic tests were made in the fall of 1947, shortly after I found that the material contained iron.

Q. Then, have you made since magnetic tests? A. Yes, sir, many times.

Q. And what is the latest one? A. I believe the very latest one was Monday morning of this present week.

Q. That would be the 11th. We are asking an injunction. I want to bring it to a close date, if I can. Then, did those magnetic tests, in the main, give the same results? A. Yes, Mr. Slaght. 20

Q. Take the one on the 11th. Did you take the sample on which you made the magnetic tests? A. I did, sir.

Q. And tell us what you did and what you found? A. On scraping some of the deposit and placing it on a piece of cellophane —

Q. Wait. Where did this glass come from? A. The deposit came from the roof of greenhouse No. 7.

Q. Oh, you took the deposit off the glass, did you? A. Yes, sir.

Q. Scraped it off with the machine you have for that and took it off roof No. 7? A. Yes, sir. 30

Q. Do you know about what area you needed to scrape to get that sample? A. Oh, approximately an area enough to give me some — it might be a couple of inches square.

Q. Now then, the magnetic test showed what? A. The presence of iron.

Q. Did you get a qualitative or a quantitative percentage? A. No, sir.

Q. Well, how did you do that? How do you do a magnetic test? A. I placed some of the deposit on the upper surface of a piece of cellophane, and placed the magnet below, moving the cellophane, and the deposit, for the most part, kept over the magnet. 40

Q. The deposit on top of the cellophane follows the course of the magnet which you move — following the cellophane?

A. Yes, sir.

Q. In other words, it follows the attraction of the magnet? Is that right? A. Yes, sir.

Q. Did that leave any doubt in your mind as to there being iron in that deposit? A. None whatsoever.

Q. Then, I believe you visited the plant on the 2nd of July, 1948? Is there any significance attached to the sulphur dioxide coming over with the soot, in the iron, or does it come — A. I don't quite understand what you mean by the "significance," Mr. Slaght, of the sulphur dioxide.

Q. Well, you suggested the deposit acted like a gas mask. What is the significance of that? I think you explained that to his lordship directly, did you, or, if not, be short and explain it. A. The significance of the gas mask refers, I believe, Mr. Slaght, or is referring to the fact that the deposit has the property of absorbing sulphur dioxide, and it also has the second property that, on standing the sulphur dioxide is gradually changed into sulphuric acid, and if the deposit is washed with water, the sulphuric acid is, in part, leached away, so that if the deposit is then again dried, we can repeat the cycle.

HIS LORDSHIP: Well, I suppose it might have some significance. True, if the deposit forms on the leaves of plants and absorbs sulphur dioxide, then that becomes injurious to the plant? A. Yes, my lord, that is precisely what I have in mind.

Q. And if it is the combination of the deposit of the sulphur dioxide, at the same time, that increases the injury. Is that what you mean? A. Yes, my lord, and I would refer in that case to the deposit as being a carrier for the sulphur dioxide.

MR. SLAGHT: Thank you. I was probably paying too much attention to the roof and not enough to the plants. Now then, you visited the Walker plant again on the 2nd of July, 1948? A. Yes, Mr. Slaght.

Q. You have some notes of that. You might refresh your memory if you wish, and did you note anything with regard to the glass over the greenhouses then? A. The interior of the greenhouses, I think, could best be described as being dismal.

HIS LORDSHIP: Q. When was this? A. On July 2nd, 1948.

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MR. SLAGHT: Q. Well, what appeared to create the dismal effect? A. There were two factors; one the brownish black deposit on the roof, and the second, the deposit on the leaves which made them appear dull and lifeless.

Q. Did you observe that, yourself? A. Yes, I did.

Q. In a small or a general way? A. In a general way.

Q. Were you in all the greenhouses? A. I was in all the greenhouses.

Q. And did it prevail in all of them to the same extent?

A. Yes, sir.

Q. Then, was the glass clean or dirty? A. Extremely dirty.

Q. And was it or not cutting off sunlight? A. It was cutting off sunlight.

Q. Would you say whether or not it was cutting off sunlight to the extent that it was injurious to the plant life below it? A. Speaking of orchids, I would, without any hesitation, say that it was cutting off much, much more light than the plants required at that time.

20

Q. Then, in the fall of 1948, did you visit the plant with Mr. Pettinen, an orchid grower in Toronto? A. Padfield, Mr. Slaght.

Q. Well, that is, you visited him on October 7th. Did you measure the ratio of the length to the diameter of some of the leaves on some of the orchids? A. I did.

Q. What orchids did you make those measurements on? A. On the Cattlaia.

Q. And with what result? What did you find in your measurements? A. In general, the leaves were elongated. That is to say, the ratio of the length to the diameter was excessive.

30

Q. Now, those were imported from South America? A. Some of them were; some of them were imported from England.

Q. And with that ratio, what did that ratio indicate, if anything, as to subnormal progress, or normal progress in the orchids? A. Subnormal progress.

Q. Serious or slight? A. Most serious.

Q. Then, did you see any that purported to have been there for a greater length of time, in the greenhouse? A. Yes, sir.

40

Q. And what was the comparison between those recent arrivals and those that had been in the greenhouse for a lengthy period? A. The leaves of the Cattlaias which had been in Mr. Walker's greenhouse for a lengthy period had this period of elongation very much accentuated.

Q. And what did that indicate to you? A. Lack of light.

Q. And is there any way you can put that as to how it affects the plant? A. The plant depends solely on light to manufacture its food, and if there is no food, it quite naturally follows that the plant cannot grow and reproduce, and, by "reproduce" I refer to flowers, which is the sole source of revenue in growing orchids.

Q. So that, as a layman might describe it, a bit of starvation of the plant? A. Yes, sir.

10 Q. Starvation from light, which creates food? A. Yes, sir.

Q. Then, have you on your visits to Walker's in the last year or 15 months, have you measured the amount of light? A. I have, Mr. Slaght.

Q. And tell us shortly about that? What did you measure it with? A. A General Electric light meter.

Q. A General Electric light meter? A. I have.

Q. And did you measure to see what sunlight was being cut off? A. Yes, sir.

20 Q. And what results could you give the Court as to measurements with that sun meter? A. In Mr. Walker's greenhouses, the amount of light cut off varies between the limits of about 65 to as high as 85% of the sunlight, and I believe in some parts of the house it rose to the value of over 90; in other words, only 8% —

Q. Is left? A. Yes, sir.

Q. Those percentages are percentages of eliminated sunlight, by cutting off the sunlight. Is that the way you are putting it? A. That is the way I am putting it.

30 Q. Is that a minor or a major handicap? A. It is a major handicap.

Q. And would it be seasonal in its effect? A. Yes, sir.

Q. When would it be most serious? A. It would be most serious in the month of December because, in the month of December, in this latitude orchids do not receive the optimum amount of light if there was not cut-off and, in fact, even using fluorescent lights, we still do not get enough light.

40 Q. And what do you say as to whether or not, with the cut-off you have described, was or was not due to the foreign substances which had collected on the roof? A. The cut-off may be divided into two parts; first, the cut-off on the roof; second, the cut-off on the surface of the leaves of the plants. We must take both into consideration.

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HIS LORDSHIP: Well, you could not measure the cut-off on the leaves of the plant with the light meter. A. No, my lord, I could not.

Q. Before you proceed any further, when you say that the light was cut off from 65 to 85%, do you mean 65% for example of what light there would have been, had there been no foreign substances deposited on the glass, or 65% of the light outside? A. The latter.

10 Q. Yes. Well then, in order to deal with this properly, we would have to know what the cut-off would be under normal circumstances with glass such as you found in the other greenhouses that you visited. A. I have measured that, my lord, in every greenhouse in the open country.

20 Q. Well, I don't want—I happen to have used a light meter, and I thought that we were getting into a state of confusion about the results of your experiment and the way it was being led. You give me the proper comparisons, not the comparison as between what there would be if there had been no greenhouse there at all, and the comparison between what you would normally expect and as you found it on this occasion. A. In greenhouses in which the glass appeared clean, I have found on an average that the cut-off is about 20%.

MR. SLAGHT: Q. That perhaps would mean, to simplify it, that we could take 20% off your percentages that you gave, as due to the fact that it is not in the open sun, but it is under glass?

HIS LORDSHIP: No, I don't think that is the proper way to put it at all.

MR. SLAGHT: Well, I have never used a light meter at all. Better let the witness explain.

30 HIS LORDSHIP: I understand you perfectly. You take a reading outside and then you take a reading inside and the cut-off, under normal circumstances, where the glass appears to be clean, he says is 20%, whereas in the circumstances under which he did his experiment, the difference between his reading outside and inside will show a cut-off of 65 to 85%? A. Yes, my lord.

MR. SLAGHT: Well, I will leave it at that. Your lordship understands it and the witness knows what he is doing, so perhaps I cannot get in the same class on this problem.

40 Q. Then, did you visit Walker's in this year, in January, February and March, all three months,— March, 1949? A. Yes, Mr. Slaght.

Q. And on the first visit, on January 18th, 1949, did you do some light measuring there again? A. Yes, sir.

Q. You measured light before on an earlier visit? A. Yes, sir.

Q. What did you find on the second visit? Was there a change or was it pretty much the same? A. No significant change; almost exactly the same.

10 Q. Then we won't go into the details of that. And was there any ice or snow on January 18th on there, which could create any of the cut-off of light, or was it clear of snow and ice? A. I have never seen snow or ice on Mr. Walker's greenhouse roofs at any time I have been here.

Q. Now, you took some — first, let me ask you about your visit to the plant where the hammers are, the forge house. You went there on your inspection on March 14th? A. Yes, sir.

Q. And in your own way, describe the inside of that place and what they were doing, briefly? A. Bars of materials were being heated in furnaces and pounded mechanically into shapes.

20 Q. You agree with Walker that those furnaces, or ovens as we have called them, were fueled with oil? A. I do not know if they were oil or not.

Q. You didn't notice that? A. No, sir.

Q. Then, when heated, would they be heated to red or white heat, heating the bars of metal? A. I would call it a red heat. I am not familiar with metals being heated and the terms used.

Q. Well then, they were placed on slabs or appliances where they were hammered with hammers? A. Yes, sir.

Q. Hammers suspended in the air, and coming down? A. Yes, sir.

30 Q. Did you see what has been called the big 5,000 pound hammer in operation? A. Frankly, it was so noisy in there, I could not make myself heard. I saw hammers of various sorts. Whether they were 5,000 pounds, that I do not know.

Q. Then, what, if anything, did you observe, yourself, in the matter of vibration? Did it affect you — the vibration? A. Yes. There was a decided vibration. As I have said, it was so noisy, I was rather glad to get out. It was new to me.

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Q. Well, all right. But you can perhaps tell me, if you cannot, say so, whether your body sustained a shock, or was shaking from the vibration of the machine when the heavy hammer would hit? A. I cannot say that my body sustained it. I was rather fearful at the time and I was glad to be away — I don't know.

Q. I see. Well, perhaps — can you tell me something about the atmosphere in there? What, if anything, was rising from the ovens where the iron was put in, subjected to whatever fuel — Walker says it is oil? A. There was black smoke arising from one oven, I presume it is called, where the iron was being heated, and it was rising towards the roof and it was very opaque and very black.

Q. Did it have an odour? A. That I cannot answer, because I didn't get that close to it. I could see it.

Q. Perhaps your nose got nervous, too, as well as the rest of you. But, at all events, it was an opaque, black smoke and rising up towards the roof. And do you know how it escaped from the building? A. I was anxious to see how it could escape, and I noticed far up what appeared to be vents along the side of the roof.

Q. Then, did you see, or did anybody suggest to you, that the defendant company were operating any kind of smoke consuming device, or anything in the nature of a cone, such as we have heard about, in the cupolas, to counteract the disastrous effect, if any, of the smoke that would escape through there to the outside air? Was there any device like that? A. Yes, sir. I have heard comments about these cones.

Q. I am not speaking of that in the forge house. Was there any device that you saw or heard of that was to ameliorate the effect and density of the smoke, before it escaped? A. No, sir.

Q. Then outside, did you observe the conditions around the forge house that day? I show you Exhibit No. 17, said to be a photograph of the forge house with the smoke surrounding it. Did you see conditions of that kind or not? A. On that particular day, I have no recollection of what was going on outside the forge house.

Q. I see. Well, have you observed smoke on any other days when you were there? A. Yes, sir.

Q. Coming from the forge house? A. Yes, sir.

Q. And the cupolas, both? A. Yes, sir.

Q. What was the type of smoke from the forge house?
A. It was black.

Q. And what was the type of smoke you observed coming from the cupola? A. I have seen it white, or grey and, on many occasions, I have noticed a rusty appearance to the smoke, if you describe it as smoke.

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10 Q. Mr. Keogh, looking at one of the pictures and finding a jet of steam coming out from the forge house, asked Mr. Walker whether that was steam. Now, I ask you whether steam, in your opinion, could carry, as steam, from the forge house over to the Walker plant, a distance of, say, 600 feet? Would steam go that far? A. Not the amount of steam which I have seen on any occasion coming from the forge house, I do not believe would carry that far as a white cloud, such as we see it.

Q. Now, you made some tests in March of this year of deposits of snow at and about the Walker and McKinnon plants, did you not? A. Yes, sir.

Q. And did you make a chart of those? A. Yes, sir.

Q. Have you got that handy? A. (Produced.)

Q. What is the date — March 19th that you made this test?

A. I believe it was on March 19.

20 Q. And there being snow on the ground in that neighbourhood, that is of the Walker and McKinnon places, and the surrounding parts, I understand? A. Yes, sir.

Q. Now, what do you say? Tell us briefly your tests and the results?

MR. KEOGH: Excuse me. Is that this year, Mr. Slaght?

30 MR. SLAGHT: This year, March 19, 1949. A. I brought with me from Toronto several dozen quart fruit jars, which I had previously washed with distilled water and also a flat stainless steel sheet about four inches by four inches, with a handle attached to one end, for the purpose of removing surplus samples of snow, and these samples were removed over an area in each case as near 20 by 20 inches as I could do conveniently. The snow was placed in the fruit jars and I took those fruit jars back with me to Toronto that same night, by bus.

Q. Was the snow clean snow or discoloured? A. In practically every case there was some discolouration on the snow. That varied enormously.

40 Q. Now, I would like you to give me the exact details, generally, from what spots did you take these snow samples, then we will see what they were. A. We took the first samples on the

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Walker property and then immediately to the north and west of his greenhouses, near the McKinnon property, and then we made a tour around the countryside, first going south, crossing the old canal, and going out on a country road to the west; then, retracing our steps up to Port Dalhousie, returning to the McKinnon plant, then going directly until we had reached what I believe to be the outskirts of the city.

Q. Well, I don't care about that outside route so much as, did you get samples off Walker's property? A. Yes, sir.

10 Q. And off the McKinnon's property? A. Yes, sir.

Q. And those taken off the McKinnon property would be where, in proximity to the forge house and the cupolas? A. Some were taken directly opposite the forge house.

Q. And you have plotted a little map, and you have put some pins in there, have you? A. Yes, sir.

Q. Does that indicate, on the map, and the locality, approximately where you took the samples? A. As near as I can place these, yes, sir.

20 Q. Well, then, what are these things here? Have you got anything to do with this? A. Yes, sir.

Q. What are they? A. These are filter papers, in which I filtered the snow, the water which resulted on the snow melting.

Q. Show one of those to his lordship, a typical one, if you can. Are they pretty much alike? A. No, sir, they vary enormously.

Q. Well then, show him, if you have one tagged as coming off the Walker property — do I understand you got the contents of these paper containers by filtering the contents of the bottles through your lab? A. Yes, sir.

30 Q. And you are showing the Court one that came from where? A. The west side of greenhouse No. 2.

Q. I would like to have a look at that, too, if I may. I have not seen it yet. Show that to his lordship. Now, will you describe these, and I would like to make these, if I may, as Exhibit 59.

—EXHIBIT No. 59: Results of analysis of snow taken from west side of greenhouse No. 2.

40 Q. And you tell us 59 is a piece of paper and has contents in it of a fine, brown darkish substance, which substance is what — from your lab test? A. Is in part iron. It is magnetic. You can pick up large amounts of that with a magnet.

Q. Then, the contents of this exhibit are largely magnetic iron? A. Yes, sir.

Q. And this one we are looking at came off the Walker property?

HIS LORDSHIP: Just a moment. How much water would be put through the filter paper? A. Approximately one quart.

MR. SLAGHT: Q. That quart would have a residue of this much solid? A. Yes, sir.

Q. So that this solid represents the contents of one quart, which, in reality, was melted snow and iron content. Is that right? A. Yes, sir.

10 Q. Now, give me the sample that you took off the defendant's own property, the McKinnon property. I don't want to go round the country there. You have got that near there, have you? A. I believe the nearest one I have, Mr. Slaght, is in front of the forge shop.

Q. That will do. A. (Produced.)

Q. And that also appears to have a fine content. What is that? A. That material is also magnetic.

Q. Magnetic what? A. Iron.

20 — Q. We will mark that if we may, my lord, as Exhibit No. 60. — EXHIBIT No. 60: Analysis from melted snow taken in front of the forge shop.

Q. And what about the quantity of water you would distill that solid content from — about the same as the other — about a quart? A. Yes, Mr. Slaght. I should have described that as a quantity of snow rather than water. The volume of the snow and the volume of water are not exactly the same.

Q. Then, about a quart of snow and water — some water and some snow? A. Yes, Mr. Slaght.

30 HIS LORDSHIP: Just a moment. Did you fill the quart jar with snow? A. Yes, sir.

Q. And that is the result upon putting the water from the snow through the filter paper? A. Yes, sir.

Q. So that it would be considerably less than a quart of water? A. In many cases it was, yes, my lord.

40 Q. I think in all cases it would be. If you filled the quart jar with snow and put the water resulting from that through the filter paper, there would be less than a quart of water? A. I would like to add, Mr. Slaght, that I was more interested in the surface area removed, rather than in the volume. I tried to skim off the surface to get comparable areas.

MR. SLAGHT: I quite understand that. But you have described to his lordship about the content that produced this much solid? A. Yes, Mr. Slaght.

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Q. Now then, in that, or in the area where you selected these — let me ask you this first. I don't want to have to open all of them. You have seen them all and you have all your receipts as to whether or not these envelopes, having regard to the geographical location, where you took them from, some at Walker's, and then between Walker's and McKinnon's and at McKinnon's — would that be true? A. Yes, Mr. Slaght.

Q. Then, what can you say as to the density or lack of density of the iron content as you approached the McKinnon forge shop and cupolas? A. All of the samples to the east of McKinnon's were magnetic, up as far as Lake Street.

Q. Lake Street in the city? A. Yes, sir.

Q. You got samples up that far, did you? A. And beyond.

Q. And beyond Lake Street. That map shows Lake Street on it, does it? A. Yes, sir.

Q. Then, what other general comment, without our having to open all those samples — unless my friend prefers me to, and he may want to do it to check with you — can you give us the result geographically of the variation or slight variation in the samples, having regard to the spots from which they came? A. Yes, Mr. Slaght. The samples taken beyond Lake Street to the east are non-magnetic.

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Q. After you got away from the McKinnon plant really? A. Yes, sir.

Q. I think you did tell me as you got closer to the plant, they became more magnetic? A. I don't believe I can say more or less exactly in the quantitative way; either the magnet picks a certain amount up, or it does not.

Q. I see. Well, then, can you offer a comment that would make it consistent with this iron content having come out of the cupolas and the forge shop of the McKinnon plant? Is there any comment which indicates one way or the other that that was their source? A. I can conceive of no other source of magnetic iron on the snow in that locality.

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HIS LORDSHIP: Q. What is the significance of the different coloured pins that you have put in this map? A. The white pins indicate that I considered that deposit non-magnetic. The blue, magnetic.

Q. So that we can shorten it up in this way, that the blue pins indicate the places where the samples were taken, from which you found evidence of iron deposits? A. Yes, my lord.

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Q. And the white pins, in the samples taken from those places, there was no evidence of iron deposits? A. Yes, my lord.

HIS LORDSHIP: All right. I will have the map marked as Exhibit No. 61.

—EXHIBIT No. 61: Map produced by Mr. McAlpine.

MR. SLAGHT: Q. Just one more point before we leave this. You told us that the magnetic content might have varied on the quantitative amount of material in these folders. Is there any ratio in that to weigh whether or not, as you approached the McKinnon cupolas and forge house, whether the quantity becomes greater or less as to whether you are close to that or as to whether you are getting further away from that? A. In general, the quantity becomes greater as we approach McKinnon's; to the west, in the open country, the amount of deposit is very small.

HIS LORDSHIP: Of course, these tests would be governed by the direction of the wind for a day or two after the fall of snow. A. Yes, my lord.

Q. If there had been a prevailing east wind immediately after the snow fall, you might find very few deposits where you found them in this case? A. I quite agree with that, my lord.

MR. SLAGHT: Q. Now then, another topic. Have you recently made any observation inside the Walker greenhouses, being there personally, with respect to the effect of vibration from the hammers working in the forge shop? A. I have, Mr. Slaght.

Q. Can you give us the date of that? Well, you were inside the Walker greenhouses recently? A. The date is April 4th of this year.

Q. That is Monday, not Sunday this time? A. Definitely on Monday.

Q. And who was with you? A. I was alone. I had not slept that night and I went from the hotel to Mr. Walker's greenhouses, and I was tired. I sat down in the pot shed and I was rather worried about whether there was something wrong with me or not. I had a peculiar sensation of apprehension. I didn't know what it was. I felt that I was shaking.

Q. Well, were you shaking? A. I tried to find a cup in which I could place some water and observe the reflection of a window or some other object, and I went into the greenhouse and I noticed then that it was not me; the leaves and the flowers of the orchid plants were vibrating, and then I realized that the ground beneath my feet was also shaking.

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Q. Now, to what extent were the leaves of the orchids vibrating, just a little or a lot, or how would you put that, to be quite fair? A. It is rather difficult to put that in a quantitative way, but if you had given the stages a good, sharp smack with your fist, all the plants along the stage together, would jump.

Q. Were they jumping? A. They were jumping.

Q. Then can you tell us, as a grower of orchids, whether that is a good thing or a bad thing for growing orchids, to have that happen to them? A. Orchids are peculiarly susceptible to movement, and it has been my experience that an orchid plant should never be moved or subjected to motion under any conditions. The best orchid plants I have ever seen were never moved on the stage over a period of years, and the grower was very particular about that.

Q. They have long roots that come out over the edge of the pots, don't they? A. Yes, sir.

Q. And come down, and are those the tentacles— A. They adhere to the outside of the pots. They adhere to the staging on which the plant is placed and they will even travel down several feet to succeeding stages, and I have actually in one case seen them go out into another greenhouse.

Q. Then, you spoke of it being bad to move orchids and that, in your practice, you would try not to move them at all. That is one comment? A. Yes, sir.

Q. What effect, if any, in your opinion, would the vibration of the type you have described have, if any, on retarding or being helpful to that orchid, or would it be detrimental? A. In my opinion it would be detrimental to the growth of the orchid plant.

Q. And would that go so far as to affect the sufficiency of the bloom that might be expected to come from it? A. Yes, Mr. Slaght, it would.

Q. And the health of the plant, generally? A. Yes, sir.

Q. Do they reproduce themselves? A. An orchid plant does reproduce itself.

Q. Would it, or not, affect its reproductivity? A. Yes, Mr. Slaght, it would.

Q. Well, why? A. The reproductivity angle, it would not produce flowers; if it did not produce flowers, there would be no seed.

Q. And what effect would this jiggling have on the roots that are overhanging? A. When an orchid root is disturbed it invariably dies, and when the orchid plant is potted, it is not potted in earth, it is invariably potted in osmunda, which is the root

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of the Osmunda Fern, and it is packed in the pot very, very tightly, usually by a metal rod, and in order to secure the plant even more firmly, a little stake is driven through the osmunda into the vertical pieces of cork in the bottom of the pot, and then the pseudo bulbs and leaves are tied very securely to this little stake to insure that the plant shall not move, because if the potting is loose, the plant invariably succumbs after some time in the future. It may take a year, but it goes backwards.

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10 Q. Then I take it your answer means that an orchid in the first place, is not planted in earth, but planted in the fern product, and then every effort is made to have the roots within the pot secured as firmly as possible against vibration, or movement?
A. Yes, Mr. Slaght.

Q. And then those that go outside and select an object to which the tentacles attach, you tell us it is advisable that they should not be disturbed from their affiliations and moved around?
A. Precisely.

20 Q. Is there a difference in the way they absorb their food from the way the ordinary root absorbs its food? A. I believe, Mr. Slaght, the generally accepted opinion is that the orchid plant lives in symbiosis on the specific fungus which invades the root, and the two live together; each exudes certain chemical compounds on which the other depends.

30 Q. I see. They live together without the benefit of clergy, perhaps. Then, did you make some tests for dirt during your investigations? The contents of this envelope, I understand, is some test results. Will you explain what tests you made and when and what the result is? A. These tests were made in the hope that we could have some indication of the amount of dust or smoke or disconnected individual particles, not gases, but solid substances which were in the air over Mr. Walker's greenhouses, and it was carried out by obtaining a miniature vacuum cleaner from which the bag in which the dust usually accumulates, was removed, and pads of cotton were placed over the intake and secured by rubber bands. The motor was then turned on and air was sucked through these cotton pads which in part removed the dust particles in the air which had adhered to the cotton.

30 Q. Now, whereabouts were those experiments carried on? You perhaps did not carry those on yourself, or did you? A. I started to and it was —

Q. Were they done under your instructions? A. They were done under my instructions.

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Q. By whom? A. By Mr. John Walker.

Q. Son of Mr. William Walker? A. Yes, sir.

Q. And were you there? Do you know what places or points those suction were carried on to determine the type of air at that point? A. I do.

Q. Where were they? A. They were carried on on the roof of the potting shed.

Q. Then, have you got any results there of those that are returned or shown to you after they were done? I suppose I ought to call Jack Walker first.

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HIS LORDSHIP: Q. Well, what part did you play in this experiment, other than giving the instructions? A. I took a few of these readings myself.

Q. Well, you can deal with the ones you took yourself.

MR. SLAGHT: Q. Give us some that you took yourself. Would your writing be on them? A. Yes, Mr. Slaght.

Q. Now, you expose to us a folder with contents of some seven pieces of fabric with direct lines along them. Were all those taken by you? A. No, sir.

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Q. Well, which were? A. These two.

Q. Well, did you take any of those which collected the greater quantity of dirt? A. I don't believe I did, Mr. Slaght.

Q. Well, then, Jack Walker took those? A. Yes, sir.

Q. Whose tab is this, pinned on here? Read one of those tabs. A. "No. 1, November 26th, 1948, 11 till 12."

Q. Were you there when that was taken? A. I was not, Mr. Slaght.

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Q. Well, then, we cannot perhaps prove that by you. Then, you took these two over here. Describe them, because we will have Jack Walker describe the others. A. There is a very slight green deposit on the cotton, indicating that the vacuum was removing a slight amount of dust or smoke from the air during that interval.

Q. Now, what date and what place did you take this? A. Those were taken in St. Catharines, on the roof of Walker's potting shed, on October 1st, 1948. One of them from 11 until 12 noon; the other one from 12 noon to 1.05.

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Q. Well, then, they are slightly soiled, the fabrics there. How do you account for that, assuming that, later, we receive some others with heavier soiling? What were those two taken for? You were doing some experiment here, I understand? Had you seen some of the others that we hope to put in later, when you took those two? A. No, sir. These were all taken at a later date.

Q. Well, how do you account for the slight soiling on the fabric of the two you took? A. Because the air always contains dust particles, — any air.

Q. Well, was the wind in what direction on that day? A. I do not know the direction of the wind on that day.

HIS LORDSHIP: Q. Were yours taken the day that you were laying out the experiment — showing how it should be done? A. Yes, my lord.

10 Q. And then Walker carried on from there? A. Yes, my lord.

Q. Have you made any tests on the samples that Walker took as to whether they contain iron or not? A. I have not, my lord.

MR. SLAGHT: Q. Now, I think maybe that is as far as I can go with this witness on that.

HIS LORDSHIP: That is as far as you can go.

MR. SLAGHT: Q. What is the date you took this, again? A. October 1st, 1948.

20 Q. Well, that was strike time; McKinnon's plant was not operating that day, was it? A. That is correct, Mr. Slaght.

Q. Oh, I see. Well, the date when Walker took his — did you read me some dates? A. November 26th.

Q. The rest of the dates we will find were when the plant was operating. Was that the purport of your experiment that you were supervising? A. Yes, Mr. Slaght. You will recall that was shortly after my accident and I made this trip over here to set this up, otherwise I would have kept at it.

30 Q. Then you say under the set-up you made, you took two, yourself, when the McKinnon plant was not operating, and those you have identified for us. If they can be marked by the Registrar, my lord.

HIS LORDSHIP: The folder may be marked as Exhibit No. 62 on your undertaking to call Walker with respect to the samples that this witness did not take.

MR. SLAGHT: Thank you, my lord, I will do so.
—EXHIBIT No. 62: Folder produced by Mr. McAlpine.

HIS LORDSHIP: Excuse me. What was the date you took your samples again? A. I believe it was October 1st, 1948.

30 MR. SLAGHT: Q. Now, is there a third sample you took somewhere else in the country? A. Yes, Mr. Slaght.

Q. And where was that taken from, and on what date? A. I have one taken in the open country at the Clover Leaf, north of Port Credit, on October 26, 1948, from 2.30 until 3.00 o'clock.

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Q. Is the Clover Leaf a greenhouse, a florist's? A. There is a greenhouse there.

Q. Well, was this taken in the proximity of their greenhouse? A. Yes, sir.

Q. Right nearby? A. Very close, probably just outside the entrance to it.

HIS LORDSHIP: What date? A. October 26th, 1948.

MR. SLAGHT: See, this would show. It is near another greenhouse. Does it appear there is some defection on the cloth, from the air over there? A. Yes, sir.

Q. Then, we cannot say anything about the heavier ones till I prove them? A. No, sir.

—EXHIBIT No. 63: Sample taken at the Clover Leaf, near Port Credit, Ontario.

Q. Now, can you tell me—back to the cupolas for a moment. On your visit of March 14th, as to the forced draught that was forced from the blowers at the top, up through the chimney. What did you observe about that draught? Was it a gentle one, or a heavy one, and tell us what it was for and what effect it would have, as far as you could see? A. To me, it had precisely the appearance of a blast lamp, except for size.

Q. Smaller or bigger? A. Very much larger.

Q. And what was the velocity of the blast shot up the chimney? Was it weak or strong? A. Strong.

Q. Just a little strong, or very strong? A. Very strong.

Q. And what was the purpose of that in the process they were at, as you understood it? A. As I understand it, it is to feed in air to support the combustion of the coke.

Q. And increase the draught supporting combustion? A. The draught did support the combustion.

Q. Well, on top of that burning coke lay the raw materials we have heard of, the scrap iron, pig iron, did they? A. That is what I am told. I didn't look down.

Q. You didn't go up and peek over the edge like Mr. Walker? A. I was unable to climb up there.

Q. I believe you have been through a very severe automobile accident that caused you some physical disability? A. Very.

Q. Recently? A. Yes, sir.

Q. And what would the effect be, if that is as you describe it, a very severe draught? While it might increase the combustion, what would be the effect as to forcing the contents of the gases, or the gases, if there were gases there at the top of the chimney, without a complete combustion? Could you comment on that? A. Would you mind repeating that, Mr. Slaght, please?

Q. What effect would the very heavy forced draught have on forcing gases that generated in the cupolas out of the top of the cupolas in the form of that gassy smoke that you described seeing come out? What effect would that draught have in forcing that out before there was complete combustion? A. In my opinion, it would very much tend to force them out before combustion was complete.

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HIS LORDSHIP: You may sit down, witness, if you wish. I did not realize that you had had an accident. A. I wish I had
10 not mentioned it, your lordship.

MR. SLAGHT: Q. Then, what would you say as to weather conditions were content to have a less voracious draught going up there — it might be more economical — I don't know — whether or not that would lessen the probability of fumes and gases had combustion not been complete,—being checked from the chimney? Would that have the effect one way or the other, or are you prepared to deal with that? A. I don't believe I can honestly deal with that. It is out of my field.

Q. No. You are not a metallurgist. I should not press you
20 on that. I am not sure — I do not think I asked you, what is the effect of S.O.₂ gas on plant life? A. To the best of my knowledge, S.O.₂, which is sulphur dioxide, is detrimental to plant life, all forms, to the best of my knowledge.

Q. All forms of plant life. And if S.O.₂ contacts growing plants, what is the way, if any, in which the detrimental effect you speak of evidences itself in the plant? A. By bleaching; that is, the converting of the green colouring matter to substances having much less colour. S.O.₂, in general, bleaches and dyes, to a chemist.

Q. Then, have you observed bleachings say in connection
30 with the plants Mr. Walker was rearing in his greenhouses? A. I, myself, have observed the bleaching of leaves. Whether or not it was caused by sulphur dioxide — I am not a plant pathologist. I cannot answer that question.

Q. Well, we will have another pathologist who will deal with that. Could it come, in your view, the bleaching that you saw, from the effects of carbon dioxide?

HIS LORDSHIP: Well, he says he doesn't know.

MR. SLAGHT: All right.

Q. Did you ever do any experiments with chrysanthemums,
40 with regard to the effects of sulphur dioxide on plant life? A. Yes, sir.

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Q. Tell us about that, and the result? A. I exposed a chrysanthemum which was the "Detroit News," according to Mr. Walker, — it was a bronze chrysanthemum.

Q. It had, or did it, come from his growth? A. Yes, sir.

Q. And it was healthy when you got it — appeared to be healthy? A. As far as I know, the flower appeared to be healthy.

10 Q. And what did you do with it? A. Exposed it in a flash of air containing a small amount of sulphur dioxide gas and, in the course of, from memory I think 20 minutes or half an hour, a change in colour became discernible and, as time went on during the course of the day, the colour had changed from a bronze to a pure yellow colour.

Q. And would the change of the mum anyway compare with any of the changes that you observed in plants that were growing in his greenhouses? A. I did not see the chrysanthemum plants that Mr. Walker has mentioned in changing colour. All I did see was the sample which he sent me in Toronto, and I took it to my laboratory and exposed it to sulphur dioxide, contaminated air.

20 Q. I think I overlooked asking you — going back for a minute to your snow tests — whether or not those tests disclosed sulphur dioxide, or the result or effects of sulphur dioxide. A. Those effects did disclose the effects of sulphur dioxide and, by that, I mean this is the water which filtered through the filter papers and it was oxidized so that any sulphur dioxide in it would be converted to sulphuric acid and then the amount of the sulphuric acid was determined.

30 Q. Thank you. Now, my lord, I think perhaps from the witness's standpoint, this is the usual adjournment hour, if your lordship pleases.

HIS LORDSHIP: Your examination is not finished yet?

MR. SLAGHT: Not quite but very nearly, I hope.

HIS LORDSHIP: Well, 10.30 to-morrow morning.

—Whereupon Court adjourned until 10.30 a.m. Thursday, April 14th, 1949.

Thursday, April 14, 1949, 10.30 a.m.

EXAMINATION-IN-CHIEF OF MR. McALPINE
CONTINUED BY MR. SLAGHT:

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THE REGISTRAR: You understand, of course, Mr. McAlpine, this is a continuation of your testimony from yesterday and you are still under oath? A. I do, sir.

MR. SLAGHT: Q. Mr. McAlpine, during, and particularly yesterday, you were discussing with the Court the orchids and the roots and expressed the view that the reverberation or vibrations would affect them adversely. Let me ask you to tell us whether the orchid is like an ordinary plant in the manner of its feeding? A. No, Mr. Slaght, it is not.

Q. And in what respect does it differ? A. In the adult orchid plant, in the Cattlaia type, which composes the greater part of the orchids grown by Mr. Walker, the roots are few in number but they are comparatively large in diameter, one-eighth of an inch or more. They are white except for a green tip at the end and, unlike the roots of ordinary plants, there are no feeding hairs.

Q. No feeding hairs on the orchid roots, whereas the ordinary plants have feeding hairs? A. That is right.

Q. Then, how does the orchid root feed itself? A. The orchid root adheres tenaciously to the surface supporting it and absorbs nutrient materials which that surface can give up to it.

Q. And that surface (because we have seen some pictures and perhaps you have seen them in the greenhouse) come from the pot and not from the earth and they creep over and come down, sometimes three or four feet, and you say they feed on the surface that touches on the pottery? A. They will feed on the pottery. The root absorbs nutrient from the surface and in the native state, the bark of the tree acts in exactly the same way.

Q. And do they feed on wooden supports, if they cling to them? A. They can.

Q. And even to a cement wall? A. They love cement walls.

Q. Then, you said it is their habit, in order to feed properly, to cling tenaciously to these objects, as we have seen in the picture, and as you describe them? A. So tenaciously that it requires a knife to separate them, and even after they are separated the marks where it held on remain indefinitely.

Q. And I think you did tell us yesterday that the vibrations which you saw in the orchid house and described, are detrimental to the process of the orchid in its feeding? A. I would go so far, Mr. Slaght, as to say that is one of the tricks in the trade. It is not generally broadcast.

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Q. Well, I am afraid it is out now. A. Probably I should not broadcast it here.

HIS LORDSHIP: What is one of the tricks of the trade?
A. To keep the orchids quiet. It is imperative.

10 MR. SLAGHT: Q. Then, the next point was a reference to the samples you took from the snow. They are in as Exhibits 59 and 60. 59 is the sample from the Walker property and 60 in front of the forge at McKinnon's. In these exhibit samples which contain the fine dust in which you told us about iron — I am not concerned about that now — did your analyses of those samples or what you did, disclose whether or not there was evidence of sulphur dioxide in the snow samples? A. Yes, sir.

Q. Would that apply to all of the snow samples in addition to those we put in? A. No, sir.

Q. I mean, all of the samples where you found the sediments? A. The samples taken to the west, out along the country road, showed so little evidence of sulphur dioxide, that I would question whether there was any at all, or, if there was, it was very small amounts.

20 Q. Then, my question was to put it, what about the samples taken on the Walker property, and the samples taken near the forge house on the McKinnon property? A. They all show evidences of sulphur dioxide having been in the air above the snow.

30 Q. And was there any ratio of increase or decrease as you would go from the Walker property over closer to the McKinnon forge plant, in the quantity of sulphur dioxide? A. I do not recall the figures from the Walker property to the forge plant, but I can say that as you radiated out from the corner of Ontario and Carlton Street, that the amount of sulphur dioxide indicated in the snow progressively decreased.

Q. Well, how close is that corner to the forge shop and the cupolas? I don't place it myself, — approximately? A. A matter of two or three hundred feet. It is very, very close.

Q. It is across the road from the forge shop and the cupolas?
A. Yes, sir.

40 Q. Then, just one more thing. I think, Exhibit 62, you proved part of that exhibit and the rest will be taken care of later. Now, the two envelopes that are in there and which show but slight discolouration from the suction of the little machine, you recall, that is, what date were they taken? A. October 1st, 1948.

Q. Now, we have heard of some smoke stack of Mr. Walker's which some days had a furnace fire in it — I mean, Walker's own plant. The stack he told us was over to one side. A. Yes.

Q. And do you know whether or not, when you took these two light samples at the Walker place, whether there was a fire on in his furnace and whether his furnace was lighted and working that day? A. There was smoke issuing from the chimney — definitely.

Q. Of the Walker place? A. Yes, sir.

10 Q. Yesterday Mr. Walker told us that, in his washing he got a sticky stuff off the roofs of the greenhouses. He used muriatic acid. I just want to ask you whether muriatic acid is the same as hydrochloric acid? A. Commercially, hydrochloric acid is known as muriatic acid.

Q. All right, Mr. Keogh, — oh, one further question. And when you clean window panes, do you use hydrochloric acid? A. No, sir, at no time. I use distilled water, cotton and elbow grease.

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20 CROSS-EXAMINED BY MR. KEOGH:

Q. Mr. McAlpine, in your analysis of the samples taken from the roof of Walker's greenhouse, one of the substances you found and you referred to as ether solubles? A. Yes, sir.

Q. And I believe you said that that was an oily or tarry substance, dissolved in ether? A. That is correct, sir.

Q. Apart from where this particular tarry substance came from, that could come from any combustion of coal, or from any coal furnaces, could it not? A. That is correct, sir.

30 Q. And then, in your same analysis, you referred to iron oxide, 43%, in the first analysis, which I believe was Exhibit No. 43, and 45.4% in your second analysis, which I believe was Exhibit No. 45. Do you know how many years' precipitation of iron those figures represented? A. Not from my own knowledge, Mr. Keogh.

40 Q. In other words, while you scraped the substances off the roof on the date you mentioned, one being October 18th, 1947, and the second being March 31st, 1949, you do not know over what period of time that quantity of iron was deposited on the roof of Walker's greenhouse? A. I do not know from my own personal knowledge.

Q. And is it or is it not a fact that iron oxide is not soluble in water? A. Iron oxide will be soluble to a certain extent in water. I know of no substance which is not soluble, to a certain extent, in water.

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Q. Well, but speaking generally, isn't it a fact that the greater part of iron oxide will not dissolve in water? A. That is correct, sir.

Q. And, accordingly, if you had an iron oxide deposited on the roof, you would not ordinarily expect that the greater part of it would be washed away by rain water, or to be dissolved and washed away by rain. I think we can clear up what is meant by deposited on the roof. There are two factors. By depositing, we might mean that it is firmly adhering to the glass surface there. 10 It also could be deposited where particles would remain, such as dust would, on these wooden surfaces, which could be easily removed by water or a slight mechanical movement, or movements of the air. Now, which are you referring to? A. The deposits which I scraped off, I would consider was tenaciously adhering, that rain would not remove it, yes, sir.

Q. Was it just the largest greenhouse that you scraped these deposits off, or which greenhouse was it? A. It was the large greenhouse.

Q. I think we have had in evidence from Mr. Walker that 20 he went over the greenhouses once a year, that largest greenhouse, and that being the case, would it be —

MR. SLAGHT: If your lordship will permit me, my recollection is he said twice a year, but I may be in error.

MR. KEOGH: Not in the largest; some of the smallest ones. I read it out on discovery and, if you wish, I will have Mr. Pond give you the number of the question. A fair inference that the iron which you scraped off, on October 18th, 1947, included in this deposit from Mr. Walker's greenhouse, stains representing ap- 30 proximately the iron deposit that floated across all year? A. No, sir, it would not.

Q. Well, what period of iron deposits would it represent? A. I do not know, because I do not know when the half year started. It might have been the day before.

Q. Well, I said it was cleaned once a year. Well, perhaps that is not fairly put to you. It would approximately represent the deposits of iron since the last cleaning of the roof on that greenhouse? A. That is all right, sir.

Q. And the same way with your second samples, which you took in March of 1949. It would represent approximately deposits 40 of iron since the last cleaning of the greenhouse? Is that right? A. Yes, sir, essentially so, if it were completely cleaned.

Q. If it were not completely cleaned then, it would cover a slightly longer period? A. Yes, sir.

MR. SLAGHT: My lord, if my friend would permit me, we differ slightly with regard to Walker's evidence. I understod Mr. Walker said, referring to the large greenhouse that my friend is dealing with, that he washed it in September, 1948, of last year.

MR. KEOGH: I will turn that up. I may be wrong, but that is my recollection.

MR. SLAGHT: I do not want to throw my friend off, but that can be cleared up, if necessary, otherwise —

MR. KEOGH: Well, I read questions 627 and 629 of Mr.
10 Walker's discovery, which were as follows:

"627. Q. Take, for instance, the largest greenhouse in the "year 1947, how many times would you clean it? A. 1947.

"628. Q. Yes. A. Once.

"629. Q. And how many times did you clean that house in "1946? A. I believe twice."

And 631 and 2:

"631. Q. And the two cleanings of glass in the largest green- "house in 1946, were they in the spring and in the fall?

20 "A. One in the spring; one in the fall. I say in the 'spring'. "That would be in July or so.

"632. Q. One around July? A. Yes, and the other in about "September."

There, you speak of two cleanings, one in the spring and fall of the smaller greenhouses, and of the larger greenhouse in 1946. Were you referring to his discovery, Mr. Slaght?

MR. SLAGHT: No, I was referring to his testimony in the box, but I don't want to cross you. Mr. Walker will be recalled, I fancy, and, if so, he can be asked that simple question.

MR. KEOGH: I am trying to have Mr. Pond turn it up.

30 HIS LORDSHIP: I don't see what reason there is for it.

MR. KEOGH: I don't think there is, because the witness says it is since the last cleaning.

HIS LORDSHIP: Because these are percentages of content found in the sample, and it is not quantitative. The evidence is not dealing with it quantitatively; it deals with the analysis of the sample and even though it had been washed the day before, or had been washed six months or a year before, I do not see what difference it would make to this exhibit. That is correct, is it not?

THE WITNESS: I would agree with that, sir.

40 HIS LORDSHIP: It is just a scientific analysis of what is there.

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MR. KEOGH: Q. And you cannot, as his lordship says, from this quantitative analysis, you cannot draw any conclusion as to quantity from this? A. I can draw the conclusion of the percentage in the deposit.

HIS LORDSHIP: That is, the percentage of iron in the deposit? A. Yes, my lord, precisely.

MR. KEOGH: Q. Then, you also included in each analysis, sulphur as sulphuric acid, and I am suggesting to you that you could get that from any coal fire, or any coal furnaces in the combustion of coal, — some sulphur? A. To the best of my knowledge, all coals contain some sulphur, and, when they burn, it is converted to sulphur dioxide.

Q. And in your analysis you spoke of sulphur as sulphuric acid, 1.7%, in the first analysis, and 2.3% in the second, Exhibit 45. Had you shown that as sulphur instead of sulphuric acid, would the percentage of sulphur be considerably less? A. If I had shown that as the element sulphur, it is true that the percentage would be less.

Q. Approximately two-thirds less? A. The ratio of 64 to 98 — yes, approximately two-thirds.

Q. Then you have told my friend yesterday about seeing the cupolas in operation at the time of the inspection under the Court Order of March 14th. You state on the roof. You did not go right up to the very top of the cupola? A. I was unable to go up to the top, sir.

Q. And were you on the roof when Mr. Beaumont and Mr. Walker were up at the top of the cupolas, looking over and down into them? A. I was on the roof, and Mr. Beaumont and Mr. Walker climbed the ladder up the cupolas. Whether or not they looked down into them, I do not know.

Q. And did you make a remark to Mr. McAulay, of the defendant company, about the condition of the cupolas at that time? You remember Mr. McAulay, the plant engineer of the defendant company, who accompanied all of us on the inspection? A. I remember the name.

Q. Did you say to him at that time that these were the first cupolas you had ever seen that anybody could put their head over? A. I do not remember saying that.

Q. Did you say anything along that line to Mr. McAulay? A. I do not recall that.

Q. Then, it is possible, is it not, for sulphur dioxide to originate from the combustion of other soft or hard coal, in any type of furnace? A. That is correct, to the best of my knowledge.

Q. And usually, sulphur dioxide does result from such combustion of any kind of coal? A. I believe so.

Q. Have you made any special study, or have you had any definite experiences of the effects of sulphur dioxide on plant life, apart from what you have done in this case? A. No, sir, not other than this.

Q. Sulphur dioxide is a gas which is very soluble in water, — has a great affinity for water? Is that right? A. That is correct.

10 Q. And is it readily absorbed by almost any material, especially when the material is wet? A. Would you mind, Mr. Keogh, giving me an example by “any material,” of the type of material you mean?

Q. Well, you take an extreme example. If you put sulphur dioxide gas in a glass tube and the sides on the glass tubes are wet, some of the sulphur dioxide gas will be absorbed by the glass, I am told. Is that right? A. Not by the glass; not to my knowledge; or, if it were, it would be one of these matters of one molecule thick, or something of that kind, which is infinitesimal. It would be absorbed by the water, but not by the glass, or did you mean to say “water”?

20

Q. Well, I am further instructed that any wet surface will readily absorb sulphur dioxide gas? A. The water on the wet surface would, yes, sir.

Q. You say it is the water that does it? A. Yes, sir.

HIS LORDSHIP: Just what is it that takes place there? You add H₂O to S.O.₂, what do you get? A. Theoretically you get some H₂S.O.₃, sulphuric acid, which does not exist as an entity, because if the solution is evaporated, the sulphur dioxide gas is liberated and leaves the water.

30

Q. Well, when you speak of the water absorbing the sulphur dioxide, does it in fact absorb it, or is there a chemical process that takes place and you have sulphuric acid produced? A. Not sulphuric, sulphurous.

Q. And is that the H₂S.O.₃? A. Yes, my lord, and the reason we speak of it that way is that if that solution is neutralized with alcohol we can isolate the solvents which exist as solids and can be crystallized with a definite composition, but if we try to isolate the acid it will break down during the process of isolating it.

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MR. KEOGH: Q. Then, you referred to an experiment with hydrochloric acid yesterday as saying that the iron prevented the deposit on Mr. Walker's roof from being brushed off. Just in line with what we have been speaking about, sulphur dioxide with rain would produce sulphuric acid, is that right? A. Yes, sir, if exposed to air.

Q. Well, on a roof, you would expect it would be exposed to air? A. Yes, sir.

10 Q. And then this sulphuric acid would dissolve in iron particles, just as readily as the hydrochloric acid, would it not? A. I don't believe so, sir.

Q. You don't believe so? A. No, sir.

Q. Then, you spoke of this deposit on the roof absorbing sulphur dioxide and thereby increasing or, pardon me — this was not a deposit on the roof. You referred to a similar deposit on the leaves of the plants and absorbing the sulphur dioxide and thereby increasing the injury to the plants. That is the general effect of the statement that you made? A. Quite so.

20 Q. But the leaves of all of these plants have pores or stomata — is that the technical name? A. I believe that is correct.

Q. And would you agree that the absorption of sulphur dioxide by some deposit on the leaves, thus keeping it from entering the pores in a gaseous state, would be beneficial to the plants, rather than detrimental? A. No, sir, I definitely would not.

Q. You would not agree. And you know, do you not, that various sprays of sulphuric acid and also of lime and sulphur are used to spray plants to kill weeds and insects? A. I know that lime and sulphur is used as a spray.

30 Q. And lime and sulphur, followed by a rain or in the presence of any water, would create sulphuric acid, wouldn't it? A. Not to my knowledge.

Q. You don't know that there are sulphuric acid sprays in use for spraying plants which kill weeds, but not the plants? A. I have never heard of using sulphuric acid as a spray on any plant, at any time.

Q. Then, on July 2nd, 1948, you said that the interior of Walker's greenhouses was dismal. I think that was the word you used? A. That was the exact word.

40 Q. Was there lime, or whitewash, on the roofs and sides of the greenhouses at that time? A. What was the date?

Q. July 2nd, 1948. A. I am sure there would be in July. I cannot remember definitely seeing it, but I am sure there was.

Q. You would expect it to be? A. I would expect there would be.

Q. To keep off the extreme heat from the summer sun?
A. Yes, sir.

Q. And then, I didn't catch the date — it may have come out, if it did I did not hear it. I didn't get the date in the fall of 1947 when you used the General Electric light meter. What date was that, — in Walker's greenhouse? I didn't hear the date mentioned. A. May I consult my notes?

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10 Q. Yes, refer to your notes if you wish.

HIS LORDSHIP: December.

MR. KEOGH: Q. His lordship says December. Well, that satisfies me.

HIS LORDSHIP: Well, I would ask the witness to check that up.

THE WITNESS: I did measure the light on January 18th of 1949.

20 MR. KEOGH: But I am talking about the time in the fall of 1947 when you said the light was cut off and varied from 65 to 85%, and when you said you used the General Electric light meter.

HIS LORDSHIP: No. My note is wrong. It means something else. This cut-off of light was most serious in December as the orchids do not get enough light at that time. Was that the date on which you measured it? A. I have a notation here of measuring it on September 17th, 1948. Is that the fall of the year?

MR. KEOGH: Then maybe I have the wrong fall. I thought it was 1947. You say it was 1948? A. I do have a notation of measuring it on September 17th, 1948.

30 Q. And was that the date on which you got this cut-off of 65 to 85%, because that is the date that I want to get. A. All the measurements I have made have given very similar figures, irrespective of the time of year, or the year.

Q. Well, but these cut-off figures, would they have been made about — over a period from September 17th, 1948, to December, 1948? Is that what you mean to infer? A. They have been made from September, 1948, up until the present time. I have made many measurements of that light.

40 Q. Well, I would just like to get one or two dates because then, depending on the dates, I may or would want to ask you another question. The first one was September 17th, 1948, was it? A. Yes, sir.

Q. And on that date, did you get a cut-off of light of between 65% and 85%? A. Yes, sir.

Q. Then, when was your next measurement after that, with the light meter? A. I have one here, of January 18th, 1949.

Q. You have not any date in between? A. I have no date recorded here of any between, but almost on any visit, out of curiosity, I measured the light and the readings were all essentially identical.

10 Q. Now, I suggest to you that on September 17th, 1948, there would also be lime on the greenhouses? What do you say to that? A. It is problematical. We find —

Q. Didn't we have a hot, warm fall last September and October? A. That I do not remember, but if you will let me finish my answer.

20 Q. Yes? A. On September 21st, in this degree of latitude, I find that we are getting just about the optimum amount of light for the growing of Cattlaias, and, if it were after that date, Mr. Walker, in my opinion, certainly should be removing any deposit on his roof. If it were previous to that date, I would consider it risky. You are getting very close to the crucial time.

Q. Well, those other orchids that grow in the jungle, they don't need as much light as other plants? Is that right? A. No, sir, definitely not. They do require an abundance of light.

Q. Well, at any rate, this date of September 17th, 1948, you cannot tell me whether there was lime on the greenhouse or not on that date? A. I cannot remember, no, sir.

Q. And, of course, you will agree with me that if there was lime on the greenhouse, that would make a great deal of difference to the light getting in? A. It would make a difference.

30 Q. Would it make as much a difference, say, as 50% in your readings? A. It would depend on how much lime was placed on the glass.

Q. Now then, the light meter that you used, was that a photographic light meter, or a light meter? A. It was a photographic light meter.

Q. Do you know the number model of it? A. Not from memory; I could get it for you.

Q. Can you get that for me, the model and the serial number of it? A. I could do that, sir.

40 Q. I wish you would, and you could give it to Mr. Slight and we can have it put in the evidence by the Reporter, by consent.

MR. SLAGHT: What is it?

MR. KEOGH: The model and serial number of the photographic General Electric light meter that he used on his light tests.

MR. SLAGHT: Have you got it in St. Catharines?

THE WITNESS: I believe I have, Mr. Slaght.

MR. SLAGHT: We will get it for you at noon time.

MR. KEOGH: Thank you.

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10 Q. Then is it or is it not a fact that, in taking readings with this light meter in the open air, that a passing cloud will have a very serious effect on the readings? A. May I answer that question just by a word of explanation first?

20 Q. Yes. A. There are two ways to use the light meter. One is to point it at the source of light; the second is to point it at a surface illuminated by light and it naturally follows that if you point it towards the sky and a cloud passes along the line in which the meter was pointed, there would be a difference in the reading. But, on the other hand, if you pointed it at a surface illuminated by the sky, the mere change of position of a cloud in the sky, in my opinion, would have no effect whatsoever on the total amount of light reflected from the lighted surface. The two are quite distinct.

HIS LORDSHIP: Are you quite sure of that now? A. Yes, sir.

Q. That it would have no effect if there is a cloud covering the sun? A. I was not bringing the sun into it, your lordship.

30 Q. Oh, but we are talking about the sun. You have the sun shining brightly and if you take a reading, even as you say, with the light meter pointing at a surface, we will say, to be photographed, and then a cloud comes over the sun and you take the reading again, now, would there be any difference in the reading? A. In that case there would be a very great difference.

Q. And the point Mr. Keogh has mentioned is that, if you should take the reading outside and go inside, and the sun happened to be covered with a cloud when you are inside, it would not be a fair comparison? A. That is quite right, your lordship.

30 Q. Well, what do you say as to whether your readings are open to that criticism, that there was a difference in the illumination between the time the reading was taken inside and the time it was taken outside? A. My practice was to take a few readings inside and go outside and return and make more inside, and then go outside.

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Q. Well, would you say the conditions were the same when you took the reading inside as they were when you took it outside?

A. The controls were as good as I humanly could do it without taking two meters, one inside and another out, with another person taking them outside.

MR. KEOGH: Q. It would have been more accurate, of course, to have had two readings taken, outside and inside? A. I agree with you, Mr. Keogh, perfectly. I only own one meter.

10 HIS LORDSHIP: I suppose if a cloud covered the sun, it makes quite a difference in the meter. If you have a greenhouse that is covered with clear glass and one that is covered with glass according to the sample we have filed here, it will make considerable difference in the reading, too? A. Yes, your lordship, very much.

Q. I am afraid your cross-examination is possibly emphasizing the points the witness has made.

MR. KEOGH: Well, I will take a chance on it, my lord.

20 Q. Then I want to ask you this. If you take a reading with a light meter out in the open air and then you take a reading inside a man's house with perfectly clear glass, — that is just the point I want, you will get a specific reduction in the scale by reason of the perfectly clean glass, won't you? A. Yes, you do.

Q. Have you made that test? A. I have made that test different times in many different greenhouses. I am very much interested in that.

Q. And how much would you say perfectly clean glass would cut down the light inside a greenhouse? A. It depends on the construction of the greenhouse and the difference of the roof bars, how far apart they are and also the height of the side walls.

30 Q. And the angle at which the glass is laid and the reflection of light and so on? A. Yes. There are various variables in there.

HIS LORDSHIP: And it would depend on whether the greenhouse was laid out north and south or east and west? A. It probably would, your lordship.

40 MR. KEOGH: Q. And then I am wondering if you made that test in any clean greenhouses laid out the way this large greenhouse of Walker's is, with clean glass? A. Yes, I have, Mr. Keogh. By "laid out," I mean a greenhouse similar to Walker's.

Q. And laid out in the direction in which it is, that is, as to the points of the compass? A. I cannot answer about the points of the compass, because I am not perfectly sure.

Q. Well, let us have it in the similar one, no matter which points of the compass it was. What was the result of the similar one with clean glass, similarly constructed? A. I have found the cut-off there to be in the order of 20 or 25%.

Q. That is with perfectly clean glass? A. I wouldn't say perfectly clean, but glass as it comes.

Q. Well, would you say apparently clean glass? Then, was this day of September 17th, 1948, when you made these measurements on Walker's greenhouse, was that an exceptionally bright, sunny day, or what kind of day was it? A. I do not know.

Q. You don't remember whether it was a dull day or a bright day? A. I do not.

Q. And would you agree with this statement that, generally speaking, plants receive far more of sunlight than they can use or usually need? In other words, they do not need all the sun they get, or do not use all they get? A. By "plants" are you referring to plants in general, or plants in Mr. Walker's greenhouse?

Q. Plants in general. A. I believe it is quite true that some plants do receive far more sunlight than they require and they put up a defensive mechanism, a pigment in the leaves, to prevent it coming in. I believe that is quite correct, sir, and I might add that, when orchid plants receive an over-abundance of sunlight, they, too, will put up a defensive mechanism and on no occasion have I ever seen that in Mr. Walker's greenhouses.

Q. I am speaking now of plants generally, outside in the open air. They grow on dull days, the same as they grow on bright, sunny days, don't they? A. I cannot answer that. I am a chemist; I am not a plant physiologist.

Q. Then, speaking about the roots of the orchid and the point that you stressed about the importance of not disturbing them, we have evidence in from Mr. Walker that he, according to an ad. that was filed as recently as last year or the year before, 1947 or 1948, imported large quantities of orchids from South America, and he also spoke of previous importations from the British Isles. Are you familiar with the plants in his greenhouse which he imported from South America? A. I have seen the Cattlaias which have been described to me as importations from South America, in Mr. Walker's greenhouse.

Q. And they were brought up on ships, presumably? A. I do not know the method of transportation at all. It may have been sir. I do not know.

Q. You don't know how they were transported? A. I do not.

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Q. Well, anyway, the ones you saw that were imported from South America, did they seem to be suffering from the effects of movement or disturbances of roots? A. I can answer that in this way. Any plant would, from the best of my knowledge, that any one has at any time imported from South America, require a lengthy time to recuperate. The shock is terrific.

Q. And had these recuperated all right, these Cattliias that you saw, that he had imported from South America? Had they fully recovered? A. No, sir.

10 Q. From their journey? A. No, sir.

Q. Well, what was wrong with them, or what was bothering them? A. The psuedo bulb — and let me explain the word “pseudo” bulb, is the storage part of the plant. In a tree, the bulb below the leaf and in the bulbs from South America, you will find that they are short, stubby, fat; by “fat” I mean rounded out, whereas the new bulbs that have originated since they have been in Mr. Walker’s greenhouse are skinny, — I think I can best describe it as that. They lack the food which is necessary to produce the flowers. The difference is striking.

20 Q. And how long have they been there? When was his last lot? I am speaking of these skinny ones. Do you know how long they have been there? A. I do not have the dates. You will have to get that from Mr. Walker.

Q. Then, referring to this experiment of yours with the flask. How big was the flask that you put the “Detroit News” bronze mum flower in? A. It was a one litre flask.

Q. Not being very familiar with the metric system, can you tell us how much that is under the English system? A. Approximately one quart.

30 Q. Approximately one quart of air? A. Yes, sir.

Q. And you said you introduced sulphur dioxide into the flask? How much sulphur dioxide did you introduce? A. I generated the sulphur dioxide in the flask by permitting the sulphuric acid to react with sodium bisulphide.

Q. And that reaction took place right in the flask? A. In the bottom of the flask, yes, sir.

Q. And then how long was that sulphur dioxide left in the flask containing the flower? A. It was probably left there for many days, until I washed the flask off.

40 Q. Well, I mean, how long was it left in the flask concurrently with the flower? A. I believe the flower was left in it. The flower was affixed to a rubber stopper passing through the open end of the flask, in order to confine the gas within it.

Q. Well, over what length of time, for the purpose of your experiment, was the gas left affecting the flower? A. Oh, I understand the flower started to turn a yellow colour in the course of probably 15 or 20 minutes. I had no other flower outside to say when I could discern the difference, but it became quite apparent.

Q. And then you said, if I took you down correctly, that, later in the day, it changed to a pure yellow, from bronze?
A. That is correct.

10 Q. What I am trying to get at is, how many hours were required for that change? A. It would be a matter of two or three hours; something in that order. It was during the working day.

Q. And I take it that, for that variety, the flask was hermetically sealed? A. It was sealed with a rubber stopper.

Q. There was no air got in or out? A. None other than pass in or out of it through the stem of the plant.

Q. Well, put it this way. It was not intended that air should get in or out? A. It was not intended that air should get in or out.

20 Q. Then, did you make any contrary experiment to check that? Did you put the flower in a similar flask and stopper to see the evidences of sulphur dioxide? A. I did not, Mr. Keogh. I did not consider it necessary.

Q. Can you tell me the percentage of sulphur dioxide as compared with air in that flask while this experiment was going on? In other words, the saturation and concentration? A. If I remember correctly, I used ten milligrams of sodium bisulphide, that is 10/1000 of one gram. I would have to work that out.

Q. And then you used an acid with that? A. Sufficient acid to liberate the sulphur dioxide from the sodium bisulphide.

30 Q. And to eat up all the sodium in the process, or part of it?
A. Yes, or, in that term, to completely decompose it.

Q. To completely exhaust it? A. To exhaust — I said decompose.

40 Q. And can you give me any approximate idea, without going to the trouble of working it out, how much sulphur dioxide gas that decomposition would liberate inside this flask? A. I am afraid I would have to work that out, but it would be an appreciable amount. I was only interested to find whether sulphur dioxide had the property of changing the original pigment to yellow. I was not interested in the quantity to do that. It was a qualitative experiment.

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Q. You were not interested in the minimum quantity, you were just interested in seeing if any quantity of it would do it?

A. Yes, sir.

Q. And I suggest to you the air inside that flask, to use a layman's expression, was super-saturated with sulphur dioxide gas? A. I think, in a layman's language, you might say that. I will admit it contained a large concentration of sulphur dioxide in comparison with the amounts we speak of in the atmosphere. That is absolutely correct, sir.

10 Q. Very much more than .5 parts per million? A. Yes, sir.

Q. Can you give me a rough idea of the percentage — I am not going to hold you to the exact percentage, but the relative percentage of air and sulphur dioxide gas in that flask during that experiment? A. This is a rough guess, but a rough guess may be 100 times, or one part per million. I was interested in the reaction.

Q. In other words, about 100 parts of a million? A. It might have been that, yes, sir. You will understand — may I say something?

20 Q. Yes. A. You will understand, of course, if I was going to work with one part per million, it would be rather difficult to weigh out a quantity of sodium bisulphide which would saturate a litre of air in that degree there, because the limit of things —

Q. Oh, yes, I appreciate you were not dealing with parts per million at all. A. Yes; I quite agree with that.

Q. Then, how many orchid plants have you, yourself, that you grow? A. Including orchid plants of all kinds?

Q. Yes. A. A good many thousand.

30 Q. How many thousand, approximately? A. Some of them are very small plants in flasks which have yet not left the baby stage. If I include those, it would amount to maybe hundreds of thousands.

Q. Well, I don't want to get into millions again, but your mature plants that are growing by themselves?

HIS LORDSHIP: Probably Mr. Keogh would like to know how many you have that are flowering?

MR. KEOGH: Yes, I would. A. About 350.

Q. Flowering orchid plants, that you have? A. Yes, sir.

40 Q. And have you a greenhouse that you grow them in?
A. I have, Mr. Keogh.

Q. And is that attached to, or alongside your own dwelling, or is it in some other place? A. No, it is attached to my own dwelling house and —

Q. That is in Toronto, is it? A. That is in Toronto.

Q. And do you sell any of these orchid flowers to the florist trade, or retail trade? A. I have done so.

Q. Well, do you make a practice of that? Is that your chief business in connection with the orchids, or do you grow them there as a hobby? Is it a business or a hobby — that is what I am trying to get. A. It is a hobby.

Q. And how long have you been growing orchids? A. About 13 years.

10 Q. Thank you.

HIS LORDSHIP: Any re-examination?

MR. SLAGHT: Yes, my lord.

RE-EXAMINATION BY MR. SLAGHT:

20 Q. On the point my friend has just had with you about your flask containing quite strong sulphur dioxide fumes, and the speed with which the flower responded to trouble, what do you say as to whether or not if similar flowers were subjected to milder sulphur dioxide fumes over a lengthy period of time, ten days or a month, whether a smaller strength of fumes would or would not have a gradually breaking down of the flower, in your opinion? A. I would certainly expect that, Mr. Slaght.

30 Q. Then, my friend asked you about your visits to other greenhouses you examined, and especially with regard to the condition of the glass you encountered there. Can you tell us whether or not in those other greenhouses, then enumerate them briefly, what comparable condition of glass there was there that those growers were using, comparable to the conditions that you found at Walker's with the panes affected with the iron? A. Mr. Walker's greenhouse is receiving, I am certain, by far the least light of any commercial greenhouse I have ever visited.

Q. Just give us four or five of them so we see what type they were? A. Mr. Dilworth has a greenhouse west of Weston. I visited that, I believe last Saturday, and it is extremely bright. The W. B. Miller Company, on Dufferin Street, has a very light greenhouse. Mr. Kilner has a private greenhouse in Toronto. I don't know the name of the street. It is very, very bright. Colonel Flanagan's greenhouse on Divadale, the glass — I never saw any deposit on it such as Mr. Walker has on his.

40 Q. Now, on any of these that you have named, have you seen deposits comparable at all in density to these deposits you have described on the Walker plants? A. Not comparable in density, no, sir.

Q. That is all. Thank you.

—Witness excused.

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LESLIE DWYER, sworn,

EXAMINED BY MR. SLAGHT:

Q. Mr. Dwyer, you live on a property, your own fruit farm, somewhat over a mile northerly from the McKinnon Industries plant? A. I do.

Q. You have lived there some 35 years? A. Yes, sir.

10 Q. And, take the last year or so, or the year and a half, can you tell me anything about the vibrations when the McKinnon plant is operating — the forge shop hammers? A. When you are in bed at night, — you don't notice it walking around, but lying in bed at night you can feel the house tremble, a kind of quiver, you know. The house is solid brick with an 18-inch foundation wall.

Q. Do you hear any thuds of the hammers, or are you too far away? A. No, you can hear the hammers.

Q. Can you describe how they operate, — one drop, or two, or do they go in series? A. Oh, sometimes together, and sometimes separate, — just a thud.

20 HIS LORDSHIP: Q. Where did you say you live?
A. About a mile and an eighth straight north of McKinnon's.

MR. SLAGHT: Q. Well then, did you have occasion to travel down towards or past the McKinnon place and the Walker place? A. Many times a week.

Q. And so we can try and find out, what was the source of the vibration in your home, have you on occasions when you have been passing the McKinnon plant noticed similar thuds from the forge house?

MR. KEOGH: A little bit leading.

30 MR. SLAGHT: Q. Or thuds from the forge house?
A. Well, the noise of the hammer dropping.

Q. Have you been in the forge house? A. Never.

Q. But have you, on more than one occasion, or not, on passing there, heard the noise of hammers dropping? Of course, you are much closer to them there, but comparable to the noise you hear in your own home at night? A. Oh, yes.

Q. You have heard that? A. Yes.

40 Q. And do you know of any other place in this district where a similar heavy hammer dropping is going on? A. Well, they tell me there is one at the Warren-Pink, but I have never heard it to my knowledge.

Q. Well, they tell you that, but I mean of your own knowledge, do you know of any other operation that might cause you trouble? A. No.

Q. Then, what do you say as to whether the vibrations at your house, from your view and from what you have given us, are caused by the McKinnon forge shop vibration? A. Well, when you hear the thud, you get the vibration.

Q. Yes, but I mean, what do you say as to whether or not it comes anywhere else except from McKinnon's? A. Oh, no.

10 Q. Then, when you have passed Walker's greenhouse at times, take the last year and a half again, have you observed any smoke and gas or fumes, smoke or fumes passing over Walker's greenhouse from the McKinnon cupolas and the McKinnon forge shop, when the wind has been that way? A. Smoke screen some days.

Q. Some days it is a smoke screen? A. Yes, sir.

Q. You make that answer to my question, that is, coming from the cupolas and forge shop of the McKinnon plant and passing over Walker's house? A. You see it coming over the cupola and atmospheric conditions make a difference; it is coming down and there is a haze all over the street around there, and then it goes right over.

20 Q. Well, have you seen it over Walker's place, coming from that source? A. Oh, yes, hundreds of times.

Q. What takes you down there so often? Do you walk home for every meal? A. There is no railroad. We have to go uptown to get our own mail.

Q. Oh, that is what brings you past this place so often. And can you tell me anything about the character of the smoke which you have described, and which you have seen passing through and over the Walker place? A. Do you want the dates?

30 Q. No, I don't care about dates. A. Well, you can taste it sometimes.

Q. What is it — a molasses candy taste, or how can you help us about the taste? A. I can't exactly describe what it might be but come out of good air and go into the smoke screen, you get — it is a chemical taste. You feel as if you want to spit it out of your mouth, it is so strong.

Q. And — well, that is a pretty fair way to tell us. Your witness.

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CROSS-EXAMINED BY MR. KEOGH:

Q. You spoke about hearing these thuds at night. and I think you said you didn't notice it walking around, but at night when you were in bed you noticed it? A. Oh, you sometimes hear them in the day time, but you don't hear any vibration on the land.

Q. No, you don't feel any vibration? A. Not on the land, walking around.

Q. And it is really nights that bothers you, more than any vibration? O. Oh, it don't keep me awake.

10 Q. It doesn't keep you awake? A. No, but you can feel it.

Q. Well, you can feel it like a big truck going along the road. Is that what you mean? A. No, you hear the thud and then there is a trembling of the house.

Q. How close are you to the Ontario Street highway?
A. Oh, we are back quite a distance.

Q. How far are you east of Ontario Street? A. Oh, we must be 100 or 150 to 200 feet back.

Q. Your house, I am talking about. A. Yes.

20 Q. Oh, I beg your pardon. You are west of Ontario Street, not east? A. The house?

Q. Yes. A. Yes.

Q. 150 feet west of Ontario Street, so that you are between Ontario Street and the N.S. & T. railway tracks aren't you?
A. Oh, no.

Q. They are north of you? A. No, no tracks near me.

Q. They are north of you? A. No tracks near me within a mile and a half or a mile and a quarter of me. The tracks owned by McKinnon's — there is no track through there to Port Dalhousie. The tracks cross the canal.

30 Q. Well, getting back to Ontario Street, do you notice these heavy trucks and transports going along Ontario Street to the Queen Elizabeth, especially at night? A. They don't bother us.

Q. But you can notice them, can't you? You can hear them, too? A. Sure you can hear them when they come up, particularly at my place. They shift gears, lots of them.

Q. And do they make your house shake once in a while, with the trailers? A. No, never.

40 Q. Then, you mentioned about the hammers dropping in one other factory. Have you ever been by the Engineering Tool & Forging, down on Queenston Street? A. No. I have driven by the street.

Q. You have never heard the hammers there? A. No. Do you mean driving by? A. Yes, in the evening? A. Oh, no.

Q. Or in the daytime? Then, did you say that — you spoke of a blue haze and you said you saw smoke coming out of the cupola. Did you see any blue haze coming out of the cupola at any time? A. Yes, all different colours, sometimes.

Q. From the cupola I am talking about? A. Yes.

Q. Do you know where the cupola is? A. Yes.

Q. Do you know what part the cupola is? A. I know where the smoke stack comes up from it.

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HIS LORDSHIP: Q. Yes, but what Mr. Keogh is directing
10 your attention to is that there are the cupolas and there are the
smoke stacks over the forge? A. Well, this is over the foundry.

Q. You are talking about the foundry, are you? A. Yes,
them smells of oil.

MR. KEOGH: Q. I show you photograph, Exhibit No. 18,
which is a fairly clear photograph of the cupola stacks. Do you
see those four cupola stacks? A. Oh, yes. This is the forge shop
here. That is the new building.

Q. Now, I am asking you if you ever saw any blue haze
20 coming out of the cupola stacks? A. There is all different colours
coming over there.

Q. Did you ever see this blue haze that you told my friend
about? A. Kind of blue sulphur, like, it is hard to describe it,
sir, the colour.

Q. Did you actually see this blue haze coming out of the
cupola stacks that you have described to my friend? A. Up
above the stacks and then it comes down.

Q. And you say it comes out of the cupola stacks? A. There
are three or four openings there.

Q. You do? A. Yes.

Q. You grow flowers for Mr. Walker, do you not? A. The
30 last two years, carnations principally; probably sixteen or eigh-
teen thousand.

Q. How many — sixteen or eighteen thousand last year?
A. I should think there would be.

Q. And how many the year before, in 1947, did you grow?
A. About the same number.

Q. And he pays you for growing those for him? A. We
rent the land and cultivate and he attends to them, outside of that.

Q. You cultivate the land and supply the land and he does
40 the rest of it? A. Yes, sir.

Q. I mean, you are not doing it for love? There is some-
thing in it for you? A. We rent the land as a business proposi-
tion.

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Q. Then, you told my friend about the hundreds of times that you saw smoke coming over from McKinnon's. How many times did you see it in the month of October last? A. I couldn't state in any one month.

Q. Well, how many, roughly, in October last? A. I wouldn't state.

Q. Well, was it ten times? A. It was very seldom you could say that there isn't some.

10 Q. Well, how many times would it be — ten times in the month of October last, or would it be only once or twice in October? A. Well, I would hate to answer that question how many times.

Q. Did you see it at all in October? A. Last year?

Q. Yes. A. If the cupolas are running and you are by, invariably you will see the smoke.

Q. Well, did you see it in October of last year? A. I wouldn't swear to any special month. If the factory is operating, there is smoke.

20 Q. If the factory is running there is smoke. That is the idea you have in your head. Did you see it in the month of September last year? A. I won't say to any. I wouldn't swear to any special month or how many times. When the strike was on there was none, but, outside of that, you will always get some, if the atmospheric conditions are right.

MR. SLAGHT: Thank you, Mr. Dwyer.

—Witness excused.

GEORGE THOMAS, sworn,

EXAMINED BY MR. SLAGHT:

Q. Mr. Thomas, you live here and you work for Mr. Walker, and have for some twenty odd years, except when you were overseas during the war? A. Yes.

Q. How long were you overseas? A. A little over five years.

Q. You were over there a little over five years? A. Yes.

Q. And, when you came back you went to work with him again? A. Right away, sir.

40 Q. And in November, 1948, that is last November, were you present with Mr. John Walker and Mr. McAlpine, who was here, when Mr. McAlpine gave some instructions about taking samples of air on the property that you work on? You work at the greenhouse property? A. At the greenhouse, yes.

Q. And did he leave a little vacuum intake machine with you at the time? A. Yes, sir.

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Q. For a purpose? A. That is right.

Q. And were you and John Walker, John Walker is a son of William, and John Walker also works at the plant? A. That is right, sir.

Q. And then I believe John went on a holiday shortly after that time? A. Right.

Q. Went hunting, and did you take samples which you then sent on to Mr. McAlpine? A. I did, sir.

10 Q. Mr. McAlpine had thought John had taken them, but you undertook to take them so John could go hunting? A. Yes, sir.

Q. And did you ship them on to Mr. McAlpine? A. Some of them, and some Mr. Walker shipped.

Q. By express, or mail, or something? A. Express.

Q. Then, where did you take them from, the top of the potting or shipping shed? A. In the shipping room.

20 Q. And where would that be on this map, so far as being a central point or otherwise in the group of buildings there? A. There is Ontario Street, here, and it is the closest to Ontario Street.

Q. The boiler house—is it near the boiler house? A. The boiler house and the shipping room is in the same room, except for the one with the furnace.

Q. We have the boiler house marked on the plan, Exhibit 1? A. Here is Ontario Street.

Q. And that appears to be south of the big greenhouse? A. That is the big greenhouse, right there.

Q. Here is the boiler house? A. Right here, sir.

30 Q. You are putting your finger on a point just near where your boiler house is on this plan? A. As close as I can.

Q. Well, that is close enough. And the other buildings are down below, so it is sort of a central location as regards the buildings? A. That is right, sir.

Q. And the spot you took them was on the roof, or on top — A. On top of the roof.

Q. And could you see the cupolas and forge shop of the McKinnon place by looking over that way from the point where you were, when you took the soundings? A. Yes, sir.

40 Q. So there was a clear view of the cupolas and the forge shop? A. Very clear, sir.

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Q. Then, I should ask you, have you at times down there while you have been at work — we will just take the last couple of years — have you or not seen fumes and smoke coming from the McKinnon plant and going over and about the Walker greenhouses? A. They seem to come over and kind of settle and come down over. Sometimes they affect you; you kind of choke, like.

Q. You have observed those fumes coming and sometimes come down over? A. Yes, sir.

Q. And at times you suggest it gives you a choking feeling?
A. That is right, sir.

Q. Can you smell the fumes? A. I can't describe it, sir.

Q. But do you smell something different from fresh air?
A. Yes, quite definitely.

Q. You smell something different from fresh air, but you wouldn't like to try to describe it. Then, I show you on a file that was put in as Exhibit No. 62 yesterday, some samples. There appear to be seven on this file of the black cotton and written on that is November 26, '48. The one at the top is 11 to 12, and then the same date down 12 to 1, and various dates down here. Your writing. And did you take those samples? A. Yes, sir.

Q. And I had not proved those before, but they are part of the content of Exhibit No. 62. I was only able to prove the two Mr. McAlpine took himself, the ones to the right, when the plant was not running because of the strike.

HIS LORDSHIP: How were these samples taken?

A. Through a vacuum, sir.

Q. Well, what did you do? A. I put this piece of cotton over the end of the vacuum and it sucked the air into the vacuum.

Q. The air from outside? A. Yes, sir.

30 MR. SLAGHT: Q. Now, Mr. Thomas, I want to show you another series —

HIS LORDSHIP: Just excuse me, Mr. Slaght. About how long would the vacuum be running before you took the cotton off?

A. The time is on it.

Q. Excuse me. Let me see that again.

MR. SLAGHT: I should have called attention to that. I think the first one starts at 11 to 12 in the morning and they are sort of a serial. Did you mark the times down at the time?

A. When I took them off there.

40 Q. When you took them off, you would mark the times down? A. The times they started and the times they were taken off.

HIS LORDSHIP: Oh, with the exception of No. 2 on December 13th, the samples taken by you all seem to have been one hour exposure, so to speak.

MR. SLAGHT: Is that your recollection?

HIS LORDSHIP: And of those two notes, your notes correctly show the time of exposure. Is that correct. A. That is right.

MR. SLAGHT: And so that ordinarily you would run for an hour and then take it off? A. It all depends.

10 Q. Well, at all events, you have carried out — put on your little slips the dates and the time of the taking? A. Yes, sir.

Q. Which shows the time of day, as well as the length of time. Then, I show you another file in which, on the right hand side, I see “November 18th, time 8.30 till 9.00,” and “November 18th, 11.00 till 11.30”; same date, “November 18th, 11.30 till 12.00,” and the fourth one down, “1.30 till 2.00” Did you take those? A. Yes, sir.

Q. And are those your slips and writing? A. Yes, sir.

20 Q. Then on the other side of this one, we have December 6th. At the top from 7.00 to 8.30; December 3rd, 9.00 till 9.30; December 7th, 1.00 till 2.00; and then January 13th, 1949, 2.00 to 3.00; December 7th, 1948, 3.00 to 4.00 I think I have counted all of them. Did you take all of these? A. Yes, sir.

—EXHIBIT No. 64: Record taken by Mr. Thomas.

Q. Then, I have another one. I show you this card. I am not going to read all this, but will you identify the slips as your writing on all of these? They all seem to be on December 28th? A. Yes, sir.

30 Q. And did you take all these and write the slips down? A. Yes, sir.

Q. And the information is correct on them? A. Correct, sir.

—EXHIBIT No. 65: Additional record taken by Mr. Thomas.

Q. Then, I show you another file. They all appear to be on this file taken at some time or other on November 25th; a series on November 25th on this file; quite a number of them. Did you take those in the same way? A. Yes, sir.

Q. And the information is correct that the slips show? A. Yes, sir.

40 —EXHIBIT No. 66: Additional record taken by Mr. Thomas.

HIS LORDSHIP: In Exhibit 65 there are two samples that are not attached to the folder.

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MR. SLAGHT: Oh, I overlooked that, my lord. I didn't know whether he took them or not.

HIS LORDSHIP: Attached to a piece of blotting paper. They should be made secure.

MR. SLAGHT: Yes.

Q. These are on a blotter in Exhibit No. 65, and on the same date. Did you take these two attached to the blotter as well? Is that your writing? A. Yes, sir.

Q. Then, with the permission of the Court, Mr. Registrar would be kind enough to pin that blotter and paper and attach it to the inside of the exhibit. Let us see, when did you come back from overseas? A. February 26th, 1946.

Q. In February you got back from overseas? A. I didn't get my discharge till the 9th of April.

HIS LORDSHIP: Now, excuse me, Mr. Slight. Before you leave this exhibit, Exhibit 66, there is one sample that is marked in that, "November 25th, 1948, 4½ hours after factory had shut down." What do you mean by that?

MR. SLAGHT: I had not noticed that, my lord.

THE WITNESS: That is not my writing. That is the only one that is not, sir.

MR. SLAGHT: Oh, I am sorry, my lord. I didn't notice that. We had better get it out of there.

THE WITNESS: I didn't notice it, myself.

Q. Well, then, that is not your writing and not your slip?
A. No.

Q. Then, that must be taken out, with your lordship's permission.

HIS LORDSHIP: You may leave it in, if you are in a position to prove it; if you are not in a position to prove it, then, it cannot be included.

MR. SLAGHT: Well, I don't know. It is a surprise to me.

MR. KEOGH: I would like to have it left in, because it seems to be about the worst one of the bunch and it might be that some other witness —

MR. SLAGHT: I am quite agreeable to comply with my friend's request, that it be left in.

HIS LORDSHIP: No. I do not think I should have something left in that no one explains the conditions under which it was taken.

MR. SLAGHT: Well, I would prefer that course, too, and I will take it out.

HIS LORDSHIP: It may be that some one will be produced. Mr. Slaght will have it available. If you get things in an exhibit that are not properly proven, then you have to go through the voluminous record which you have to find out what the story is. Just leave it out just now. Have it detached from the exhibit and have it dealt with by a witness — some one who will know whose writing it is.

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MR. SLAGHT: Yes, I will deal with it.

10 MR. KEOGH: It looks like the plaintiff's writing from looking at it and looking at his book the other day.

HIS LORDSHIP: It may be that it can be dealt with.

MR. SLAGHT: We have taken out, witness, the only item which you apparently did not take, and which apparently is not in your writing, in Exhibit No. 66. Then, you came back from overseas, you told us, in 1946. What month was it again? A. In February, sir.

20 Q. And have worked at the plant since? Have you noticed at any times there, when the McKinnon plant, the forge shop hammers are running, any vibrations at your place? A. Quite definitely, sir.

Q. And have you noticed the vibrations since 1947 down to the present time? A. I have, sir.

Q. Pardon? A. Yes, sir.

Q. And what effect, if any, do these vibrations — I am speaking now of when the big hammers are working in the McKinnon forge shop — can you tell us what you have observed as to any effect, if any, on your premises there? A. At the greenhouse, the plants — it jars the plants and shakes the leaves. It is quite noticeable.

30 Q. I suppose at times worse than others? A. Yes, sir.

Q. Now, take those plants that happen to be potted and in pots, when there are severe vibrations, what effect has it on the plant in the pot? A. It doesn't help them at all to my knowledge.

Q. Well, it doesn't help them, no. Has it any physical effect? Do you notice any physical effect on plants that are potted — or, perhaps you have told us already it shakes the leaves of the plant? A. That is right, sir.

Q. And, in your opinion, is that good for the plants or bad for the plants?

30 HIS LORDSHIP: Well, is he in a position to give expert evidence on that?

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MR. SLAGHT: Perhaps not, my lord. You need not answer that.

Q. Then, the times you have been there — 20 years less six you were overseas, 14 years. However, in view of your lordship's suggestion I won't ask that question. Then, what happens to the leaves when they shake like that? A. They rub on the other leaves and it doesn't help them.

Q. Well, take any of the pots that are situated on shelves, and I understand some of your pots are not on shelves. Tell me about that. Some pots are on shelves at times, and some in pots or elsewhere, we have it? A. Other pots are imbedded in peat, or in soil.

Q. But such pots as are on the bench, from time to time does it or not have any effect on the pots as well as the plants? A. It does at times jiggle them along the bench.

Q. It does at times jiggle the pots along the bench, if the pots are situated on the bench? A. Yes.

Q. Then, in the middle of 1947, did you have occasion to observe any sudden change in the leaves of the gladioli there? A. I did, sir.

Q. And what was that change that you observed? A. The leaves started to turn brown on the ends.

Q. And was that over a long period, or did you notice that as a more or less sudden outcome? A. It was quite sudden.

Q. Did Mr. Walker, Sr., and John, observe it at the same time? A. Well, our attention was drawn to it by the night man, and he noticed them.

Q. What is his name? Jeeves? A. Steeves.

Q. And then did you observe it in company with Mr. Walker, Sr., and Mr. John Walker? A. Yes, sir.

Q. Then, did John notice it, too? Oh, you have told me. Then, do you know whether, as a result of any message, whether Mr. Jarvis, an expert from Grimsby, came over to the plant shortly after these brown changes were noticed? A. Yes, sir.

Q. You didn't call him, yourself? A. No, sir.

Q. But we will hear from him about that. Did he come the same day, or the next day, or shortly after? A. It was that day, I am pretty sure.

Q. You think it was the same day Jarvis came over, after a party of you had your attention called to these changes? A. Yes, sir.

Q. And you have described what they were. Now, along in July, towards the end, did you have any observation of any similar occurrences? A. Yes, sir. There was a new lot of gas come over; seemed to be a new lot come and hit them and burned them more.

Q. Can you — A. I couldn't state the date, sir.

Q. But towards the end of July, gas came over?

MR. KEOGH: What year, please?

MR. SLAGHT: In 1947, the same year as the other burns?

10 A. That is right, sir.

Q. And what did you notice on this second occasion? A. It burned them much heavier.

Q. Then, did the others, Walker Sr., and John, the night man, see anything of this burning you speak of towards the end of July? A. Our attention was drawn to it.

Q. Your attention was drawn to it? A. Yes.

Q. Well, do you know whether Mr. Jarvis came over again, shortly after that burning was noticed? A. I am pretty sure he did, because he was there, I know, that day.

20 Q. And what purpose did he — when he came, did he examine them again, examine the injured plants again? A. Yes, sir.

Q. On that visit. Do you recall any trouble with the mums later on in 1947? A. Yes, sir.

Q. And what was the nature of that? A. There was bronze mums and, when they come out, they were yellow. There was no bronze in them.

Q. They were yellow instead of bronze, as I understand? A. Yes.

30 Q. And were you looking after the growth of the mums?

A. That is right, sir.

Q. And was that a surprise to you or not? A. Quite a bit, sir.

Q. And was Jarvis sent for again? A. Yes, sir.

Q. Did he go over again? A. Yes, sir.

Q. And did he examine these mums that you found changes occur in? A. Yes, sir.

Q. In your mum house? A. Yes, sir.

30 Q. Now, I have here some photographs that were put in. First, I show you Exhibit No. 26, and I see there is a good looking young man in the background of that picture. Who is that?

A. That is me, sir.

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Q. Oh, that is a picture of you and, in front of you, what are those, orchids or gladioli? A. They are gladioli, sir.

Q. And at the time that was taken, those were gladioli — I see it was taken on August 7th, 1947? A. Yes.

Q. Would that accord with your ideas? A. Yes, sir.

Q. And what is the condition of those gladioli? These were grown on the Walker place? A. Yes, sir, in front of the greenhouse.

Q. Oh, they are outside in the — A. In front of the greenhouse.

10

Q. What is observed from that picture as to the condition of the flowers? Are they normal and right, or is there anything wrong? A. No, sir. You can see it right here. The leaves here are all yellow. They look yellow in the picture here, but it is kind of a brown yellowish burn and it hits them right down the leaves.

Q. And is that generally a true picture? A. Yes.

Q. Who took this view, or don't you remember? A. The photographer.

20

Q. Now, the second picture is a picture that we are told was taken over on the McKinnon property, where they had a trial plot over there. Do you remember going over there? A. Yes, sir.

Q. And you are the gentleman who is photographed back of the wire fence in that one? A. Yes, sir.

Q. And that is the same date, August 7th, as the photograph was taken of the glads on the Walker premises? A. Yes, sir.

30

Q. And what can you tell his lordship regarding what that picture discloses, as to injury or otherwise, to the plants that are photographed? A. The leaves here are the same as what they were in our place. There is kind of a yellowish brown burned on them.

Q. And you say you saw this bed and the other bed, of course, at the time this was taken? A. Yes.

Q. You were investigating this sort of thing, to see what the injury was? A. Right, sir.

Q. And what do you say as to whether those gladioli are normal, or are injured, as a result of that condition? A. I would definitely say they were injured, sir.

40

Q. You would definitely say they were injured? Will you tell us, as well as you can, where those two plots are? You did show us. Before we leave the other exhibits, you showed us. You

said one was taken just outside the greenhouse and then the other is taken over on the McKinnon premises. Now, the one on the McKinnon premises, how does that lie as regards the other one? How far away are they, roughly? A. It is more towards Ontario Street, and sitting on the opposite side of the road.

Q. Oh, yes. McKinnon's are more towards Ontario and they are across the road? A. That is right, sir.

10 Q. And if the wind was from the southwest over the cupolas and the forge house, which of those plots would you say would be most in the line of a southwest blowing wind? A. I am not in a position to say.

Q. Well, I will not ask you that. Perhaps you have not studied the map. Looking at Exhibit No. 1, which is a map, Mr. Thomas, which was put in, your plot of land would be just outside No. 1 greenhouse, was it? A. It is where the glads are, is right in front of No. 1 greenhouse.

Q. This appears at the end of the greenhouse in the picture? A. Yes, sir.

20 Q. And that is just south of No. 1 greenhouse. Now then, down here on the other side of Carlton Street, as you explained just now, is a test plot on the McKinnon property? A. That is right, sir.

Q. And that is where the other picture was taken, in the second exhibit we talked about? A. Yes, sir.

Q. And I see looking at this map, it appears that the cupolas would be pretty well opposite that test plot of McKinnon's at their forge shop, — would be on the other side of the road, but in a somewhat northwesterly direction from the McKinnon test plot, would it not? A. Yes, sir.

30 Q. Exhibit 28 is taken on the 5th September, 1947. Is that yourself in that picture, too? A. Yes, sir.

Q. And it purports to show again the gladioli plot that was photographed on August 7th, some twenty odd days later, does it? A. Yes, sir.

Q. And what do you say as to what this picture discloses? Had the ravages of the trouble increased by this time, or not, in your opinion? A. Yes, sir, they had.

40 Q. And what do you say as to the condition of those stocks by that time, the 5th of September, as regards damage, from what you said damaged them? A. They are completely damaged. It runs right down the stems; you can see it.

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Q. And was that your observation of the flowers in the ground, aside altogether from this photograph? A. Yes, sir.

Q. Now, I have to deal with one more exhibit, Exhibit No. 29, which I show you, also taken on the 5th September, also finding you in the background of the picture, and that is a picture of — what are those — orchids? A. They are gladioli, sir.

Q. Yes, thank you. And what do you say as to whether or not that picture — that, again, is over on the McKinnon property next their test house, isn't it? A. Yes, sir.

10 Q. And what about those flowers that are in the picture along towards the wire netting at the back of the picture? Are they healthy or unhealthy? A. Unhealthy, sir.

Q. And the blooms that you see in the front — I see three or four blooms and, over to the right I see another cluster. Does that gladioli, too, show the quantity of bloom which a healthy gladioli bed should show, in your experience and in your business? A. It does not, sir.

20 Q. Then, why are there fewer blooms in that bed than you would expect to find, having regard to healthy gladioli? A. Something is bothering them, sir; something is hurting them.

Q. Did you have an eye on both your own beds that we have just been discussing, and the McKinnon beds, during the course of the summer, August and September? A. I had occasion to walk through there, sir, different times.

Q. And did you observe both your own beds and the McKinnon beds and the progress of the trouble? A. Yes, sir.

30 Q. Can you tell me whether or not, in your recollection of your observation, that the trouble you said first occurred and then progressed in the McKinnon test plot and your own bed along the same lines? A. There seemed to be new burning at different times.

Q. But I mean as comparable to the burns you found in both places? Did they seem to be getting it similarly about the same time? A. Sometimes they would, sir, depending on the wind.

40 Q. Yes. That is right, because it would be a different wind that would burn McKinnon's, to some extent, than would burn yours. I show you Exhibit No. 30, which was put in yesterday, and that again shows you, does it, in the background, or is that somebody else? A. That is me, sir. There is my name.

Q. And this, again, is on the McKinnon property? A. Yes, sir.

Q. And this is taken on September 9th, later in the interval between your last photograph on the 5th September. Were your beds growing in there in perfect condition? What had happened in the interval to that bed that you had photographed? A. The gladioli had been taken out.

Q. So that the bed shows that they have been rooted up and taken out and nobody can photograph them on the 9th September in their growing form? A. No, sir.

10 Q. Do you know who did that, of your own knowledge — don't guess at it if you don't know. A. No, sir, I don't know.

Q. You don't know. Then, when Mr. Jarvis was down in 1948, I understand last year again he was sent for, and came down to the McKinnon place — last year? A. Yes, sir.

Q. Do you remember, would it be some time in July? A. I couldn't state for sure, sir, but I know he come down.

Q. Do you know why he did come? What would he do? Come to see, and did you go with him to see it? A. I was with him at the time, sir.

20 Q. And what did he view on that occasion? A. Well, he went around the trees there and different places like that.

Q. Did he see the gladioli that were injured? A. Yes, down in back of the field there also.

Q. And then, I believe you drove him around the outlying premises also, in a truck that day, didn't you? A. Yes, sir.

Q. And you perhaps didn't get out of the truck, so we will have him tell us what he found. Did you take him where he could look at fruit trees as well? A. Yes, sir.

Q. Now, with regard to the glass in your greenhouses, there would be repairs at times? A. Quite a bit, sir.

30 Q. And what was done in the matter of putting in new greenhouse glass as regards putty, or the quantity of putty used for the operation performed? A. Well, we have to bed it in to keep it from shifting.

Q. You had to really bed it in? A. Yes.

Q. With the putty, you mean? A. Yes.

Q. To keep it from shifting? A. Yes.

Q. And what would cause it to shift when you heavily put-tied it? A. The vibration.

40 Q. Did you participate in that kind of repair? A. Well, I have done quite a bit of it.

Q. You used a putty knife, did you? A. We used a caulking gun on it, sir.

Q. And, Mr. Walker told us he had done the washings there with muriatic acid. Now, did you help wash the big house? A. Yes, sir.

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Q. That is No. 7, the big greenhouse? A. Yes, sir.

Q. And that, of course, would be a more difficult job than some of the smaller ones? A. Yes, sir, because you have to go on a catwalk to get at it.

Q. We are told that the slanting side, — each side of the greenhouse from where the wall starts down perpendicularly, the slanting side is some 28 feet to the apex on each side? A. Right, sir.

Q. So you would have 28 feet of a surface, or whatever the length of it is, and the catwalk would be built up on top of the roof, about the centre of the roof? A. About the centre, yes.

Q. And did you help do some of that washing with the acid? A. Yes, sir.

Q. And did you have an accident? A. Yes, sir. I slipped through the glass.

Q. What kind of a job is it? Is it an easy job or a dangerous job? A. Well, I would say it is dangerous.

Q. And did you have any injuries when you slipped through the glass? A. Well, I cut my legs.

20

Q. Slightly, or — A. Well, quite a few cuts in it; broken pieces of glass in the sides and the arm.

Q. And that was the extent? A. Yes.

Q. Did you try to use what care you could in that job? A. I used the most I could.

Q. Would water alone wash off what you were washing off, or did you have to use an acid? A. You couldn't touch it with water.

Q. You mean it would not come off with water alone? A. No, sir.

30

Q. So you used an acid? A. Yes.

Q. Now, on these occasions, taking July, 1948, at the time you drove Jarvis around when Jarvis appeared there — I cannot ask you, because you didn't do any telephoning to him,—but when he appeared there on those occasions, it would be shortly after the discovery of the trouble, I take it? A. Yes, sir.

Q. And was that trouble on the various occasions in July of 1948, was that trouble of a rather rapid appearance from the day it seemed to come on as an attack? A. It did, sir, it seemed to be new.

40

Q. And then, as you have told us, various ones about there would view it and so on, and then Jarvis would appear? A. Yes, sir.

Q. I have just finished, my lord.

HIS LORDSHIP: Very well.

—Court adjourned until 2.15 p.m.

Thursday, April 14th, 1949, 2.30 p.m.

CROSS-EXAMINATION BY MR. KEOGH:

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Q. Mr. Thomas, you have worked for Mr. Walker on and off, would be something in the order of about 25 years, have you?

A. About 21.

Q. So you have been around this district all of that time, at least? A. Yes, sir.

Q. And I suppose you would be frequently driving up past the paper mills at Merritton, about a mile and a half out of town, to the south? A. I have had occasion to go by there lots of times.

Q. And when you go by there, have you ever got a similar choking smell as you mentioned this morning? A. I never noticed it exactly the same, no.

Q. Was it something like it? A. Well, I wouldn't go that far to say.

Q. Between a mile and a half and two miles to Merritton, isn't it? A. I believe it is a little farther than that, isn't it? From what part do you mean?

Q. Well, say from Walker's to the Interlake Paper Mills in Merritton? A. I would say that is about three miles, roughly.

Q. I thought it was three miles to Thorold; and then this was a miniature vacuum cleaner machine that you used, was it not? A. Yes.

Q. Do you know the capacity or size of it? A. Well, I could give you an idea of the size of it, but I couldn't tell you the capacity.

Q. Did it have a model number on, or name? A. It had, but I didn't pay that much attention to it.

Q. There was not any way of measuring the volume of air going through it under which the sample was taken, was there? A. No, I shouldn't say there was, not through that.

Q. And then, in addition to the samples which you took and which were identified this morning, I believe that other samples were taken by Mr. Walker's son? A. Yes.

Q. Is his name John or James? A. John Walker.

Q. And then besides the samples which you took with the vacuum and John Walker took with the vacuum, and the two I believe that Mr. McAlpine took at the start when he was giving you your instructions, were any other test samples taken with the vacuum, or by anybody else, as far as you know? A. I was not there all the time, sir.

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Q. You are quite familiar with Mr. Walker's writing, I suppose, after working for him for 21 years? A. Fairly well, sir.

Q. Then, I will come back to that. The yellowish brown markings on the gladioli leaves, both at Walker's and at McKinnon's test plot, were, generally speaking, similar, were they? A. Yes, they were similar to each other.

Q. And the plot at Walker's was the most southerly gladioli plot — that is the plot than can be seen as you walk by on Carlton Street? A. It is right next to the greenhouse there.

10 Q. Just south of No. 1 greenhouse? A. Well, that one next to Carlton Street is south this way.

Q. Well, all of Walker's greenhouses are north of Carlton, are they not? A. They would be, yes.

Q. And this was south of No. 1 greenhouse, between it and Carlton? A. Yes.

Q. Then, I was wondering if you could tell me if the writing on this cotton pad which was taken out of an exhibit this morning is Mr. Walker's writing, or if you can identify it? A. No, sir. That looks an awful lot like it.

20 Q. It looks like Mr. Walker, Mr. William Wallace Walker's writing? A. Yes.

Q. Well, I don't think it is sufficiently identified yet. I will have to ask Mr. Walker.

HIS LORDSHIP: Oh, well, Mr. Walker has to be recalled for one or two other matters.

MR. SLAGHT: I am practically sure, when the defence is in, I will be recalling Mr. Walker.

30 HIS LORDSHIP: There are one or two matters for which he will have to be put in again so, Mr. Keogh, you had better leave it for the time being.

MR. KEOGH: Yes, my lord.

Q. Then, the bronze mums that came out yellow, you said they were in the mum house. Is that the same as the cloth house? A. No, sir, it isn't.

Q. That is a greenhouse, is it? A. Yes, that is right.

Q. Which greenhouse is that? A. No. 1.

Q. That is the most southerly greenhouse, closest to Carlton Street? A. Yes.

40 Q. And were they of the "Detroit News" variety? A. Yes, sir.

Q. And that is an uncertain variety as far as the bronze colour is concerned, is it not? A. No, sir, it is not uncertain.

Q. It is not uncertain? Had you never any difficulty from time to time in getting the Detroit News of a uniform, dark bronze colour, even under the best of care and best of conditions? A. We have not before, no, sir.

Q. Pardon? A. We did not before that, no, sir.

Q. I have here a bulletin of chrysanthemums, issued by Cornell University, dated April 19, 1934. I just want to read one sentence to you and ask you if you agree with it. On page 28, "Pink and bronze varieties were lighter in colour when forced to bloom in advance of their normal season." Do you agree or do you disagree with that statement? A. These were not forced; they are grown under natural conditions.

Q. Well, what time of the year was this change of the bronze colour to yellow — in the fall of 1947? A. I wouldn't care to state just the time of that, no; it has been quite a while ago.

Q. Was it in the early fall, or the middle of the fall, or the late fall? A. I would say early.

Q. Well, weren't they being forced in advance of their normal season, then? A. You don't force them unless you put them under black cloth.

Q. You don't consider them forced unless you put them under black cloth? A. Yes.

HIS LORDSHIP: Q. Under what? A. Under black cloth. They are completely shaded from, say, four o'clock till eight in the morning.

Q. They naturally tend to bloom when the natural light diminishes? That is, as the sun goes further south, the chrysanthemums start to bloom? A. Yes, sir.

MR. KEOGH: The natural season for chrysanthemums is in the middle or late fall, is it not, when they come to their peak; a touch of frost very often helps them? A. Not inside.

Q. No, I am talking of the natural season for plants grown naturally outdoors. Isn't it around the latter part of October and the early part of November when they come to their peak, naturally? A. When they come to their peak naturally outside, yes.

Q. Then, you spoke about the putty. When was it that you said you had to bed the glass in with putty? When was that? A. You see, every fall we bed — we work on the glass and change any broken glass, and when we change the broken glass it is about the hunting season, whenever that is.

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Q. The latter part of October or the early part of November? A. Well, it is kind of really cool on those dates, but I wouldn't want to say what time, and whenever we have a chance to work at it at that time, we do it, every year.

Q. Were you in Court when Dr. McAlpine was giving his evidence? A. No, sir.

Q. You said that you could not touch the deposit with water? Could you not rub it off with water if you rubbed hard, as he said he did, with a cotton swab? A. You would get a certain substance off, but not all of it.

Q. You could not get it all off? A. Not all of it.

Q. Not unless you really scrubbed there for a long time, you would not get it all off. All right. Thank you.

MR. SLAGHT: Nothing further. Thank you, Mr. Thomas. You may leave now and go back to your work.

Does your lordship contemplate adjourning about the usual time?

HIS LORDSHIP: 4.30, yes.

20

MR. SLAGHT: I may say Mr. Gray has been suffering terribly with a sinus affliction. He came this morning, but he is in the doctor's hands for treatment, but he is able to be here.

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HERBERT L. GRAY, sworn,

EXAMINED BY MR. SLAGHT:

Q. Mr. Gray, you are St. Catharines park superintendent?
A. Yes, sir.

Q. And I see by a little clipping handed me at the beginning, you were appointed 25 years ago — in April of 1924? A. Yes, sir.

30

Q. And you have occupied that position since? A. Yes, sir.

Q. Then, do you recall the planting by or on behalf of the city of some Lombardy Poplars, also a few trees on Carling, just south of the sports grounds, on Pleasant Avenue? A. They are north of the sports grounds.

Q. Then, where are these sports grounds as regards the McKinnon plant and particularly as regards the cupolas and the forge house? A. Perhaps I can show you.

HIS LORDSHIP: Show me on Exhibit No. 1.

MR. SLAGHT: I show you Exhibit No. 1, Mr. Gray.

HIS LORDSHIP: And Exhibit No. 11.

MR. SLAGHT: This is Ontario Street and there is their forge shop here and the cupolas over here and here is Mr. Walker's property going up to Manchester Avenue and coming on through to Carlton Street. There is the Canadian Warren people. Now, your park is where? A. Over here, sir, right in here.

HIS LORDSHIP: Shown on Exhibit No. 11, Mr. Slaght.

MR. SLAGHT: Oh. I am afraid I have missed that, my lord.

HIS LORDSHIP: On the south side of Pleasant Avenue, down in the lower portion of the sketch.

10 MR. SLAGHT: Oh, yes, on the south side of Pleasant Avenue, on Exhibit 11, there are a line of poplar trees shown on this exhibit. Is that where your poplars were? A. Yes, sir.

Q. And your park is on the south side of Pleasant Avenue?

A. Yes, sir.

Q. Now, they were planted there about how long ago?

A. 1923.

Q. And did they thrive? A. Yes.

Q. And did there come a time when you noticed some trouble with them? A. Oh, the last five or six years.

20 Q. And did fumes or smoke from the —

MR. KEOGH: I would rather my friend would ask the witness what was the cause of the trouble.

HIS LORDSHIP: Well, in the first place, better find out what the trouble was.

MR. SLAGHT: Yes.

Q. What was the trouble that you noticed and had it progressed or faded, and what was the final result? A. No, the trouble progressed. The trees started to rot and die down.

30 Q. And what did you attribute that to? A. Well, I cannot definitely say that.

Q. Did there, or not, at times when the wind was that way, come fumes from the McKinnon plant? A. Yes, sir.

MR. KEOGH: Oh, that is very leading, I submit.

HIS LORDSHIP: Well, I don't think Mr. Gray will be led very far. What, if anything, did you observe as to fumes in that district? A. Well, we could see the fumes come across from the plant, my lord.

MR. SLAGHT: Q. And would it, or not, go through the trees? A. It would have to go through the trees.

40 Q. Well, I mean, did your eyesight show you that it was going through the trees? A. Many a time.

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Q. Then, give us very briefly from what you first noticed, five or six years ago, down to the time when we understand they were cut down. What appeared to be happening to your poplar trees? A. Well, they seemed to be dying down; rotting and dying down.

Q. What do you say is the ordinary normal life of this type of poplar tree, the one that you cut down? A. About 30 to 40 years.

10 Q. And then how did this appearance of dying down — did it progress and get worse, or better? A. No, it got worse.

Q. And how would it evince itself, if at all, on the leaves, or foliage of the trees, or on the limbs, or anything? Did you notice anything there? A. No, I could not say I definitely noticed anything on them.

Q. Then, what did you do with most of the trees? A. We had to have them taken down. The Lombardies we had to have taken down.

Q. And there are some, what, 40 of those? A. I am not positively sure, offhand.

20 Q. Well, you left five or six trees there of another type?
A. Yes.

Q. What was the other type? A. They were the Carolinas.

Q. And there have been put in some photographs of the stumps of your trees. In Exhibit 39A, B and C, would you look at those, three of them, and see if you think that looks like the stumps of three of your trees after they were cut down? A. It looks like it to me.

30 Q. Now, were they cut down for any reason of changing conditions, or other than the fact that you determined that the trees were practically dying, or dead? I want to know the reason for cutting them down. A. We took them down because they were dangerous.

Q. And how did they become dangerous? A. Because they were rotten.

Q. And the rottenness constituted, you thought, a danger?
A. Yes.

Q. When did you cut them down, do you recall? A. They were taken down last year, sir.

40 Q. And have you seen or observed conditions of smoke or fumes from McKinnon's over Mr. Walker's property, at times?
A. No, I cannot say that I have.

Q. You didn't have occasion to visit there? A. I do, some-
times, yes.

Q. Then, what do you suggest is the cause of the death of
your trees there? What could it be consistent with? A. Well,
I cannot say that, sir.

Q. Pardon? A. I cannot say that, sir.

Q. Well, the fumes that came over there from time to time,
many times, you have said, did you observe any odour or what
type of fumes they were — you are not a chemist? A. There is
always a nasty smell with it.

10 Q. And can you tell us anything more than that — what it
smelled like? I know it is difficult to describe smells. A. Well,
I would liken it to more like a rotten egg than anything.

Q. Well, that is a new one. At all events, it was a malodour,
so to speak, to your nostrils? A. Yes.

Q. And when did those fumes begin to come over there, hav-
ing regard to when your trees began to deteriorate five or six
years ago? When did you notice those odours or fumes begin to
come over there with any volume? A. I cannot say definitely
when they started, but they seem to have been quite a while to me.

20 Q. Well, what do you say as to whether fumes of that kind,
passing through your trees, would be beneficial to them or other-
wise? Can you tell me? A. Well, I wouldn't imagine it would
be good for them.

Q. Well, did you have any tree expert in before you cut
them down? A. No, we did not, sir.

Q. You decided they were getting dangerous because they
were getting rotten, and they were therefore cut down? A. Yes.

Q. All right. Mr. Keogh.

30 CROSS-EXAMINATION BY MR. KEOGH:

Q. These trees were in that position 25 years ago, at the
time they were cut down. Is that right? A. Yes, sir.

Q. And isn't it a well known fact that the Lombardy Pop-
lars only have a life expectancy at the most of 25 years? A. No,
I would say a little more than that, Mr. Keogh.

Q. What would you say? A. I would say 30 or 40.

40 Q. Do you remember having a conversation with Mr. Marty
Cahill, of the McKinnon Industries, in front of the City Hall and
with Mr. Laverdum, on the morning of June 4th, 1948, about the
times that these trees were being cut down? A. No, I don't re-
member that.

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Q. I think it is only fair to tell you that I am instructed by Mr. Cahill that you told him in the presence of Mr. Laverdum, in the course of that conversation, that we, meaning you, the City, were probably wasting money, because it was a well known fact that Lombardy Poplars only have a life expectancy at the most of 25 years, and that the poplars in question were planted one year before you became associated with the St. Catharines Park Board, which was exactly 25 years ago. Do you remember any conversation of that kind? A. No, I cannot remember now of that.

10 Q. Isn't it a fact that, at that time, you had been associated with the Parks Board about 24 years? A. Last year I would, yes.

Q. Last year you were with the Parks Board 24 years. Then, do you remember Mr. Cahill, on the same day, requesting permission from you to take samples or "styles" from the stumps of these Lombardy Poplar trees which had been cut down a day or two before? A. No, sir.

Q. You remember no request for permission to take samples? A. No, because that would have to go to the Engineer's Department.

20 Q. Well, whether it was up to the Engineer's Department or not, you have no recollection of Mr. Cahill, on behalf of McKinnon's, asking you for permission to take samples? A. No, sir.

Q. And then, was your overseer, that is the Parks Board, on the job in charge of the supervision of cutting down these Lombardy Poplars, Mr. McKenzie? A. No, sir.

Q. Who was overseer on the job? A. — because the trees were taken down by the Engineer's Department.

Q. Who was your overseer on the job out in the vicinity of Thomas Street, the Sports Grounds? A. Alex McKenzie.

30 Q. And whether you were asked for samples or not, do you know whether or not styles or samples of these tree stumps were taken by the McKinnon Industries Limited? A. I saw them taken, yes.

Q. You were there when they were taken? A. At the time, yes.

Q. And you made no objection to them taking the samples, did you? A. No.

40 Q. And my instructions are that they took "styles" or samples from the stumps of four or five of the poplar trees which had been cut down? A. Yes.

Q. I had a photograph for you to identify, but it seems to have got mislaid. Then, the others, the Carolina poplars, four or five of which were left standing, they are a different type of tree; they are more of the spreading tree? A. Yes.

Q. I believe one description of them is umbrageous? A. That is right, sir.

Q. And they have a longer life than the Lombardies? Is that right? A. Yes.

10 Q. How much longer? A. Well, it depends; it may be from 15 to 20 years more.

Q. Then, did you look at the samples from the cross sections of the stumps that were taken of these trees, on behalf of the McKinnon Industries Limited, when you were there? A. No, sir.

Q. Did you make any close examination of the stumps which were left, after the Lombardies had been cut down and before or after the samples were cut off them? A. No, I cannot say that I did.

20 Q. Did you make — my instructions are that the rottenness which you have already spoken of on these trees, was due to heart rot and extreme age. Do you agree or disagree with that? A. I cannot tell.

Q. And this rotten egg smell that you mentioned, was that like a smell that you sometimes get around the paper mills, around Merritton? A. No, sir.

Q. It was not? Thank you.

MR. SLAGHT: Thank you, Mr. Gray.

HIS LORDSHIP: Just a moment, Mr. Gray. Have you Lombardy Poplars in other locations in the City of St. Catharines? A. Yes, my lord.

30 Q. Or did you have at the time you took over, Lombardy Poplars growing in other locations? A. Not when I took over, my lord.

Q. So that there are no other poplars of the same character that you could compare with these, for instance? A. There are some, my lord, yes.

Q. Where? A. At the War Memorial.

Q. What about them? A. Well, some of those have died out, too.

30 Q. And are they of approximately the same age? A. No, my lord, no; they would be about seven years younger than those.

Q. And are they anywhere near the McKinnon Industries? A. No, they are right at the end of the high level bridge.

Q. So they are about seven years younger and they have died out as well? A. Yes, my lord.

—Witness excused.

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JOSEPH SCOTT, sworn,

EXAMINED BY MR. SLAGHT:

Q. Mr. Scott, you are living in the house on the Walker greenhouse property? A. That is correct.

Q. You and your wife and child; and you have been there since you returned from the war — came back from overseas? A. No, sir. I came from England. I emigrated from England.

Q. And when did you come out here? A. In September, 1947.

10 Q. So the war was over, then. When you were in England, and then you came out here? A. That is right.

Q. And you lived there from September, 1947, down to the present time? A. That is correct.

Q. Can you tell me whether or not, from the McKinnon's, fumes and smoke come over your place? A. Yes, there is.

Q. And seldom or frequently, or how often? A. Well, frequently.

Q. I suppose when the wind is in that direction? A. That is correct.

20 Q. And did these fumes have any odour to them? A. Well, they have an unpleasant odour to me.

Q. You work for Mr. Walker in the greenhouses? A. That is correct.

30 Q. And can you give me any further — I know it is difficult to describe smells in language, but can you help us any? We have had two or three varieties of descriptions. Have you any way you can put it, that you think it strikes you? A. Well, at times it smells the same as you smell from burnt paint, or something like that. Most of the time it is just unpleasant to me. It gets down my throat and in my stomach.

Q. Have you a weak stomach? A. No.

Q. You said it smells like burnt paint. And how does it get into your house, or how do you keep your house? A. It gets into my house in the summer time. We have the windows open and, in the evening, at night, especially, last summer we had to close the windows because the smell was so strong, to sleep.

Q. So that last summer would you have normally have left your windows open but for the smell? A. I always sleep with my window open.

40 Q. Well, that is wise. And the smell was so bad that you had to close your windows last summer by reason of it? A. That is correct.

Q. Then, what, if anything, can you tell me about the vibration at your house? You are aware, perhaps, of the location of the forge house on the McKinnon property? A. I am.

Q. And there are heavy hammers operating there? A. I am.

Q. You hear them very frequently? A. I hear them very frequently.

Q. And what effect in your home does the operation of the heavy hammer have, if any? A. Well, at night, when we are sleeping it vibrates the bed violently at times.

Q. At times, when you are asleep, it vibrates the bed violently? A. Yes.

Q. You have a child of tender years there? A. Yes, that is correct.

Q. Does it wake you up with the vibration? A. Well, when I first came here, I couldn't sleep properly for two or three weeks till I got used to the vibration.

Q. You mean by reason of that? A. Yes.

Q. And, getting more used to it, why, you are a working man so you are able to sleep? A. That is correct.

Q. How did it affect your wife, or don't you know? A. Well, she had the same experience when she first came.

Q. Is she an English girl, too, you brought over here? A. Yes.

Q. Then, has it had any effect on the interior of your home as regards any soot, or anything of that kind? A. Well, the hallway of my house is very black from the front door in, from the smoke.

Q. Yes, I was over there the other day and saw the front door, which was shut tight and, it seems to me, your windows were sealed down. Do you keep them sealed down? A. Oh, no. The front room window is sealed down and we have a screen door on the front in the summer time.

Q. And where do you say that dirt comes from? A. Well, my wife has to brush off the window ledge in the bedroom every day in the summer time when the window is open. There is a black smudge right across the window ledge.

Q. And where would it be consistent with what you find there, for that black soot to come from, that she brushes off? A. Well, I definitely believe it is from the McKinnon's plant.

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Q. Well, that is a fair way to put it. And then, is there any other result of the vibrations, as far as your house is concerned, other than the discomfort, or whatever you may call it? A. Well, two weeks ago my upstairs storm window was being held by one of the wing nuts. When I put them up there, there was six wing nuts up there and the vibration has gradually worked those wing nuts till the window is nearly completely out, and I had to go and replace them.

Q. And you say that that is due, in fact, to the vibration?
10 A. I do, yes.

Q. Now then, down in the greenhouse, have you noticed the vibration also down there? A. I have.

Q. And what effect does it seem to have down there?
A. Well, you can feel it through your feet as you are standing still on the ground, and you can definitely hear it from the hammers.

HIS LORDSHIP: Q. Where is the house located that you live in? A. On the property of the greenhouse plant.

20 Q. Well, we have the greenhouses indicated at different places. Indicate on Exhibit No. 1. Now, where is the house that you live in? A. It is on the sidewalk, sir.

Q. On Carlton Street? A. Yes.

MR. SLAGHT: I think it is shown there, but not labelled "house," my lord.

Q. Is there any building down at the foot? A. That would be it, yes.

HIS LORDSHIP: That immediately south of No. 5 greenhouse?

30 MR. SLAGHT: Yes, my lord. I am told that is the house just south of No. 5, and your lot fronts out on Carlton Street?
A. Correct.

Q. Then, what effect, if any, have you noticed on the plants in the greenhouse with regard to the vibrations? Do you notice anything there? A. Well, they definitely — the pots and the plants definitely move at the time; very slightly, but they do move.

Q. And what about the foliage on the plants and flowers?
A. Well, I wouldn't say that, sir.

Q. You have not observed that? A. No, sir.

Q. Your witness.

CROSS-EXAMINED BY MR. KEOGH:

Q. You have worked for Mr. Walker since you came to this country, in September, 1947? A. I have, sir.

Q. And did he arrange for you to come out here to work with him? A. No, sir.

Q. And the business about the wing nuts that you are speaking of, that is after they had been there all winter? A. They had been there.

10 Q. When you speak of two weeks ago, were you taking off your storm windows or getting ready to take them off? A. No, sir; I have not taken them off yet.

Q. And the front end of your house is within how many feet of the sidewalk on the north side of Carlton Street — that is the south end? A. I would say 15 feet.

Q. And there are railway tracks with electric engines and freight cars on Carlton Street, are there? A. They are on the far side of Carlton Street.

Q. Yes, but they are on part of the roadway on Carlton Street? A. They run on the actual roadway.

20 Q. Do they not come up Ontario and swing to the east on Carlton? A. Not on Carlton Street itself; they are on the side of the roadway.

Q. Well, they run on the pavement, but they are between you and the Canadian Warren Pink, which is right across the road from you? A. That is correct.

30 Q. And then I think Mr. Dwyer mentioned about the hammer dropping at the Warren Pink. Do you hear that as well as the McKinnon hammers? A. Well, there are hammers going, and I would say that the noise from the McKinnon hammers would drown the hammers from Warren Pink.

Q. But there are times, are there not, when the McKinnon hammers are not operating, and the Warren Pink hammers are operating? A. There are.

Q. And you can hear them at those times distinctly, as well as hearing the McKinnon's at other times? A. Only if I go to the front of the property on the roadway.

40 Q. Then, I suppose if you moved to a house on the street with streetcars in the vicinity, it would take you a couple of weeks to get used to the streetcars, to be able to sleep, don't you think? You call them "trams" in England? A. Well, I had lived in London 20 years, all my life, and the trams never affected me at all.

Q. But, at any rate, you have been able to, since the first two weeks, you have been able to sleep all right, notwithstanding those hammers? A. It doesn't keep me awake now.

MR. SLAGHT: Thank you, Mr. Scott. You may go back to work now.

—Witness excused.

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JOHN HENRY WALKER, sworn,

EXAMINED BY MR. SLAGHT:

Q. Mr. Walker, you are a son of the plaintiff, Mr. William Wallace Walker? A. Yes, sir.

Q. And you have for many years been associated with your father in the greenhouse and florist business here, some 27 years since you left school? A. Yes, sir, exactly.

Q. And you have been superintendent of the greenhouses for him for some 20 years? A. That is right, sir.

10 Q. Your brother, William, having charge of the store up-town, where the retail goes on? A. Right, sir.

Q. Then, you became active in the business, I understand, in 1922? A. That is right, sir.

Q. And, when you came to the business in 1922, was the Warren Pink factory set up, or setting up? A. It was set up, sir.

Q. How long had it been there? A. Oh, the actual date I couldn't say, but it was set up.

Q. Well, had it been set up any length of time? A. No. It was more or less in its infancy. It was just a new building.

20 Q. A new building when you came in 1922. And then the Tyler Fence Company, we have heard of. Were they there at all in 1922? A. No, sir.

Q. They have come in since? A. Yes, sir.

Q. And the Ensign Oil Company we have heard of. Were they there in 1922? A. No, they came shortly after that.

30 Q. Do you know about what year they came? A. Well, the only way I have of refreshing my memory on that is, I remember I am sort of taken up with the models of cars and I remember it was either 1923 or 1924 the model Dodge car. It was registered by the way that the manager was driving it at that time and it was new, and he was over there having some renovation done in preparation to moving into the building.

Q. And what year was that? A. Well, as I say, it was a 1923 or 1924 model car. It still had the old system of —

HIS LORDSHIP: Well, we do not want to get too far in this Dodge car.

MR. SLAGHT: Q. Well, that is the best you can give, as to accuracy, as to when they set up? A. That is right, sir.

40 Q. All right. Then, when did the McKinnons make their change-over to their present system, which involves cupolas and the double-barrelled forge shop? A. Well, to be exact, I would say around 1938.

Q. And I believe you had something to do with buying a truck at that time, which makes you think that is about the right year? A. Yes, sir.

Q. Someone said 1937 or 1938, but that doesn't matter.
A. That is right.

Q. Then, prior to that, in your father's business, had you noticed any trouble from either the McKinnon people, before 1938, or anybody else in the neighbourhood, of a character of smoke or fumes which affected your business? A. No, sir.

10 Q. Then, after they began operating their plant, did you notice anything which seemed unusual, or different? A. The only difference that I noticed is right at the beginning, speaking of this truck we purchased and taking an interest in the outside, of course, we began to see indications of an irritation coming over in the way of small particles.

20 Q. You mean lying on the truck? A. Lying on the truck and the reason I noticed this was because of the fact that we had some complications with the garage floor where we put this truck, and it had to be left outside, so the car was sitting outside and this was a new truck and I noticed those particles coming over and lighting on the truck.

Q. When was that, in 1938 or 1939? A. That was in 1938.

Q. Then, you have had to do with the orchids and hydrangeas in the business there, and the African Violets? A. Yes, sir.

Q. And, from then on, until, let us say 1940, this trouble of that minor variety, or the trouble you first noticed, did that get better or did it progress? A. It definitely got worse.

30 Q. Then, when you came to 1940, I think we have heard your father made some protest or claim about it? A. That is right.

Q. And then in 1941, did it get better or worse? A. It continued to get worse and has done.

Q. And, from that time down to the present time, what do you say as to its effect as a nuisance — or, perhaps we had better not introduce the wrong word, or a detrimental effect on your father's business there and on the growing of plants? A. Well, sir, if I might say so, it just reached a point that both my brother and I got despondent when we saw how things were going, from bad to worse?

40 Q. Never mind your personal despondency, but for the Court I may take it from what you are telling me it has been progressively worse? A. Yes, sir.

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Q. And discouraging in its effect? A. Definitely.

Q. Now then, let us take down to the present time, or the last year and a half. You have had quite a lot to do with the orchids and hydrangeas and the African Violets? A. Yes, sir.

Q. What can you tell us or, first, these substances, do they come from the McKinnon plant? A. Do the substances come from there?

Q. Yes. A. Well, I am positively certain that they do.

Q. You have seen them, I suppose? A. Yes.

10 Q. The wind blows in your direction, which we are told was southwest and west. and with the general variation of south and west, and those combinations brings the stuff over your place? A. That is right, sir.

Q. And what is the prevailing wind, so far as you have observed it? I know you are not a recorder of it. A. The prevailing wind is southwest.

Q. From the southwest? A. Yes, sir.

20 Q. And what do you describe it, if you can, for me, carefully, the type of fumes or smoke that come over there, from your observation of them? A. The type of fumes?

30 Q. The type of fumes, and if you have observed deposits from the fumes, give me just a short but general description of the stuff that troubles you? A. Well, actually, it comes in various ways. For instance, it may come in the form of a grey ash. The next time it may come in a more of a powder form, or however you care to put it, and the next time it may appear with little black flecks that sort of float. Those are three different types. I am not experienced, like a chemist and so on and a man of that line of business are, but that is my simple way of expressing just what I have found.

Q. Then, have you noticed any feature of how the fumes come over? I suppose they vary in the speed with which they come over; some days coming over briskly and other days coming over and drifting in a more or less settled way? A. On a very muggy day it seems to be far more effective with us.

Q. That is worse for you? A. Yes.

Q. Well, I can understand that. Then, I think you told me that, in 1940, it got bad, and did your father take any steps to bring anybody in then to look at things? A. Yes, sir.

40 Q. Who did he bring in then? A. He brought in some of the growers from out of town.

Q. Some plant pathologist? A. Yes. I cannot think of his name offhand. He has had several there.

Q. And then, following that, was it taken up with the McKinnons? A. Yes, sir.

Q. Now, a word about the forge house and the heavy hammers that operate there. Have you observed the result of the operation of hammers in their forge house? A. Yes, sir. I believe I can qualify that.

10 Q. And when, if at all, would you put it that it has been the worst? Since about how far back? A. Well, I would say, sir, in about 1947.

Q. From 1947 on, you say it has been worse? A. Yes.

Q. Somebody has told us — I don't know that it is proven, but it has been suggested that a very heavy hammer was installed on — at all events, you have observed from 1947 the vibrations have been worse? A. Yes.

20 Q. Now, tell me what you can, not too elaborately, what you feel and what result it has with regard to the property and the plants? A. Well, sir, as regards to the property, all our glass that was formerly puttied, we have now lapped it with the boards, that it may stop sliding. We putty and we brad.

HIS LORDSHIP: Now, you are using some technical names. Just, Mr. Walker, settle down a bit. You have got yourself all keyed up so that you think you have to shout and emphasize every word which you may utter. Just discuss this matter in a rather conversational tone, and don't be so excited. A. Yes, your lordship.

30 MR. SLAGHT: Perhaps, my lord, I should plead guilty to being the same way, raising my voice and exciting the witness. I will try and be more casual and take this thing in a more conversational tone.

HIS LORDSHIP: You used some technical terms about the glass, that were not clear to me. A. Well, sir, when I first went to work for my father, the glass we used at that time was puttied — one piece of glass.

MR. SLAGHT: Q. What does that mean? A. That is our term of putting one piece of glass next to the other.

40 Q. With no partition between? A. Well, the only way is that we would put the glass, one piece of glass, whether it was a 20-20 or 16-16, one piece of light next to the other.

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Q. They would meet on a little frame of wood? A. That is right, sir.

Q. But they would come close up and touch? A. Yes.

Q. That is what you call butting the glass? A. Yes.

Q. First, you did that, and then you told us of some change?
A. Yes, sir. I suggested to Dad that we take this butted glass, which, of course, we would deck on an edge so that water would drip down, and I suggested that we lap the glass.

10 Q. Lap it a little over? A. One piece over the other, see, and, as we done that, we saw that it remained more firmly put.

Q. You said something then about butting? A. Yes. The ordinary procedure in preparing a greenhouse for the winter months is, when you take a light of glass out, you put a bed of putty in either side of the bar. but, to add additional reinforcement to our glass, we imbedded the putty on either side of the bar and we put the putty down and put another layer of putty over the top to preserve the slide, or however you care to put it.

20 Q. Now, you say you have observed vibration from and since 1947 it has been worse, and what effect, if any, does the vibration have, first on the box in which your flowers, some of them, sit; some of them don't — don't tell me about those — but what effect does it have on the pots in which the bulbs or flowers are sitting?
A. The vibration has more of a tendency to disrupt the growing of the orchids, for this reason. They are potted firmly in osmunda fibre, an aerole root, which is white and a green tip on the end, which is my way of explaining that it is an indication it is going to bloom, and when this has grown itself down so that it enters the osmunda fibre, the vibration,—you can stand there and actually see it shaking, and then I have noticed other apertures in my
30 study. As that white comes along, no green is indicated but, of recent years, as I say, I have noticed it gets brown on the tips of these aerole roots where the green was, and then the plant starts to go back, sir.

Q. Now, that has more particularly to do with the tender orchids and, at times, when I went in there, there were sometimes pots sitting on shelves? A. That is right.

40 Q. And does that go on all the time to some extent? The pots are placed on the shelves in certain progression? A. Yes. All plants are usually grown on shelves or on a bench, imbedded in osmunda or soil.

Q. Then these pots that themselves sit on top of shelves, have you ever noticed whether or not vibrations would move a pot ever so little, it might be, or not at all? A. Yes, sir. While we have an atmospheric condition in the house where the orchids are grown, there is a tendency with this spruce wood to be moist, you see, in the atmospheric conditions that we have to have to grow the orchids, and I have noticed that the vibration continuing as it does, the pots will get closer together, actually get closer together.

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Q. In other words, they move a little bit? A. Yes, they do.

10 Q. Well, then, come to the foliage on the various types of plants other than orchids. Have you noticed whether the vibrations do or do not vibrate the leaves of the plants themselves?

A. Sir, whether it be in the osmunda fibre that the plants are sitting, or in soil, or whether they be on shelves, every form of plant life in the pot, whether the pot moves or not, I am speaking of on the bench, now. I have charge of the centre house where we grow our ferns, and so on.

Q. Let us keep our tone down now. You are doing better.

20 A. Yes. Around the head of the bloom or the foliage will always invariably move.

Q. Move in the air? A. Yes.

Q. Vibrate? A. Yes.

Q. And is that when the McKinnon heavy hammers are going? A. Yes, sir.

MR. KEOGH: That is rather leading, my lord.

MR. SLAGHT: Well, I am afraid it was. Well, is there any other kind of hammer or things — it has been suggested that trucks vibrate your plants in there. Did you ever know that to happen? A. No, sir.

30 Q. Or any other outside source of vibration to your plants? I have just asked you that, although I don't have to perhaps prove it. Do you know of any other source than the McKinnon big hammers that creates the conditions that you have described to us? A. Well, sir, while the strike was on last year, — I have been there for 27 years —

HIS LORDSHIP: Now, just a moment. You surely don't have to make a long speech to answer that question. If you want to elaborate it afterwards you may do so, but answer the question that is put to you. A. Well, sir, this is my first —

40 Q. Well, we are giving you a little training. A. Well, I thank you.

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MR. SLAGHT: Q. If you will just note the question and answer it first, but if we need to take time to develop it, leave it to me. But can you give his lordship, and be very fair about it, any other outside source which, in your view, could be consistent with causing vibrations such as you have described, other than the McKinnon hammers? A. Well, sir, last year and particularly in —

Q. Can you answer that "yes" or "no"? If you cannot, tell me, you don't have to. But do you know of any other outside source? A. I know of no others that create the vibration to us there.

Q. And do you know of any vibration from trucks or vehicles going by that cause vibration inside your greenhouses? A. Well, sir —

Q. No, no, no. Just try and first answer the question. Do you know of any other? A. Yes.

Q. From trucks? A. No, sir.

Q. All right. Now, then, you were going to tell us something about — well, perhaps we will leave that for the moment. When you —

HIS LORDSHIP: Oh, if he wishes to make some observation he may do so. If there is something you wish to say about last year? A. Thank you, your lordship. Last year, as I have been there these number of years, I noticed that we actually could not feel any vibration whatsoever from the Canadian Warren Pink hammers, but I did notice that it is not a vibration. It is a sort of a rumble when the siding is being used for switching the McKinnon Industry cars. We had noticed that, but it doesn't prevail through the night and we do get vibrations, sir, through the night.

MR. SLAGHT: Q. Then, you have very fairly given me an exception of some shunting of cars by the McKinnon people on their railway siding? A. Yes, sir.

Q. Done with an electric engine? A. That is right, sir.

Q. Then, did you have to do with taking some samples of dirt — oh, no, were you there when Mr. McAlpine, along with George Thomas, arranged for the taking of some samples? A. Yes, sir.

Q. With a suction machine? A. Yes, sir.

Q. And you went away hunting? A. Yes, sir.

Q. And asked George to look after it? A. That is right, sir.

Q. Did you take any of those, or did George take all of them? A. No, sir. I explained to Dad and Dad was agreeable when he started it.

Q. Now, there is another illustration. Will you just answer the question. You don't have to go into an elaborate reason as to why. Did you or did you not take any of the samples? A. No, sir.

Q. All right. Let us get on with the next one.

MR. SLAGHT: Q. Now then, from 1946 on, did you assist your father in observing the conditions and making entries in the diary that was there, or recording conditions on different occasions when you observed them? A. Yes, sir.

Q. This is your 1946 diary? A. Yes, sir.

10 Q. And I have got collected here some pages where I think you made entries in your writing, so I can help you. Will you turn to March 29th in your diary, and I ask you to give the Court the result of your observations on these different dates, assisting yourself or your memory by a reference to your diary. First on March 29th.

HIS LORDSHIP: What year?

MR. SLAGHT: 1946, my lord. I don't think they kept a diary in 1945.

20 Q. March 29th. Do you find any entry there or, rather, can you tell me by refreshing yourself, what the conditions were there? A. Yes, sir. Gas and oil and smoke was very bad and all the bloom had to be washed.

Q. And where was it coming from? A. It was coming from the southwest.

Q. Did you observe where, in the southwest, it originated? A. Oh, from the McKinnon Industries' cupolas and forge shop.

Q. Thank you. April 6th, — the conditions that day? A. Lot of smoke coming from the cupolas.

30 Q. April 9th — oh, before I leave the date — you had to wash — you actually washed off the blooms, and so on? A. Yes, sir.

Q. What did you use for a washing material? A. Well, we used water at room temperature.

Q. And is that a delicate or an easy task? A. It is a very delicate one, sir.

40 Q. And what kind of stuff did you wash off? A. Well, a grey ash and the final particles like a sort of sand, and then, on the foliage, when it strikes the bloom, we cannot very well get that off, but it is an oily, sticky substance, like — I just can't describe it any better than that, sir.

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Q. All right. Now, April 9th, what condition? A. All the plants had to be washed again, sir.

Q. April 16th — may I ask, for the same reason? Was the washing undertaken for the same reason, Mr. Walker? A. Yes.

Q. Now, can you come to the 16th and tell us? A. Yes, sir.

Q. If it is not there, tell me quickly? A. Yes, it is there, sir.

Q. Well, give us the conditions on the 16th. A. Wind southwest, gas and oil ever present.

Q. Well, on these various dates, we can perhaps shorten this somewhat, when gas and oil you say, present, or "coming over"? A. That is right.

Q. Would the wind be in a general way from the direction of the McKinon Industries plant, or not? A. It would be in a southwest direction.

Q. Well, you mean coming from a southwest direction? A. Yes.

Q. And from the direction of the plant? A. That is right.

Q. Because I don't want any dirt and oily dates furnished to us unless you say that it was coming over the plant and from the general direction of the McKinnons, and then we can take that perhaps for your answers. Now, go to the 17th of April, give us the conditions, and we can ask more quickly — the same conditions on the 17th? A. Yes.

Q. If there is any little observation especially that you recall, just give them to me as well. What about the 18th of April? A. Pardon me, sir. It was this last date that you spoke of there that our previous times of cleaning were in preparation for our Easter arrangement of flowers, and those blooms were, I think, in progress of coming out, and that is why we had to clean them each time.

Q. I see. You were getting close to Easter? A. That is right.

Q. And Easter is one of your big seasons — a big sales period? A. Yes.

Q. I see. And, on April 18th, any bad conditions? A. Yes. The wind was very rough that day and we got all cleaned up and practically had to start all over again.

Q. And on April 20th?

HIS LORDSHIP: Q. What do you mean by "start all over again"? You had to wash the plants again? A. Yes, your lordship.

MR. SLAGHT: Q. You mean because more stuff came?
A. That is right, sir.

Q. Take April 20th. A. April 20th, there was only a little smoke. There wasn't much dirt, and the day preceding that.

Q. I see. The 19th and 20th. Not much. The 21st?
A. There was only just a little smoke that day, sir.

Q. All right. The 22nd and 23rd. 22nd first? A. That was very sticky and it was coming over low, southwest.

10 Q. Low and sticky. When you say coming southwest, you mean there always the southwest? A. Yes, from the southwest.

Q. The 23rd? A. It was coming, sweeping over the top part of our orchid house. It was quite windy, and there was some ash particles coming over along with the soot, like, you see.

Q. And the 25th. I am afraid I have alarmed you, because you seem to find it necessary to shut your book at once. I don't mean you to keep away from your book too much, so give heed to your book. A. Oh, I am sorry.

20 Q. The 25th of April? A. Yes. We planted our outside stock on the 25th of April and we detected as we planted it, that it was accumulating dirt just as fast as we planted it.

Q. And April 26th? A. April 26th was when this sort of oily smudge was coming over, sir.

Q. And April 27th? A. There wasn't much smoke or smudge that day, sir.

Q. The 29th of April? A. The 29th is one that Dad took.

Q. Oh, you didn't take that? A. No, sir.

Q. Oh, well, be careful. All you have given me so far, have been your own entries? A. Yes, sir, that is all.

30 Q. I want April 30th. A. The southwest wind changed to west and the gas and oil and smoke were quite bad that day.

Q. Now, we come into May 1st. A. That is when we noticed that our plants — southwest wind prevailing, and we noticed that the plants we were losing them from some mishap of some kind and we were having to replace them, sir.

Q. May 2nd. A. That was a northwest wind that day, and we noticed a sort of large flecks that I spoke of were occasionally coming over, grey flecks like coming over.

Q. Not as heavily as the other days? A. No, not as heavily, sir.

40 Q. May 3rd? A. That is an east wind that day, sir, and we were getting a break in the change of the wind.

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Q. I see. Then, May 4th. I only want the days when you were troubled? A. That was a southeast wind, sir.

Q. No trouble that day. If there is no trouble recorded, don't bother checking me on that, but just pass on. May 5th? A. That was the day that the stock inspected for Mothers' Day, and we didn't have too much a problem of cleaning it that day. It wasn't too bad. We had had those few previous days, nothing much came over, and it was pleasing to us.

Q. It was in pretty fair shape. And on May 6th? Just give me the days on which there was real trouble because of the wind bearing that way, and we will leave the others out and assume there was not trouble as far as I am concerned. May 6th? A. There was a west wind and we had damage coming over that day.

Q. May 7th? A. That was a northwest wind, sir.

Q. No trouble then? A. No.

Q. May 8th? A. May 8th was the west wind and we collected some ash and those finer particles that day, sir.

Q. May 10th? A. The 9th there is Dad's, and the 10th is mine.

Q. I only want yours — the 10th. A. Our Mothers' Day stock had got a little of this grey ash on it again, sir.

Q. The 13th of May? A. That day that the gas and oil and smoke had come over, but the particles of grey ash were not in evidence that day.

Q. No grey ash that day. The 15th of May? A. Again it is those finer particles coming, but not the coarser flecks.

Q. The 16th of May? A. It rained, or was starting that day, and it became muggy, but the wind changed in our favour, sir.

Q. All right. June 3rd? A. That was the day that the smoke seemed to have a very similar colour to sulphur, coming out of the cupola.

Q. And June 4th? A. June 4th, it is the yellow smoke again, sir.

Q. June 5th? A. Southwest wind again is prevailing, with the ash and fine grit, like.

Q. June 6th? A. The hammers were very pronounced that day. It was outstanding.

Q. Oh, away back in 1946, just to digress a moment, did the heavy hammer they had, have any effect on your house there? Scott was not in it then? A. No.

Q. Some other tenant in it? A. Yes.

Q. Were you living there? A. No, sir, though I was in charge of it, of the repairs.

Q. Was it vacant or a tenant in? A. We had a tenant in.

Q. Were you in the house that day to see what happened?

A. Yes, that is what happened. It was just at that time that a chap came in to show me a portion of the plaster that had separated.

Q. Did you go and look at it, yourself? A. Yes, sir.

Q. Just describe it. Where was it in the house, and what had happened? A. Well, a portion of plaster had separated and then the ceiling fell, sir.

Q. You saw all that? A. Yes, sir.

Q. The results of that? A. Yes, sir.

Q. And then, I suppose that had to be repaired? A. That is right, sir.

Q. And was repaired? A. We had it repaired several places, and other times.

Q. Oh, more than once you had? A. Yes, sir.

Q. And when the plaster was knocked down from the ceilings, and you had to repair that, would that be, or not, so far as you know — A. Due to vibration, sir.

Q. Then, your father had to pay for that, I suppose? A. That is right, sir.

Q. I am not interested in the amount. We are not going into amounts to-day, but that was an expense he bore by reason of it. June 7th. Was there gas that day? A. Yes, sir.

Q. An odour of it? A. Yes, sir.

Q. Have you any incident with any customers who came there to buy that day, with regard to the observation of the gas? A. You are speaking of June 7th, sir.

Q. Yes. A. The customers remarked about the —

Q. No, not what they said. Let me ask you this. When you smelled the gas, yourself, were there customers there doing business with you? That is as far as I can go. A. Yes, sir.

Q. You need not tell us what they said or you said. And would those conditions for you be favourable to continue in the trade, or otherwise? A. No, sir.

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Q. And June 10th is the next? A. Made a note, "Gas was so effective that it was difficult to actually breathe out of doors that day."

Q. That day it was bad; breathing out of doors was bad?
A. Yes, sir.

Q. June 17th is the next. A. 17th, the grey flecks were noticeable again.

Q. June 21st? A. Southwest wind again, and that big grey ash, that fleck is coming over again.

Q. And then June 22nd — I have copies of this if my friend does not mind and I can perhaps spare these so you can check on me.

—EXHIBIT No. 67: A 1946 diary of the plaintiff.

HIS LORDSHIP: Probably Mr. Keogh has no objection to the diaries being put in.

MR. KEOGH: No, to save time, I have no objection to them being put in.

MR. SLAGHT: Well, that is very kind.

HIS LORDSHIP: After all, all the witness does is to look
20 at the diary and tell us what is there.

MR. KEOGH: No, but I am not to be taken that they are binding on me. They are just evidence in the case.

HIS LORDSHIP: Oh, no. It is just that this is a sort of formal presentation. We might as well have the book in and be done with it.

MR. SLAGHT: Yes. So there will be no confusion to my friend and to save time for all of us, let us see, so we won't mix or confuse my mind, did you put your initials after your entries?

A. Dad has put his initials and our writing is entirely different.

30 Q. You think, with what you have already told us, your writing is different from that? A. Definitely; all our employees will verify that.

HIS LORDSHIP: Q. Your father initialled all of his?

A. Yes, sir.

Q. And no other person has made any entries in those diaries except your father and you? A. No, your lordship.

Q. So that those not initialled by your father are yours?

A. Yes, your lordship.

40 MR. SLAGHT: Thank you, my lord. Then, this 1946 diary will become Exhibit No. 67, with the exceptions that your lordship has made clear.

HIS LORDSHIP: Now, just so far as we have it, as far as the entries that are made by you, you are prepared to say that they are a correct record of your observations? A. Yes, my lord.

Q. On the very day on which they purport to have been made? A. Yes, your lordship.

Q. All right.

MR. SLAGHT: Q. Then, the diary for 1947. Will your lordship pardon me a moment? Is this your 1947 year book in which I find entries which appear to be both by your father and yourself? A. That is right.

Q. That will be yours, June 11, and we come along and a lot of them are initialled by your father? A. That is right.

Q. And the same applies to this diary as to the previous one, the matter of the records being —

HIS LORDSHIP: All the records except those that are initialled by your father, or in your father's handwriting, were made by you? A. Right, sir.

Q. And they are correct records of your observations on the days on which they purport to be made? A. Yes, your lordship.
20 —EXHIBIT No. 68: 1947 diary.

MR. SLAGHT: Q. Then, I show you your diary for 1948. Do the same observations apply to that; the entries that are in your handwriting are only yours, and the others your father's when they are signed by him and in his handwriting? A. Yes.

Q. And the entries reflect your observations on these various dates? A. Yes, sir.

Q. Then, just let me ask you, without going into it, was there a burn turned up in the plants in July of 1948; discovery of a burn that had come upon the plants in a few days? A. Yes, sir.

30 Q. And did anybody call attention to it? A. Yes.

Q. Who all saw it in your organization? A. Well, our night man does the outdoor hoeing in the evening.

Q. And who, in your organization, observed that burn, then? I mean, yourself, one? A. Yes.

Q. Did your father see it? A. Yes.

Q. With you? A. Yes.

—EXHIBIT No. 69: 1948 diary.

Q. And the night man, did you observe it with him? A. Yes, sir.

40 Q. And anybody else see it? A. Well, Mr. Scott and Mr. Thomas. Mr. Thomas particularly.

Q. It was his job, I suppose? A. Yes.

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Q. Then he has told us about his experience with it and then shortly after that, did you bring along the expert? A. Immediately.

Q. Mr. Jarvis? A. Yes, sir.

Q. And were you there when he came and he looked them over? A. Yes.

Q. Perhaps you helped point them out to him, or did you? A. We didn't have to; he saw them.

Q. All right. Now, does rain remove sediment on the glass there? A. No.

Q. Why? A. There seems to be a sticky substance of some kind that remains there.

Q. Were you there when they cleaned it with the acid? A. Yes, sir.

Q. Thomas had an accident? Have you been there on more than one occasion when bleaches would occur almost over night, or on short notice? A. Yes, sir.

Q. And have you seen these photographs that have been in, that purport to demonstrate the bleaches? A. Yes, sir.

20

Q. And have you seen the plants of which these photographs were taken, indicating the effects on the leaves, due to the bleaching? A. Yes, sir.

Q. And did Mr. Jarvis come over on more than one occasion to observe those? A. On a number of occasions.

Q. What do you say as to whether you saw them also? A. Yes, sir.

30

Q. Then, from your knowledge of the growing of those plants such as it is, your experience, what do you say as to whether those bleaches, cropping up on short notice that way, are damage to the growth of the plant? A. Oh, well, sir, to the best of my knowledge they retard it, and one or two appearances of that effect, it kills it right there.

Q. That is your observation? A. Yes, sir.

Q. Your witness, Mr. Keogh.

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CROSS-EXAMINATION BY MR. KEOGH:

Q. Then, these bleaches, on what plants did you observe them; just the names of the plants, I want. Were they on the gladioli? A. Yes, sir.

Q. What was the colour of these bleach marks? A. Well, as near as I could describe it, they are green, changing to a sort of straw or a faded colour, bleached out, sir.

Q. Sort of a faded colour, a yellow colour, straw colour?
A. Yes.

Q. We had the one witness say something about a char-
treuse green; something of that kind — a yellowish green?

A. Well, it varies, going into a yellowish colour. The only way
I can describe it to you is the way I see it.

Q. Sort of a straw colour, you said. Then, as it got further
advanced, what was the final or later colour? A. Well, sir, it
seems to travel. As it advances it dries out and gets that straw
effect colour. At first it isn't quite the colour of straw, as near as
I can describe it; it is green, and then it fades out to that colour,
sir.

Q. And then one of the other witnesses, I think, Mr. Thomas,
said that it gradually got to a yellowish brown? A. That is right,
sir.

Q. Do you agree with that? A. Well, along those lines, sir.

Q. And can you tell us, where these marks were on the
leaves of the gladioli, were they on the margin or in the middle of
the leaf? A. It seems to me, sir, that it starts on the end.

20 Q. On the tip of the leaves? A. Yes, along the margin.

Q. And were they mostly on the leaves of the gladioli plant,
closest to the ground? A. No, sir; they were more, it seemed to
me, at the top.

Q. I am not talking about the appearance of the leaf now
on which the mark was. I am saying, were they on the leaves
which grew closest to the ground? That is the way I should have
put it. A. No, sir, they were more towards the top.

Q. Yes, I know they were towards the top of each leaf.

30 MR. SLAGHT: Now, you interrupted him there. He was
going on.

MR. KEOGH: All right. Go ahead. A. Then, it seems to
travel down, sir, and each time that we have an effect like that,
it seems to go deeper into the stalk, or how you describe it.

Q. Further down the leaf, that is starting at the top, and
going further down towards the bottom of the leaf? A. Yes, sir.

Q. Then, may I ask you this: Perhaps I confused you. The
gladioli has a number of leaves, something like the tobacco plant
in general structure; that is some leaves are close to the ground
and then you have other leaves further away from the ground?

40 A. Yes, sir.

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Q. And can you tell me, having regard to the ground upon which side of your leaves these markings seemed to be most common? A. Well, sir, in my experience with gladioli, there are very few leaves that get to the ground. They are mostly upright, but those that are, they seem to be affected the same, sir.

Q. What I meant was, did you notice these markings more on one side of the leaves than the other and, if so, on which side? A. No, sir. I have noticed it — it seems to prevail usually in the beginning, right on the buds and along the sides.

10 Q. I think from some of the photographs that seemed to be more common on the sides of the leaves that were nearest the ground? A. Well, sir, as it progresses — another time, possibly it may do that and that may have come on since that time — the other foliage. I have noticed that.

Q. You don't agree, then, that it seems to start on the tips of the sides of the leaves that grow closest to the ground? In other words, the outside leaves rather than the inside leaves? Take a look at Exhibit No. 27 and tell me whether or not you agree with that statement? A. This is as I described to you, sir, 20 the tips. There is always a few leaves that fall in advance of the others, and I have noticed those that are more upright affected first, and then the other growth may come on after. I have also noticed that effect.

Q. Well, you say in effect that it starts on the inside leaves and proceeds to the outer? Is that what you say? A. No, sir.

Q. Well, just tell me what you mean. I don't understand you. Well, sir, the tip of the leaf, the upper end of the leaf —

Q. I am not talking about what part of the leaf. I am talking of what side of the leaves, or what kind of leaves they come on. 30 That is what I am talking about. A. On gladioli leaves.

Q. Oh, yes, I know that.

HIS LORDSHIP: I understood the witness to say that he did not observe that it was more marked on any one side than another; that he observed it at the tip of the leaves at the first and it followed down towards the base as it developed? Is that correct? A. Yes, your lordship.

Q. And that that is as true of the outer leaves as of the inner leaves? A. Yes, your lordship.

Q. I suppose it would be easier to see as it went down 40 towards the base of the outer leaves? A. Yes, your lordship. I was going to say, occasionally a man does not bend down looking at it after looking at it for so long at a time.

MR. KEOGH: That is what I am trying to get at. Thank you, your lordship.

Q. Then, these times — I happened to look at a few of the items mentioned on the observations in one of the diaries — I have not looked at them all — but isn't it true that, generally speaking, none of those entries in the diary gave any hour or minute of the day? A. Sir, they are taken between the hours of starting and closing usually, with the exception of my father's suggestion that we take it after hours or before starting up time, as we call it.

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10 Q. What I mean is, generally speaking, by looking at those diaries, I cannot determine at what time of the day any particular observation was made, can I? A. Well, I usually take mine in the morning, unless the morning appears to be going along quite nicely, sir, and I notice one change.

HIS LORDSHIP: What Mr. Keogh says is that we cannot now, by looking at the diary, tell what time of day the observation was made? It is an observation you made on that day, but you cannot say at what time of day? A. Yes, your lordship.

20 Q. Well, let us get on with that. That is all. We don't need the detail of it.

MR. KEOGH: Q. Then, you spoke of the outside stock accumulating dirt as fast as you planted it on April 25th. What plants were you referring to in that reference? A. Our carnation plants, sir.

Q. And where were you planting them? A. We were planting them out at the side, sir.

Q. The side of which greenhouse? A. Of the orchid greenhouse.

30 Q. And which number on Exhibit 1 is that? Is that the most northerly greenhouse? A. That would be the east.

Q. The most easterly greenhouse? A. Yes, sir.

Q. Then, your first entry that you commented on, March 29th, you said all the blooms had to be washed? A. Yes, sir.

Q. Do you mean that literally, that every flower in every greenhouse had to be washed, or what type did you have to wash? A. The flowers that are in season.

40 Q. And what were the flowers in season at that time, on March 29th, 1946? A. They would be all in preparation to our Easter bloom. They would be the African Violets and the various colours hydrangea.

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Q. Easter lillies, I suppose? A. Yes, that is right, sir.

Q. And any others? A. Well, all the flowers needed washing, Cinirarria, and I could go on and name a lot of others.

Q. And you told my friend that you washed them with water at room temperature. I suppose you sprayed a hose on them, did you? A. No, sir. That is one thing we did not do.

10 Q. How did you do it? A watering can? A. No, sir. We have a little filter system that we put on the hose and we have soft water, sir. We turn that on, pull our power so that we are using just the pressure from the tank of the heated water to room temperature, which is in the orchid house, sir, and then we proceed with the hose to wash the bloom and foliage, sir.

Q. You have a pumping system on your property by which you pump water from a soft water cistern into the tank in the greenhouse? A. Yes, sir.

Q. And it is out of that tank that you use the water through the hose for washing flowers? A. Yes, sir.

20 Q. And, at the start, you told my friend about when some of the companies started in that area. I didn't hear you say anything about the McKinnon Columbus Chain, on Ontario Street. When did they start there? A. Well, sir, the McKinnon Columbus Chain was there before I went to work at our greenhouse.

Q. And you went to work at the age, I think you mentioned it but I didn't catch it? A. Sixteen years, sir.

Q. That would be in the year what? A. 1922.

Q. And then the Welland Vale, which is down on Welland Avenue — down in the valley — that was there? A. Years before.

30 Q. It was since 1895, I understand? A. Quite some time back, sir.

Q. Then, did you notice any improvement in the ash and in the smoke after the end of April, 1945? A. Sir, occasionally it will come over in spurts, and then the next time we won't detect it for a while.

Q. Well, I am just asking you, did you or did you not notice any improvement in the ash and the smoke after the end of April, 1945, and from then on? A. It was from then on, sir, that we began to detect more of the ash.

40 Q. You say it got worse about — from the end of April and then on?

HIS LORDSHIP: Pay attention to Mr. Keogh's question and then, if there is anything to explain, you may ask to do it. He asked if you noticed any improvement from the end of April, 1945.

A. No, sir.

Q. In the ash, is what he put to you.

MR. KEOGH: Q. I asked both smoke and ash. A. No, your lordship.

10 Q. Then, you referred several times in your evidence to seeing gas and fumes coming from McKinnon's and seeing substances coming from McKinnon's. I suppose you mean by that that you saw smoke coming from McKinnon's? You were not able, by visual sense, to detect those other things in the smoke?
A. Well, sir, it was the colour.

Q. Well, you saw different colours?

HIS LORDSHIP: Just let him finish now, Mr. Keogh.

MR. KEOGH: Sorry, my lord.

A. It was the colour, sir. Over the period of time that I have been there it has changed to a grey and sort of a sulphur colour, sir; that was the colour that I referred to.

20 Q. And you saw this particular colour of smoke coming from McKinnon's at different times? A. Definitely, sir.

Q. And it is by reason of that that you say you saw gas fumes and other substances, to use your own words, coming from McKinnon's? A. Sir, I smelled the gas. I couldn't help but do that.

Q. That, and your smell, and seeing this coloured smoke, that is why you make those statements? A. Yes, that is right.

30 Q. Then, you made the statement that the prevailing wind is from the southwest. How do you know that, or from what data do you make that statement? A. I am sorry, sir, I didn't get your question.

Q. You made the statement to my friend that the prevailing wind is from the southwest. Upon what data did you make that statement, or how do you know that? A. Well, sir, I am a lover of the north country, and I have studied my directions to some extent, and I have noticed. What I meant by that, sir, was that the southwest wind seemed to affect us more than the west, sir.

40 Q. I am not at the moment talking about that. I said you made the statement about the prevailing wind being in that direction. Upon what do you base that statement, or where do you get that data? A. Frankly, sir, I cannot understand what you are trying to get.

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HIS LORDSHIP: Well, you used the expression that the prevailing wind is from the southwest. That is generally taken to mean that the wind blows more from the southwest than it does from any other direction. Now, if you meant it in any other way, then, it should be clarified. A. No, I did not, sir.

Q. You mean that the wind blows more often in that area, from the southwest, than from any other direction? A. Yes, your lordship.

10 MR. KEOGH: Q. And have you any records or data upon which you base that statement? A. Yes, sir, by my diary there, sir, and the greenhouse men seem to have an understanding, sir,—

Q. Well, I don't want what somebody else told you, but you have certain entries in your diary that refer to the wind from the southwest. I remember that, and have you any other data upon which you base that statement, or to support that statement or records? A. No, sir.

Q. Then, you referred to the atmospheric condition which "we create in the greenhouse to grow orchids." What is that condition? A. What is the condition, sir?

20 Q. Yes. A. It is a humidifying condition that orchids have to have to survive successfully.

Q. It is high temperature and high humidity, is it? A. Right, sir.

Q. Is there a rough and general figure for the temperature and for the humidity that you try to keep it at? A. Well, after a period of years, sir, when you are growing orchids, you become familiar with that variation; roughly, approximately ten degrees.

Q. Ten degrees higher than outside? Is that what you mean? A. No, ten degrees of humidity.

30 Q. Oh, ten degrees of humidity — I beg your pardon. And what general temperature do you try to keep for them? A. Are you speaking of orchids, sir?

Q. Yes. A. Approximately in the neighbourhood of 70 to 75 degrees, sir.

Q. Thank you.

MR. SLAGHT: I would ask permission, my lord, if my friend does not object — I forgot to put the 1949 diary in. It is only part time. The same applies to the entries in that as you told us about the others, your father's, yours, and the accuracy and so on? A. Yes.

40

MR. KEOGH: I have no objection.

HIS LORDSHIP: Very well, that will be Exhibit No. 70.
 —EXHIBIT No. 70: Diary for 1949.

MR. SLAGHT: And I ask permission to ask this, if my friend wants to cross-examine.

HIS LORDSHIP: Mr. Keogh may have my approval.

MR. SLAGHT: Q. I asked you generally, whether you had seen the pictures that were put in of the injured plants on your father's place, and you told us you had? A. Yes.

10 Q. And that you had seen the beds. I didn't ask you whether you had seen the pictures which have been put in as Exhibits 27, 29 and 30 with George Thomas in each of them in the background, with regard to the test beds that the McKinnon people put in. Had you seen these pictures? A. I have not seen that particular picture, sir, but I kept very close watch on that test bed.

Q. Well, you saw the beds themselves, which is better, and what can you say whether those test beds over there were afflicted, or not, like yours were? A. They were affected, sir.

20 Q. You have not seen the pictures, so I won't bother with them now. And were you over there with somebody after the day the photographs were taken and somebody had ripped up the test beds? A. Yes.

Q. You saw the flower bed dug up? A. Yes, sir.

Q. That was all I wanted to ask him, my lord.

HIS LORDSHIP: Are you through with this witness?

MR. SLAGHT: Yes, my lord.

HIS LORDSHIP: One or two questions I want to ask you. You were there in 1948, were you? A. Yes, sir.

Q. And performing your usual duties around the place? A. Yes, your lordship.

30 Q. Did you make any observations as to the condition of growth during the time the plant was closed, as compared with the conditions that had prevailed at a comparable time during the previous years in 1947 and 1946? A. The change, your lordship, is undescrivable.

40 Q. Well, you will have to try and do the best you can to describe it, because it does not convey to my mind anything to say it is "undescrivable." A. Well, last year, your lordship, is the first year Mr. Scott, who was on the witness stand preceding me, had grown for the first time in a number of years a cabbage that actually made a head, sir. Previous to that we, for some unknown reason, would grow merely foliage and plenty of it. Our onions, sir, were improved approximately 50 to 60%. My African Violets are improved 40%, and other plant life in general shows a decided improvement, if I could put it that way, your lordship.

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Q. Well, was there any marked indication of when this improvement commenced? A. The improvement that we noticed, particularly on the onions and the cabbage, sir, were along in the latter part of September, and we were able to grow tomatoes for the first time in a number of years.

Q. What about your flowers? Were there any flowers in season during those months, the latter part of July and August? A. During those months the flowers are growing mostly out of doors, with the exception of the carnation and the bench snapdragons, and they showed a decided improvement over what we had grown the following year.

Q. What you had grown the following year? A. I am speaking of, sir, —

Q. This is the following year. A. No, I mean the year 1947.

Q. Oh, you mean the previous year? A. That is right. I am a little nervous, your lordship.

Q. That is all.

———Witness excused.

20

CALEB STEEVES, sworn,

EXAMINED BY MR. SLAGHT:

Q. Mr. Steeves, you are in the employ of the plaintiff, Mr. Walker? A. Yes, sir.

Q. And how long have you been working for him? A. Since 1942.

Q. And you are now in your 79th year, I believe? A. Yes, sir.

Q. You are a night watchman there, or a day watchman, or both? A. Well, in the daytime I look after the outside work and, in winter, I look after the boilers of the greenhouse.

Q. And I believe you have lived in that vicinity, next to the greenhouses, for a good many years? A. Yes. I built right next to the greenhouse, on the east side, in 1917.

Q. And you live there now? A. No, I live in Port Dalhousie now.

Q. Did you sell your house in 1940? A. Yes.

Q. Take the last few years, do you remember when the McKinnon people, having lived around there, do you remember when the McKinnon people put the cupolas in and the present forge shop? A. Well, now, I couldn't just say what year they put them in.

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Q. Well, I mean, do you remember the occurrence of them being put in? A. Yes.

Q. Changed the plant over? A. Yes.

Q. We have been told by everybody that it was about the year 1937 or 1938. Would that jibe with your idea? A. Well, somewhere around there.

10 Q. Now, direct yourself to that time and, perhaps the last six or seven years, from 1945 on we are concerned with mainly. What can you tell me about whether gas or fumes or smoke, whatever you call it, comes over the greenhouse place from the McKinnon cupolas and forge shop? A. Well, at that time, there was a certain amount, but nothing to really bother.

Q. Well, what do you mean by "that time"? A. Well, that was before the new cupola was put up.

Q. Oh, I see. Before the new cupolas were put up, nothing you need to bother about. But taking the time since the new cupolas were put up, from 1945, that would be four or five years, has there been bother? A. Yes.

20 Q. Just describe it in your own way. You were there day after day. What happens, of course, from their place, only, of course, when the wind is blowing generally from their direction? A. Well, on warm, muggy nights or days, there just seems to be a cloud of gas. You can smell it, like rotten eggs.

Q. I see. You are the second rotten egg man we have with a smell. A. Well, I don't know, but it just seemed to come down, if it was a muggy night; it just seemed to come down and roll along the ground at the greenhouse.

Q. At your place? A. Yes, and at my place also.

30 Q. And, on those nights, would it be necessary to have the ventilation for the greenhouses open? A. Why, yes, the greenhouses can only be kept up to a certain degree.

Q. Well, fresh air, is it or not desirable to get that into the greenhouses? A. Why, yes.

Q. And, then, you have experienced a smell of that, because I suppose like all those things, it is worse at times than others? A. Oh, yes. A good, clear day, naturally it is not as bad as when the air is heavy.

Q. And did you have occasion to work in the field there? Is there some field there you garden a bit? A. Yes.

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Q. And have you noticed that when you were gardening in your field, at all? A. Well, there were some nights there, you see, the man that lived in the house there was taken sick and had to quit. Well, they put me on for a year and seven months because, naturally, I was there all summer. Well, my job then was to hoe in that tract and I would go inside and probably pot flowers, and some nights the gas would be so bad that it would affect my stomach, make me dizzy. I would go in, hang my hoe up, and stay inside. That is the only thing I could do.

10 Q. Well, I was mistaken, or, rather, I started to mislead you. The hoeing you did there was on the place belonging to Mr. Walker, and you were hoeing for him? A. Naturally.

Q. To get the place ready for the plantings? A. Well, they were already planted. The thing was to hoe the weeds out and keep them clean.

Q. Again, I am afraid I am not much of a horticulturist; you have told us at times it got pretty oppressive and you would hang up your hoe and quit? A. Yes, and go inside the house.

20 Q. Then, on the matter of vibration after these big hammers got installed in the forge shop there, did you notice whether there was any vibration around the greenhouses and the plant? A. Yes, there was considerable. Take a night when the heavy hammer is running, it makes the pots jiggle and bounce.

Q. We have been told it started about 1947? A. I couldn't tell when it started.

Q. No, but have you noticed it frequently since it started? A. Yes.

Q. And what effect has it on the leaves and the flowers themselves? A. That is something I have not observed.

30 Q. What effect does it have on you? Does it jiggle you, or do you feel personal vibrations, as a human being? Does the vibration bother you somewhat, or not? A. Oh, sometimes, sometimes not. Just according to the way my head is feeling.

Q. I see. Then, have you noticed — take last year, 1948, around the middle of July. Are you the man who called attention to some bleaching that came to your notice, or was it some one else? A. Not in 1948.

Q. In 1947? A. It might have been in 1947.

40 Q. Well, did you notice the bleaching and call anybody else's attention to it? A. Well, I think I did on — I called the boss's attention.

Q. Well, if you don't remember, I won't trouble you.
 A. Well, I couldn't say that I remember it exactly, but I can remember the bleaching, but not calling anybody's attention.

Q. Well, tell us what you recall about the bleaching. Just describe it to us as though we didn't know anything about a plant that bleached. A. Well, there is only one plant in there I took particular notice of.

Q. And what was that? A. The gladioli.

10 Q. We have heard a lot about that, and what happens to them? A. Well, you would probably see them start just at the point of the leaf, and they would turn sort of a sickly white, and that would run down the leaf. You could see they were burned.

Q. And from what you know of plants, was that good for them or bad for them? A. Well, it couldn't have been good for them, because in 1947 we had, I think, about eight rows altogether in front of the place and in the back yard I cut them off and threw them in the dirt. The gas simply caused nine buds to go that way, turn black and die off.

20 Q. Well, have you observed the sequence of events when a bleach appears? I mean, you have told us it started at the top?
 A. Yes.

Q. And then what happened? A. Well, just simply run down the leaf, down the stalk, towards the bottom.

Q. And then caused the plant to get into the condition you have described. With regard to some of them, the limited number that you picked up and threw away, because the bulbs would come and they would be black? A. Yes.

30 Q. Can you say whether or not, before these bleaches or burns appeared, whether smoke had been coming over and been around the gladioli, that the defects then appeared? A. Well, apparently that was what caused it.

Q. Apparently, to you, that was what caused it. Well, I thought perhaps you might have told us that. And do you know anything else there that caused it, other than that? A. No, I do not.

40 Q. I don't think I asked you about smoke from the forge shop. I asked you about vibration. Does smoke, when the wind is your way, come over from the forge shop, across the plant?
 A. Yes. The forge shop is directly west of us and, if it is a west wind, it naturally brings it over the greenhouses.

Q. So it would. And what kind of smoke is that? What does it look like? A. Well, you couldn't call it anything but a sort of a yellowish brown.

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Q. And have you observed enough about it to say that, after the yellowish brown smoke is coming over, whether it lodges in any of the plants or not? A. Well, I never observed that. The only thing I see that it affects much of the glass.

Q. Oh, I see. It affects the glass on top? A. Yes.

Q. The roof of the greenhouses? A. Yes.

Q. And what effect does it have on the roof of the greenhouses? A. Well, it seems to cover the glass with a sort of gummy substance that darkens it.

10 Q. Have you ever been in the forge house? Do you know whether they burn oil in there, or not? A. I couldn't say.

Q. Well, we have heard about that. Now, some one said about the Warren Pink hammer. Have you been in the Warren Pink place? A. I worked in the Warren Pink, in 1918.

Q. And they run a hammer in there? A. Yes, they do, but it is only a light hammer.

Q. What do they make over there, chisels? A. Chisels, drawing knives and different things like that; logging tools.

20 Q. Now, assuming the Warren Pink ran their hammer — we have not heard they do yet, — when you are not working for them, but the last two or three years in Walker's greenhouses, have you ever heard the Warren Pink hammer over as far as Walker's greenhouses? A. Oh, you might on a still day. It is not heavy enough for that.

Q. Well, do they, as observation goes, these Warren Pink hammers that have been spoken of, do they cause any of this jiggling of the flower pots, or anything of that kind? A. No.

Q. Is there any comparison between the effect of the two?
A. No, not in the least.

30 Q. How rapidly does the bleach or the burning occur, as far as you can tell? I mean to say, does it spread over a long time in coming, or would you have the smoke and fumes come over for a night or two and then find a burn and bleach turn up next morning? A. Oh, you might find that in 24 hours, generally.

Q. You find it in 24 hours? A. Yes.

Q. Your witness.

CROSS-EXAMINED BY MR. KEOGH:

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Q. Then, you said that this bleach started at the top of the gladioli leaves and then gradually ran down the leaf, I think?
A. That is right.

Q. In other words, it starts somewhere near the end of the tip and then it gets progressively worse, and worse as the days go by? Is that it? A. Yes.

Q. Until finally you have — you start off with a small area at the tip and you finally end up with a larger area, where — down on the leaf? A. Probably all the way down the leaf.

Q. And is it in the middle of the leaf or does it extend right out to the margins? A. It extends out to the margins.

Q. So that you have the whole leaf, from the middle, or the tip of it, by the time it is finished, pretty well covered with this condition? A. Yes.

Q. That would be your idea — a sickly whitish grey?
A. Yes.

Q. And what is the final colour of it when you get to the final stage? We had some witness speak of a yellowish brown. Is that the way you describe it, or what would you call it? A. Well, it is more of a sickly whitish grey, in my information.

Q. And are you working for Mr. Walker, the plaintiff, at the present time? A. Yes, sir.

Q. And for the last two or three years you have worked for him, have you? A. I have worked with him since 1942.

Q. In his greenhouse operations? A. Yes.

Q. And you sold your house in 1940, I believe? A. About that.

Q. Then, when did you give over possession to the new people? When did you move out? A. Well, I moved out as soon as I sold. I sold to my son-in-law's mother and I moved down to her house at the back and, four years ago, I moved to Port Dalhousie.

Q. You sold in the spring or fall of 1940? A. Well, it would be along in August, I think.

Q. In the middle of the summer of 1940, and that is when you moved out. Then, the times when you are back on the Walker premises are in the course of your work for Mr. Walker? A. Yes.

Q. Since you have sold, you live and sleep at Port Dalhousie. as you have said? A. Yes, I live there now.

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Q. And have done since the summer of 1940? A. No. Four years ago I bought in Port Dalhousie.

Q. Oh, well, maybe I misunderstood you. You sold the house in the summer of 1942 and then you moved away? A. 1940 I moved down to Homer Dock.

Q. That is down by the big canal bridge? A. Yes.

Q. And you have not lived in the area of Walker's property since, have you? A. No. I came to work for Mr. Walker in 1942.

Q. I know; you are working there during the daytime, but you are not residing in that area? A. No, I am not residing there.

Q. You are next door to that property when you are on Walker's, aren't you? A. Yes.

Q. It is right next door to the northerly greenhouse? A. To the east of the greenhouse.

Q. And have they grown-up people by the name of Ciurlioni, according to Exhibit No. 11, living on that property that was formerly yours? A. Yes.

Q. And have they quite a few pretty good cucumbers in the last four or five years, since you sold to them, haven't they — in the back of the yard? A. Well, they have, but they don't grow on the other very good.

Q. Well, I mean, are you able to say? Did you look over at their vegetable garden at all? A. No, but I have noticed that there was nothing but weeds in it, as far as I could see.

Q. O.K.

HIS LORDSHIP: That is all.

—Witness excused.

MR. SLAGHT: Then, my lord, it is the finish of the fourth day, and I understand your lordship will be good enough to be able to adjourn until Monday, the 25th.

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HIS LORDSHIP: Now, I want to discuss with counsel the future of this case. I know it is always difficult to foretell the time that will be required but I would like, as far as possible, to make what plans we can. I could give you the whole of the week of April 25th, that is commencing a week from next Monday, and it might be possible that I could make an arrangement with some other judge to take the Toronto Weekly Court so that we might devote the whole of the following week to it. Do you think that would conclude the case?

MR. SLAGHT: Oh, I think so. That is a bold thing to say, I think.

HIS LORDSHIP: You can only speak for one side.

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10 MR. SLAGHT: Yes, I do, yes. Four days, and most of it has been with Mr. Walker and his cross-examination. Had we had all this week — to-morrow is a holiday and we cannot sit Good Friday, but, if we had had till to-morrow night, I think I could have put in two of my experts and, with my friend's alert mind and not wasting time on cross-examination, I was hoping that we would have both those witnesses out by to-morrow night and perhaps a couple more short ones, so I think Monday, Tuesday and Wednesday of another week would conclude me. Now, that would give my friend Thursday and Friday and all the following week, if you were able to give it to us. I would rather shudder to think — at least, I would rather think we would not be able to finish with the week of the 25th alone.

MR. KEOGH: There is no doubt about that. I would think if I had a week and a half, subject to whether my friend's cross-examination of some of my experts is long or short, that I ought to be able to complete my evidence in the week and a half.

20 HIS LORDSHIP: I have never heard Mr. Slaght conduct a very long cross-examination of any expert, or otherwise.

MR. SLAGHT: I have learned the folly of that, I think.

MR. KEOGH: I appreciate there are some witnesses that cross-examination is necessary, but that would be my guess as the best guess I can make.

HIS LORDSHIP: Well, I will try and arrange with some other judge to take the Toronto Weekly Court for the week of the 2nd, and we will try and devote two weeks to this case and try and be through with it.

30 MR. SLAGHT: I am sure we both appreciate that and we ought to spur up our efforts to get through in that time. I am very sanguine about it.

—Whereupon Court adjourned until Monday, April 25th, 1949, at 10.00 a.m.

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St. Catharines, Monday, April 25th, 1949.

MR. SLAGHT: May I proceed, my lord?

HIS LORDSHIP: Just a moment, Mr. Slaght, please. Yes, you may proceed.

MR. SLAGHT: Thank you, my lord.

HARRY HESTER, sworn,

EXAMINED BY MR. SLAGHT:

Q. Mr. Hester, you live in St. Catharines? A. Yes.

10 Q. Have you for many years? I believe you are connected now with the Foundry Supply business? A. That is right, sir.

Q. And, for ten years or thereabouts, you worked with the defendant company, the McKinnon Company at their plant here, from 1938, until July of 1948, last year? A. That is right.

Q. And your parting with your employers was a friendly one? A. Yes.

Q. Agreeable to both sides? A. That is correct.

Q. No friction, I understand, in the parting? A. No, none at all.

20 Q. Then you, I believe, were foundry foreman throughout that approximately ten-year period? A. Yes, that is right.

Q. And you had experience both on night shifts and day shifts, as the case might be? A. That is right.

Q. And when on night shift you would be in the foundry? A. Yes.

Q. And that ran from, I believe, 4.30 in the afternoon till 2.00 a.m. after midnight? A. That is right.

Q. Then, when you started with them in 1938, I believe there had been some radical changes just shortly prior to that date? The foundry had been enlarged, or do you know about that?

30 A. Well, yes, the reorganization began about 1937, I think.

Q. And you came along in 1938? A. That is right.

Q. And when you came along, what was their equipment as regards electric furnaces, or cupolas? We know now they have got four, but I want to get as nearly as you can give me, when the cupola came along? A. Well, the cupola on the malleable side, when I came, was operating and an electric furnace.

Q. They were operating one cupola and one electric furnace when you came? A. That is correct.

40 Q. And then I understand two more cupolas were added. Do you recall when that would be? A. Yes. It seems to me they were there in 1938, but they were not both operating. They probably operated some time during 1938.

Q. So your recollection is there was one operating, two more that were perhaps there but began operations some time in 1938, after you were working? A. That is right.

Q. And then another spare cupola, we have heard, was added much later. Do you remember when that was? A. Oh, that would be in 1947, I should think; it seems to me that it was somewhere in 1947.

Q. That would be the fourth? A. Yes, but did not operate until 1948, though.

10 Q. It did not operate until 1948? A. No. As a matter of fact, up till the time I left the McKinnon Industries, that cupola did not operate at all or, rather, it operated only while another was being repaired.

Q. That is, used as a spare? A. Yes.

Q. That is the story as I understand it. Then, were there any changes made in 1940 or 1941, or what happened to production? You are getting into the war years. Did your production increase or decrease? A. Oh, it was increased, I should think, in 1940. We went over to a night shift during the early war years.

20 Q. Do you mean by that you worked both day and night where, heretofore, you had worked only daytimes? A. That is right.

Q. And then, I believe there was a nine-hour day shift? A. Yes.

Q. A nine-hour shift, rather, whether night or day? A. Yes.

30 Q. Did that increase the capacity and production of the plant? A. Well, it increased the capacity, because the night shift was added, but just whether it increased the hourly production over both shifts, — I wouldn't know that.

Q. Well, I put it perhaps not very clearly. After they got going, the second shift, you told me, that would increase the production? A. Oh, yes.

Q. Perhaps double it or more? A. Well, no, it would not double it. I don't know how much more tonnage would be melted, but it would not be double.

Q. Well, I don't care about the exact tonnage but a substantial increase, as I understand you? A. That is correct.

40 Q. Now, let me get from you, very briefly, the normal use of a cupola. We will have you take the cupola that is cold, and you want to use it. Some of your workmen would start a fire in the bottom of it, I understand? A. That is right.

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Q. I think my friend won't mind — I want to get this into the record — if I put anything wrong you correct me. A. All right.

Q. And then, that fire being kindled there, the fuel that was used was coke? A. Coke, yes.

Q. And there were blowers down at the bottom which, when the fire got going, would be used to increase the up-draught?

A. Yes, to induce combustion.

Q. And that created an up-draught? A. That is right.

10 Q. When those blowers were on full, was it a small draught, or a fierce draught, or how can you describe it? A. Well, I don't quite know how to put that one. It was not small. There is quite a large fan driving into five or six openings all around the cupola, but I would imagine that any one understanding cupola practice would be able to provide a much better statement on the velocity and the amount of wind going in there.

Q. Then, I don't want to trouble you beyond your knowledge. Then, you perhaps would know, when the fire was kindled and going well with coke, scrap iron and pig iron would be put on top? A. Yes, sir.

20 Q. They were the raw materials used in processing? A. Yes.

Q. And they were introduced through an opening part way up the side of the cupola? A. That is right.

Q. On what is called the charging floor? A. That is correct.

Q. And that was situate above the fire, naturally? A. Yes.

Q. So that, when dumped through the opening, from the charging floor that would fall down on top of the burning mass and there they would receive more treatment? A. That is right.

30 Q. And, at the foot of the cupola, probably you have the molten metal and the slag and, when it got very hot, it would be taken off from the floor below, was it? A. Yes, that is right.

Q. Now, in the upper part of each cupola, there was a device we have heard of a conical shape where water, through a pipe, was allowed in and the water dropped on the top of the cone device. Is that your recollection? A. Well, I recollect the cone device, of course.

40 Q. And do you remember whether during your regime, there were chains there instead of water, or was it always water? A. No. There were chains at one time.

Q. And then the chains were taken off, I understand, and the water replaced the chains? A. Yes, that is correct.

Q. Now, you would go to work and come from your work each day, or each shift? A. Yes.

Q. And what can you tell me as to whether or not you have seen fumes issuing from the cupola chimneys? A. Oh, yes, of course.

10 Q. As best you can, how would you describe what you saw in the matter of fumes coming from the chimneys and the cupola? We have had two gentlemen put it different ways. I want your own recollection of having seen it over a period. A. Well, it is just a dark greyish coloured smoke most of the time. It varies in its intensity from time to time; also varies in shade, in the colour of the smoke. Sometimes very dark, sometimes a very dark grey; sometimes almost white; other times a little yellow tinge.

Q. And sometimes dark fumes? A. Yes.

Q. Well, that is your recollection of it, and I don't suppose you paid much attention to winds, or which way the wind blew? A. No.

20 Q. That didn't interest you. Can you give me your idea of approximately the tonnage each cupola would run through on a nine-hour shift? A. Yes. I would think the average would be somewhere — oh, somewhere in the neighbourhood of 65 to 70 tons; somewhere there.

Q. Well, that is close enough. Which is that, 65 or 70 tons of metal? A. That is the total amount of metal; the total amount of metal charged in the cupola.

Q. That includes the slag? That is the amount of metal charged in? A. That is the amount of metal charged in.

Q. And amount — some would be molten metal and some as slag? A. Yes.

30 HIS LORDSHIP: Q. 65 to 70 tons? A. From a nine-hour shift.

Q. So if the three were all running concurrently, it would be three times that? A. Yes, and if one shift ran one day and one night, that would be twice.

MR. SLAGHT: Q. Now, during your regime there, did the company manufacture any dashboards? A. Well, not in the foundry.

Q. So you didn't do anything in the foundry for the manufacture of dashboards? A. Not that I recall.

40 Q. When you say "not in the foundry," are you reserving that—that somewhere else about the plant they made dashboards? A. Well, it is possible, but I wouldn't know about it.

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Q. Well, in your department in the foundry, there were no dashboards made. Then, what did they manufacture during the ten years you were there? What product did they turn out?
A. Well, they made automotive parts, of course, and castings for the Link Belt Company, which are a chain link mostly, and quite a lot of agricultural work, and we did make, early in the time that I was there, we did make a few harness fixtures. We called them snaps, or buckles.

10 Q. And did that drop off during the latter part? A. Oh, yes, that dropped off, it seems to me now, just about the time we went into the wartime production.

Q. It would not be 1939 or 1940, but somewhere along there?
A. Somewhere along there.

Q. Now then, in the forge house, we heard from other witnesses that steel hammers were operated there and dropped from above by steam propulsion, some of them, on to the hot metal in order to complete one of the processes that were going on. Are you familiar with that? A. Oh, not too familiar with it, only from having been in there once or twice.

20 Q. Well, you knew that was going on, we are told, in the forge shop? A. Yes.

Q. You were foreman of the foundry rather than the forge shop? A. Yes.

Q. So I cannot expect too much from you on that. I would like you to tell me whether you know about the time when the 4,000 pound steel hammer was installed. Can you help me on that? A. No, I wouldn't know.

Q. Can you tell me when the 5,000 pound steel hammer was installed? A. No, I am afraid I cannot.

30 Q. Approximately? Can you give me the year? A. No.

Q. Then, we have heard something about vibration. What can you tell me as to whether, when these hammers were operating, there was or was not vibration which you would experience, along with the other workmen? A. Oh, yes, there is vibration there in the foundry.

Q. In the foundry, although the hammers do not operate there, they operate in the forge shop? A. That is correct.

HIS LORDSHIP: Q. You say the vibration is felt in the foundry? A. Oh, yes.

40 MR. SLAGHT: Q. Would that be constant or would that in turn be greater at times than at other times? A. Well, it would not be easy for me to determine the differences. They are there all the time, and there is a certain amount of vibration, of course, in the foundry itself, and it is pretty hard to determine how much of it comes from the foundry or from the forge shop.

Q. Yes, I can quite understand that. Your witness.

CROSS-EXAMINATION BY MR. KEOGH:

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Q. Mr. Hester, when the changes which you saw and which had been made when you started in 1938, would you say that the McKinnon foundry was or was not a modern type, up-to-date foundry? A. In the side where I went to work, in the malleable side, it was a modern, up-to-date foundry.

Q. And you were general foreman. You were promoted to general foreman in the malleable section of the foundry on June 1st, 1944, or about that? A. Yes, that sounds correct.

10 Q. Before that you had been one of the foremen of the malleable section? A. That is true.

Q. And then, I believe you were transferred to general foreman of the floor room on or about June 23rd, 1944? A. Yes, that is right.

Q. Then, you resigned from your position on or about July 15th, 1948, to go into the foundry supply business? A. That is right.

20 Q. Then, would it be fair to say that, during the war years the production — when I speak of production I mean the amount of metal charged or treated and the total charges of the cupolas, that is of coke, limestone and everything else they put in it, would it be fair to say that production was, generally speaking, almost double, during those years, what it would be after the war was over? A. No.

Q. Well, it was a lot more, was it not? A. Yes, it was more, of course, but there was a short period there after the war, when we adapted it, for a little while, with the grey iron, but I fancy it would be more, but I doubt if it was double. Pretty hard for me to establish that.

30 Q. Well, you were there until July of 1948 — July 15th, 1948? A. That is right.

Q. That was the day after the strike started, wasn't it? A. Yes, that is right.

Q. I just want to read you some figures and see if you can agree with them, generally.

HIS LORDSHIP: Well, won't you be in a position to prove these figures more definitely than with this man? I doubt if he would carry figures in his head, or even have any knowledge of it.

MR. KEOGH: Yes, that is right, my lord.

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Q. Well, can you say, or do you remember, for instance, if you did about twice as much production in 1942 as you did in the year 1946, for instance? A. 1946 double as much as in 1942?

Q. Yes. A. No, I wouldn't think so.

Q. You don't think it? A. I wouldn't think so.

Q. Then, the chains that were on the cupolas at one time, were they a sort of hanging chain, a curtain that hung down around the top of the cupola stacks? A. Yes. As near as I can recall, they were. In my capacity in the foundry, that was something like outside of our sphere.

10

Q. And the smoke at that time passed through these chains, or this chain net, or curtain, did it? A. Yes.

Q. After it came out of the cupolas? A. Yes.

MR. SLAGHT: Well, do you mean that—after it came out of the cupola? A. Yes, that is right. The chains were suspended from the conical business.

MR. KEOGH: Q. The chains were at the outside top of each cupola stack? A. Yes.

20

HIS LORDSHIP: You are distinguishing the cone on top of the cupola from the cupola? A. That is correct.

MR. KEOGH: Q. And that is before they were water cones, my lord. The chain method, is it the first method adopted before the water cones were put in? A. Yes, that is correct.

Q. And was there a sort of baffleplate or cover at the top of the cupola stack to send the smoke out through the chain curtain at the sides of the top? A. Yes, something of this nature here, probably a little more pointed.

Q. Something like the cone of the lamp? A. Yes.

30

Q. And then, were you up on the roof of the foundry from time to time while the chain curtain was on it? A. No.

Q. You were never on the roof? A. Oh, I have been on the roof, but not for that purpose or any purpose in connection with the cupola operation.

Q. I was wondering whether you noticed any difference in the amount of ash or soot that came out of the cupola stacks that were operating while the chain curtains were on, as compared to the amount that came out later on when the water cones or scrubbers were put in? A. No, I don't remember that.

40

Q. You didn't take enough notice of that to make any comparison? A. No.

Q. You didn't take enough notice of that to make a comparison? A. No.

HIS LORDSHIP: Q. Can you tell me when the change was made from the chains to water cones? A. No, I cannot, my lord.

MR. KEOGH: I have some dates about that I was going to ask the witness about, but now he says he doesn't know.

HIS LORDSHIP: You can tell him now.

10 MR. KEOGH: On three of the four of them, it was in the month of April, 1945; April 2nd, 9th and 30th, 1945, and the fourth one was when it was put up, in 1947.

HIS LORDSHIP: Well, that is close enough.

MR. KEOGH: Q. I know you cannot be expected to remember the exact dates, but was it in the spring of 1945 the water cones were installed in the scrubber stacks? A. No, I wouldn't know that. You see, that is a part of the engineering department of the industry.

20 Q. And did you or did you not know that, at the same time the water cones were installed, a pipe was put up and a water system to carry the sludge to a settling tank, which probably was put in at the same time? A. I don't recall the change there over the cupolas, and the matter of distributing the water up there, but I do recall that, about a year—well, somewhere in 1947, a water tank was installed inside the foundry. I recall having seen that.

Q. You have seen this large settling tank which is inside the foundry and over to the west side? A. Yes.

Q. About half way between the foundry floor and the roof, I would say. You go up around some stairs to it? A. Yes.

30 Q. And the water from the stacks is piped into this tank? A. Yes, that is right.

Q. And you say it was about 1947? Are you sure that it was not about the end of April, 1945, or some time in April of 1945 that that settling tank was put in? A. No, it seems to me it was later on.

40 Q. Because I am instructed, and I want to be fair with you, that the water cones in one, two and three cupolas were all installed in the month of April, 1945, and the settling tank along with it. A. It doesn't seem to me it is that far back, although I am not too certain of my dates.

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Q. Then, at any rate, after the settling tank was put in, did you notice that there was a lot less fly ash and soot around the property from the cupola stacks? A. Oh, I wouldn't know that.

Q. You didn't take any notice of that? A. Oh, no.

Q. Then, just one more question. You spoke of the vibration being felt in the foundry. That was not such a vibration as would lift you up and down on your feet, or anything like that?

A. Oh, no.

10 Q. It was just a tremor or a trembling of the floor like you would feel from a big truck or trains passing on the street, or something of that kind? A. Yes, I would think so. It was pretty hard to determine the extent of the vibration, but it was there.

Q. Well, it didn't interfere with any work in the foundry or the operating of the moulds, or anything like that? A. Oh, no.

Q. All right. Thank you.

MR. SLAGHT: That is all, Mr. Hester.—Witness excused.

20

JOHN S. BEAUMONT, sworn

EXAMINED BY MR. SLAGHT:

Q. Mr. Beaumont, you are an engineer? A. Metallurgical engineer, yes, sir.

Q. And I believe graduated from Sheffield University in the Old Country, in 1906? A. Correct.

Q. Then, you worked as an engineer for several different steel companies in the Old Country, did you? A. Yes.

Q. And practised as a consulting engineer in Birmingham? A. Correct.

30 Q. Coming to Canada in 1912. Then, I understand you were with the Ford Company at Windsor, from 1912 to 1941, barring time out in the Army? A. That is correct.

Q. The first war? A. Yes.

Q. You were in the army in the first war, from 1914 till nearly 1920? A. 1920, November.

Q. And, of course, you would be away from the Ford Company while you were overseas. Then, you were attached to the First Division of Machine Gunners? A. Yes.

40 Q. Then, I understand you were on Headquarters Staff with General Currie and charged with the responsibility of devising or completing or devising devices to counteract gas from the Germans, if and when they used gas against our troops? A. That is correct.

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Q. Did you have charge of that work? A. I had charge of that work for the Canadian Corps.

Q. That would involve what sort of protection, or what did you have to go into in that capacity? A. Oh, it was principally seeing that the troops were properly equipped against gasses that might be thrown over and if any new ideas were found to protect them, they would be sent back to England and, naturally, they would be embodied in the protection of the troops.

Q. There were gas mask devices and other things distributed, were there not? A. Yes.

10 Q. And you had charge of that branch of the work in the Canadian Army? A. Yes.

Q. And I believe you now live a few miles outside of the City of St. Catharines and have a place of your own and have done some farming there, and you do consulting engineering work as well? A. I do.

Q. Have you done consulting work for the Dominion Government? A. Yes.

Q. Under Mr. Howe's department? A. Correct.

20 Q. Have you made a trip to England for him in 1941 in connection with your work? A. In connection with munitions, yes.

Q. And was that work metallurgical? A. Metallurgical.

Q. Then, I believe, at his instance, at some stage of the war, you were asked to visit the McKinnon plant here, that is in question, for his department? A. I was in the plant on a question that arose through the breakage of parts. It was at the request of the Ford Motor Company, and the Headquarters Staff at Ottawa.

30 Q. But you came up here and had occasion to visit the plant in connection with some task of that kind? A. That is correct.

Q. Do you remember what year that would be? The war started in 1939. A. I think that was 1940.

Q. Well, I don't know that it matters. Then, would you see something of the plant on that occasion? A. Yes.

Q. And we have heard of cupola furnaces which are shown on the plan, Exhibit No. 1, and also on 11. You have seen those plans, haven't you? A. I have seen them.

40 Q. In preparation for the witness, and I need not get them out now, but we are told the cupolas were about 600 feet from the Walker plant and the forge house about 450 feet. Would that accord with your recollection? A. Within a few yards, yes, sir.

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Q. And perhaps you don't recall, or do you, how many cupola furnaces were operating when you made your visit, you think in 1940? A. Three cupolas operating at that period, I believe, and one electric furnace.

Q. Then, you were asked to go into this matter as an adviser to Mr. Walker, in September of last year? A. About that time, yes.

Q. And you have made some investigations since?

A. Yes.

Q. And do you agree—I think we have had it several times—that the raw material used in the plant is scrap iron and pig iron? A. That is correct.

Q. And it is fed into the cupola in the manner in which Mr. Hester, the last witness, described it? A. I did not hear that description, but the feeding of all the cupolas is very similar.

Q. Well, I mean, I need not go over it again with you.

HIS LORDSHIP: Unless there is any dispute about how they are fed. I have seen it done so, for my benefit, you do not need to repeat it.

20 MR. SLAGHT: Oh, well, thank you, my lord. I think I have it sufficiently in the record, but I thought I must show—

MR. KEOGH: There is not any dispute about it.

HIS LORDSHIP: Mr. Hester has described it, and I would not think there would be any dispute about it. His description is quite accurate as far as I have seen it done before.

MR. SLAGHT: Well, I have not yet seen it, but I hope to visit it during this week.

MR. KEOGH: As a matter of fact, on that point, we will be glad to have your lordship and my friend visit it at any time.

30 HIS LORDSHIP: Well, we will consider that point later.

MR. SLAGHT: I would like to keep that in mind and I would like to have his lordship come when you are operating the big hammer.

HIS LORDSHIP: Well, I will keep a safe distance from it, when I do.

MR. SLAGHT: Q. Then, you visited this plant on March 14th this year, pursuant to an Order of the Court? A. Yes, correct.

40 Q. And Mr. Ferguson and Mr. McAllister and Mr. Mc-Alpine were in your party, and then there was Mr. Keogh and some officials of the McKinnon Company along on the trip? A. Yes.

Q. And on that visit—first, let me ask you, having heard that coke is the fuel used, what can you tell me as to the coke that is used there as of recent years, as to the quality of it and as against earlier coke? A. Oh, the quality of the coke has undoubtedly deteriorated. There is a lot more ash and there is a higher heat content in the coke that they are getting today than that got a few years ago, inasmuch that that is proved by the fact that the grey iron castings, where the specifications run .11 sulphur, or .1 sulphur would be an approximation, I think every one, including the McKinnons, have had to raise that to their subsidiaries to .156, because of the impurities that were in the materials that were not there before, in the scrap and in the coke.

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Q. Well, what would that mean on the amended specification, as to an increase or otherwise of the sulphur coming out of the chimney? A. There would naturally be an increase.

Q. You might tell us what are the products of combustion in the cupola? Just what happens there, when these cupolas are operating? I don't mean the elementary part about the coke, and so on, but give us the practice of combustion, and what happens there, metallurgically? A. Well, while there is a fire in the bottom of the cupola and with the air, an incandescent heat is formed which helps to distil and burn the coke. This distillation is volatile; left in the coke it always amounts to carbon, about 1½%. The coke burns and, in burning, the air drives that heat after melting the metal, up the stack, heating the charge only partly. As a result of that, you have the formation in that process of more carbon monoxide than you would in other types of furnaces, so you have carbon monoxide, you have carbon dioxide, you have a certain amount of sulphur dioxide—

Q. Is that S.O.2? A. That is S.O.2, and then you are getting the ash from the combustion particles of coke driven up by the forced draught, and a certain amount of rust that comes from the metal and is always present, and that would constitute the main products of combustion.

Q. Now, what do you say as to whether or not some part of all those component parts of combustion that you have outlined, some part of them escapes through the top of the chimney? A. It all comes through the top of the chimney.

MR. KEOGH: Well, whose chimneys and which chimneys is he talking about?

THE WITNESS: Cupolas.

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MR. KEOGH: Cupolas in general, or—

HIS LORDSHIP: You are speaking at the present time of the chimney in question? A. Yes, the cupola chimney, or the cupola stack, as I think it is more properly termed.

MR. SLAGHT: Now, on the occasion of this visit on March 14th, did you go to the cat-walk near the top of the cupolas where the exit of the stuff is? A. Oh, yes. That was the most interesting portion to me.

10 Q. You went up there, and who, besides yourself? A. I went alone first and I observed certain things, so I said—

Q. Well, you cannot tell us what you said, but did some one else join you? A. Yes, Mr. Walker joined me.

Q. And, then, did any of the other side go up, as far as you know? A. No.

20 Q. Perhaps they were stouter gentlemen. At all events, tell the Court what you were able to observe from your vantage point up there? A. Knowing that these gases were being emitted from the stack, I went up to see what precautions were being taken, if any, to subdue part of that gas. When I got to the top of the cupola, there was the usual cone there which I think I termed in the first place an impingement cone. It was placed there originally to stop oil and oily particles, particularly of molten metal, causing them to impinge upon it and to consolidate. That was a fair protection, I believe, creating that in the first place, and that is why that cone existed. At the apex of the cone was a delivery pipe that delivered water. The water was intended, by being centrally located, to run down the sides of the cone and form a curtain through which it was supposed that the gases would pass.

30 Q. Just pause there if you will. Can you give me approximately the diameter of that pipe, the pipe came in horizontally, I understand? A. Oh, I didn't measure it, and I didn't take particular notice other than I would notice the flow of water, but I would say about two and a half inches. That is only an estimate.

Q. I understand that. Perhaps my friend will tell us the exact diameter when it comes. Then, what was your observation of the manner in which this was operating at the time of your inspection? A. Well, the water was running down the cone; all three cupolas were running at the time.

40 Q. Did you examine all three? A. All three. The wind was blowing in towards the Walker greenhouses, southwest, I think that is so, and it gave an opportunity of getting on the windward and the lee side and seeing in the top.

Q. Did you get on the lee-side of each of the three? A. I did. You would call it the windward side—I am sorry—I got on the windward side of all three and observed the type of opening and in no case was the delivery pipe that was to deliver the water for even distribution, to pass through the cone, was it centrally located. One was very bad. In one case of the water delivered there would be about 30% running down one-half of the cone and the other 70% down the other half of the cone.

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10 HIS LORDSHIP: You said 30% would be running down one-half of the cone? A. Yes, and the remaining 70% down the other half.

MR. SLAGHT: Instead of a uniform distribution of the water over the cone in a uniform way? A. Yes. That made a very inefficient wash.

Q. When you say "wash", the idea being, if it were efficient, the wash would help to extract certain products from the fumes that were passing up through the water? A. Yes.

20 Q. That is the mission of it? A. Yes. The delivery of the water also was such that, instead of forming what it was originally intended to do, a curtain for the discharge of the gas to filter itself on the way through, the water was not being delivered in sufficient quantity to do that and, as a consequence, the water separated into little streams, so that between some of the small streams of water that were running down there, there was a matter of three or four inches of space without anything at all, so that any gas could be washed and any particles extracted from the impingement.

30 Q. Well, assuming that gas was going up the sides of the cone, then you tell us there was a space in that area that would not get the water at all by that device? A. That is correct.

Q. Then, I think you told me that, in addition to one cone which was there, the other two cones were defective in the same respect, as to operation. Just slightly, or can you give us any idea? A. Oh, I would say on the other two cones, you had a difference of probably between 30% and 40% down one side and the remaining water down the other side.

Q. That would be between 60% and 70% down the other?
A. Yes.

40 Q. Now, in addition to the cone system that you have described, the washing system, and assuming that system were operated efficiently and properly, are there other systems which,

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in your view, are capable of being used for a similar purpose, other than this particular system that they were using?

A. Yes. There are two other well known systems, one such by the hanging of chains which, though it does not dissolve any gases, it does a better job of stopping the particles, ash and so forth, from coming out of the smoke. The one that was supposed to be the most efficient was the one I believe that McKinnons first installed. That was the nozzle system, by which the water was more or less atomized and everything had to go through a mist but, owing to the engineering of the McKinnon outfit, that became ineffective insomuch that the water supply was a slimy water; it came from the settling tank. The water had been used before.

HIS LORDSHIP: Just a moment. You are going very fast and I did not get that.

MR. SLAGHT: Q. Now, you told us of a chain system, and I understand your comment on that was that it is a better system in its contact with and in its expulsion or prevention of the solid matters of the smoke getting out of the chimney on to the neighbours? A. Yes.

Q. For instance, ours? A. Yes.

Q. The chain system would be more efficient in stopping rust in air; efficient in stopping fumes? A. That would be my opinion.

Q. That would be your opinion on the chain system. Then, we come to the nozzle system, and I understood you to say that you believe that the McKinnons had used the nozzle system for a time before this one and in their use of it they used a slimy water, using the water over again? A. That would be my estimate of it.

Q. Instead of a fresh supply, and what result would that use of the nozzle system bring about, as far as efficiency is concerned? A. It lowered the efficiency to nil, because the nozzles would become clogged through the use of impure water through it, that is, water that was not clean and would not go through the nozzles, so that system was taken out and instead of devising a better way and utilizing the knowledge that we know we have on that subject, they went to the old system again, instead of going forward, they went backwards.

Q. Now, under that nozzle system and under the old system which they are back to again, where does the water come from

that is used? They used water through nozzles on the old one and spraying it down over the sides of the cone in the present one. Where do they keep that water? A. That water comes from the settling tank and is probably renewed from time to time by water, a little from—I don't know whether they pump it from the stream close by or whether it comes from the water main, but there will have to a renewal as the amount of water evaporates or is used up.

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10 Q. And you suggest that they were using that water from the settling tank and it would come up and go down through the nozzle and then find its way through the tank and then be used again? A. Yes.

HIS LORDSHIP: Q. What is the settling tank?
A. The settling tank is—the water goes into the tank and the heavier matter settles on the bottom of the tank and the clear water would be on top and it would be used again.

20 Q. Well, that is water that is used on the spray, which passes down some channel and carries with it the ash that is caught in the spray and any other forms or substances that are caught? A. Yes.

Q. And that passes into the settling tank? A. Yes, and the heavier particles go out, but the volume of water is not so great that some of the suspended matter that has not time to settle at all is not rescued again.

Q. And then the water is carried from the settling tank through the system again? A. Yes

Q. I see.

30 MR. SLAGHT: Q. Now, then, have you seen in operation reasonably recently, a device for extracting foreign matter from the smoke that goes out over the country in another plant? A. Yes.

Q. Where? A. I made a visit to the Ford Company at Rouge, knowing that they were installing a system that was considered the latest method for extraction of the dirt and soot and that kind of thing from their cupolas.

Q. And about what month was that trip? A. Somewhere, I think, in November.

Q. You think in November of 1948? A. Yes.

40 Q. And what comment, if any, have you to make as regards the operation the Ford people were using at Rouge, comparable to the McKinnon operation you inspected here? A. The operation is very, very similar. The difference was—the operation was

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similar, so the first thing I went after was to find what was being extracted through there as regards dirt from their gases coming out of their stacks. They led me to a great settling tank that they had on the conveyor working in it, a system which connected two cupolas. There was a spray guard outside the foundry and the conveyor was working all the time, and they were extracting, according to the weight and the progress with their dirt in that, to the extent of about 400 pounds of dust and dirt from the two cupolas. So I went to the top of the cupolas to see by what method they were taking out such a large quantity. The method that they had is similar to the one McKinnons have, but their flow of water was centralized in each case, and I would judge—I had no means of measuring the flow of water—but I would judge their flow of water was probably three times as much as the McKinnon's, and there was — I don't think that the water was re-circulated. They have a double supply of water and though a little may have been taken from the tank—I could not swear to that—but I think all the water they used was clear water.

20 Q. Where does their supply come from? A. The River Rouge.

Q. Now then, would it or not, in your opinion, be more efficient operation if you went to the expense of using clear water in that purifying process, instead of the cheaper way of re-using the water from the tank? What do you say as to whether or not the use of the clear water would or would not, in your opinion, get greater efficiency. A. Oh, clean water undoubtedly would. It is a question of expense.

30 Q. Yes; a question of economical profits, dividends, and the extreme volume of water that the Ford people were using at Rouge, what do you say as to whether or not, in your opinion, as against a lesser volume of water—you put it about three to one—is there any element in that that you can comment on for the Court as to making for efficiency? A. Oh, yes, the greater volume of water gives an almost continuous curtain or film of water that had to pass through the smoke coming out of the stack, and therefore washes it much more thoroughly. As a matter of fact, I would say I would estimate that the raw materials, coming out of the stack in the form of gases, that 80 to 85% came into contact with water before it was thrown into the atmosphere.

40 Q. Over at the Ford? A. Yes.

Q. That would leave the residue of gases that would still get out of the top of the chimney and go abroad of from 20 to 15%? A. Yes.

HIS LORDSHIP: Well, do you mean that? You said 80 to 85% came in contact with the water? A. Yes.

Q. But the mere fact that it comes in contact with the water does not mean that some portion of the 80 to 85% would not escape, does it? A. Very little could escape through that curtain of water, only the gases.

10 Q. Well, it is gases we are talking about. A. Practically all the gases escaped at all times from the cupola.

Q. Oh, I see. The water has no effect on the gases? A. No, because 77% or more—we will say 75% of the gases coming out of the top of the cupola is nitrogen, which is not affected by water; that is nitrogen from the ash which is blown in.

Q. What about sulphur? A. Sulphur dioxide if permanently in contact with water, will dissolve entirely.

20 Q. You say permanently in contact? A. Well, it is not easily soluble.

Q. Just what, in your opinion, does sulphur dioxide dissolve in, coming in contact with this water curtain? A. Oh, sulphur dioxide is very easily soluble. It would be taken all out if it came in constant contact with water. That was the idea of the mist.

MR. SLAGHT: Q. If that is true, would it or not be necessary for the water to contact the gases coming up around this three or four inch base of the cupola? Would the sulphur dioxide be taken out of that if it did not contact any water? A. Oh, no, no, no.

30 HIS LORDSHIP: Q. Then, there would be, in your opinion on the Ford system, 15 to 20% of the gases would not come in contact with the water? A. Yes, as against probably 70 to 75% in the case of McKinnon's, in coming in contact with water. They stated 50 or 60. They are conceding an added efficiency by the extra flow of water.

40 MR. SLAGHT: Are there systems of dust collectors from cupola stacks? A. There are systems that can be put out, such as the Cotterill process; that is an electric process and a very, very expensive process, which would not be available to competitive industries, such as iron industries, and that sort of thing.

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Q. Well, if that is so, I won't trouble you with details about that. A. There is a possibility of being able to, with the information we have now of the smoke nuisance and that kind of thing, I think it is quite possible to produce a piece of apparatus that will be even more effective than the one that the Ford has. I think that is quite possible. I can think of two.

Q. Are there some trade names of extractors, or devices for this purpose? A. Yes, I think that Schneible make one.

10 Q. And is there another make? A. Yes, there is another make, the Whiting. Both those systems are similar. They are water sprays essentially.

Q. We have heard—at least, will you give me, Mr. Registrar, Exhibits Nos. 18, 19 and 20, and then let me have 35A, B and C. Now, did you visit the stacks of scrap iron which were on the McKinnon property, being the piles of raw material for use? A. Yes.

Q. You saw those? A. Yes.

Q. And have you seen the photographs 35A, B and C? A. No.

20 Q. Well, they are in. Let me ask you, then, with regard to those piles of scrap, I show you what has been sworn to as photographs of them. In your examination of those piles, what do you say as to what condition the scrap is in as to rust, for instance? A. Oh, this scrap would be fairly rusty. All the scrap I saw of that type was fairly rusty. It is in the open pile and you cannot help it being rusty.

Q. Rain drops on the iron and it rusts? A. Yes.

30 Q. Then, Exhibit 18, we have had it as being said to be a photograph showing smoke from the forge houses and cupolas, at the same time the smoke blowing away. Have you seen that before? A. I have seen this, yes.

Q. And what do you say as to whether or not the smoke— A. I would think that is rather mild for some of the smoke that goes over, too. There is not a great deal of volume here.

Q. Then, what would you say as to whether or not, having told us about the processing there and if smoke of that kind reaches the Walker greenhouses, as to which we have evidence but I will not bother you about it, would it be consistent with producing the damage he complains of, including the orchids? 40 A. Oh, definitely.

Q. You say definitely it would? A. Yes. The reason for that would be that a lot of this smoke consists of soot, and we have the example that carbon in all its form, particularly the nut bronze, such as we used in the gas masks during the war—

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HIS LORDSHIP: What do you mean by nut bronze carbons?

10 A. That is the carbon obtained from using nut shells that was used because of the characteristics of higher carbon, of absorbing in itself something like 50 times its own volume of gas, so that when certain dirt or particularly soot is passing over in the form of a cloud, it will store within itself any noxious gas or poisonous gas and carry it and deposit it with the soot and it will slowly emanate again with the weather. Again, the soot and the smoke definitely and positively filter out the solar rays, particularly those running in the angstrom units. Those are what we call the violet rays and are so essential to plant life.

MR. SLAGHT: Q. Just pause there. Have you, in recent years, made a special study as a specialist of violet rays?

A. Oh, yes.

20 Q. For any commercial purposes, or clients? A. Oh, yes, definitely; it was before we got into trouble with our windshields by turning amber—that is, into the study of violet ray, I was engaged. We made a solution of that question in my lab, under my direction.

30 Q. So you know something about violet rays, you think? Now, I have Exhibit 19 on this trial, which has been sworn to be a photograph of the roof of one of the Walker greenhouses in 1945, a portion of the roof being washed and a portion of the roof not being washed. There are deposits that were there. I think you have seen that? Have you seen that before? A. No, I have not seen any of these pictures.

40 Q. And what do you say as to whether or not the processing that you have described, in the event of that smoke or those fumes getting or passing over the roofs of greenhouses, whether or not such a condition as disclosed in that picture is consistent with the stuff being lodged there from the McKinnon's? A. Oh, yes. I went and saw the glass in the greenhouses and had extracted from the roofs of the greenhouses several sheets of glass and I intended having those put on a uviarc machine and measuring the amount of violet ray that was being cut out by that glass. Unfortunately, I could not obtain a machine, so I took the glass and I scraped some of the deposit off. The reason I did was that I knew that amber colours or shades of amber, some call them yellowish or

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brown, but I call them amber—do filter out the violet ray and there was an amber shade on this glass. I realized it came from iron oxide refraction, so I scraped some of the deposit off, dissolved it in a neutralized solution and I found as a qualitative test most of it was iron—at least 50% of it would be iron in the form of rust.

HIS LORDSHIP: Well, I understood, when you started to tell about this test, that you were relating it in some way to the effect that it would have on sunlight? A. Yes.

10 Q. And I do not think you completed what you had to say about that? A. The amber shade in the glass I felt sure was filtering out the solar rays. To prove that that was an amber discolouration, I knew that it would only come from rust, and so I proved it by a qualitative test that rust was present in that deposit.

Q. Well, having found that rust was present in the deposit, what do you say as to whether it would filter out the solar rays? A. Definitely.

20 MR. SLAGHT: Q. And what effect would that have on the plant life below that glass in the greenhouse? A. The plants, I would think they would not get any sunlight, and they could not get any storage of things, and it would be very deleterious.

30 Q. Then, I show you Exhibit No. 20, at this trial, which has been said is a picture taken in 1946, showing a section of the large greenhouse on that east side, which is uncleaned, and then a portion which is cleaned. What would you say as to whether or not in 1946, the dirt we show on the part that is not cleaned is consistent with having come from the McKinnon plant, and consistent with it being iron rust that you have found by your test?

A. That being the same deposit from the same place where we know there are chimneys that emit smoke that contains an amount of iron rust, as a cupola, therefore it could always be identified by the amounts of iron in it.

40 Q. Well, we had from Mr. McAlpine, two tests that he made of stuff like this off the McKinnon roof, which ran somewhere around 45% of iron in each of them, taken at different times. You say that, in your opinion, there is iron there, and if there is 45% of iron taken, by actual test, would that or not be as serious a deleterious effect in preventing violet rays from getting through it? A. Definitely.

Q. I don't know whether you have seen this Exhibit No. 21. It is put in as showing on March 14th, the date you saw smoke coming out of cupolas. Would that be along the lines of your expectation from those cupolas? A. Yes, but at the actual time, the smoke showed much heavier than it does on the picture.

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Q. Oh, you saw it that day, did you? A. Yes.

Q. Then, you would expect this smoke to contain the content you have spoken about and, some time that day you saw it in a heavier cloud than is disclosed in Exhibit No. 21? A. It
10 looked to be heavier.

Q. May I have Exhibit No. 28, please? Mr. McAlpine has sworn to, in this Exhibit No. 43—well, I will give his figures; iron as iron oxide, 43% ; manganese, .2%. Would that be consistent or not, in your opinion, that the stuff that was coming out there, having regard to the process you examined and describing what produced the deposit which was analyzed along these lines? A. Yes. The manganese would be present in the iron rust.

HIS LORDSHIP: Q. What is the chemical content of iron rust? A. Well, there is the ferrous and the ferric. Ferrous is f.e.o; that is one part of iron to one part of oxygen, and
20 the ferric is f.e.2; two parts of iron and three of oxygen.

Q. Well, it is really a combination of iron? A. Yes. Your higher oxides come over from the cupola in this case in the form of little particles that are blown over, whereas the rust is blown from the scrap as it ascends from the furnace. That is how they come out.

MR. SLAGHT: Q. I think perhaps you were here and saw, or did you see, the bottle, Exhibit 44, and this box of bottles? A. I didn't examine any of them.

Q. But did you see them when Mr. McAlpine was testify-
30 ing? A. I only saw them at a distance.

Q. That Exhibit 44 is said to be residue that he caught in his tests. And then I show you one bottle of stuff in Exhibit No. 46. A. Yes, that is iron hydroxide.

Q. And Mr. McAlpine got his analysis of the stuff that came from Walker's roof. What do you say as to whether or not that is consistent with what you would expect, having regard to the conditions we have been talking about? A. You would expect that that explanation of part of that, which is that it is iron oxide,
40 along with some of the volatiles that is left in the distilled coke.

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HIS LORDSHIP: Q. Can you tell me what would be this substance that would cause those to adhere so tenaciously to the glass? A. Yes, sir, I think I can. These volatiles, or coal, consist of oils. Now, when coal is coked, it goes through a high heat, but all those volatiles are not driven off. Some of the higher volatiles are still remaining in the coke to the extent of about 1 or 1½%. During the process of the burning coke, this incandescent heat, those volatiles are driven off while it is being burned, and those volatiles consist of some of the oils and tars that seem to go with volatiles because we don't know the composition of them absolutely, other than that volatiles of oils and tars of coal distil to higher temperatures.

20

MR. SLAGHT: Q. And we have been told, according to the evidence, that the fuel used in the forge shop, through which these fumes emerge, are of two kinds, two kinds of oil; a bunker oil and a fuel oil. Would that, or not, add something to the sticky collective process that could take place on the roof? A. No. The process is perfect so that that would definitely—if the oil could be burned to its last fraction, there should be nothing but a clear smoke from it but, unfortunately, methods have not yet been devised whereby oil can be burned as thoroughly as that; and also, when the furnaces heating steel to get it ready for the hammer, when these furnaces are lit in the morning, particularly in cold weather, it is hard to make complete combustion of the oil that is supplied to the furnaces; as a consequence, some of it vaporizes and goes out. That condition cannot exist too heavily, because it would spoil the steel in the forge furnace, if it did.

30

Q. What would you say of Exhibit No. 58, which has been sworn to as a pane of glass taken from the Walker greenhouse—what do you say as to whether or not, in that condition, there would be a deleterious effect to the flowers below? Perhaps I have asked you that before, but I want to show you a piece right out of the particular greenhouse. A. Very positively so, yes. May I give a little explanation of that, too?

HIS LORDSHIP: Yes.

A. To prove that that is the case, we have a man in America named Lockeish. He is Director of Research for both the General Electric and the Edison, and he definitely states in all—

MR. KEOGH: Well,—

HIS LORDSHIP: Well, I think an expert is permitted to quote authorities for certain scientific principles, but it does not go any further than that.

MR. KEOGH: Well, I believe they can be quoted, but in cross-examination; but whether he can quote them in support of his own evidence, anyway, that was not the question he was asked.

HIS LORDSHIP: Yes, I know, but I am interested in this, nevertheless. We see the condition of the pane of glass. I am interested in knowing what the effect of that may be on the plaintiff's business, if any. You were going to say something about some scientific opinion and you are quoting some one. Well, is he an authority on something and, if so, tell me what. A. I think he is probably—I consider him the greatest authority in America on wave lengths, that is solarinity.

Q. That is the effect of the sun's rays? A. Yes.

Q. Then, what were you going to state? A. That he definitely states on pages 31-2-3 of his book that smoke and haze positively eliminates the penetration of wave length bands, of wave lengths of solar energy, particularly the violet ray.

Q. Well, are the violet rays not affected by the common window glass? A. Yes, sir. You can get vita glass.

Q. No, I am not talking about vita glass. I am talking about the ordinary window glass. A. That all depends. If the glass comes from a source of sand where the ferric oxide is about .25 and the ferrous .75, that gives you a sage green colour, which does definitely filter out 90% of the rays. In the case of other sand glass, where manganese is the metallic base, you get a pink glass. That is, you cannot see these colours unless you cut a piece about, say ten inches square and look through the edges of it. Then you see it is quite distinctly that type of glass and it does not filter it out.

Q. Well, let us just deal with the glass in the Walker greenhouses? A. That is a glass that will permit, from my observation and many experiments I have done on glass, I will say that that Walker greenhouse glass, from the colour of it, will allow 82 or 83% of the violet ray to pass through it, if it were clean.

MR. SLAGHT: I will show you Exhibit No. 59, which is a filter paper with an iron deposit collected in it, sworn to have come from the snow on Walker's property, the west side of No. 2 greenhouse; a sample taken by Mr. McAlpine and, or, by George Thomas, and sent to him and analyzed by Dr. McAlpine who

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produces from the sample from the snow these particles, which he has told us are iron particles. That is Exhibit 59. Now, when you look at that and before I formulate the question, I am going to show you Exhibit No. 60. 59, it is said, came from the property outside on the Walker property, east of No. 2 greenhouse, and Exhibit 60 was taken similarly from the snow over on the McKinnon property in front of the forge shop. I have shown you 59 and I show you 60 and my question is, is this product a consistent result from the operation of the McKinnon plant which you have described to us, with the raw material you have described? A. Have you the analysis of this?

Q. I have not got the definite analysis. Mr. McAlpine gave it to us in the witness box, but they were not put in in the form of an exhibit. He says two of them came from samples in the snow which were black in colour and that his test brought out this, that they were the collective result from a space, if I recall it, of about twelve inches square. He tried to take a piece of snow and even put it in a jar. He told us he put it in a jar with about a quart of snow and water and then he analyzed that and from that quart he got these solids, and this one came from near the forge house on the McKinnon plant. A. Those are typical of the deposits from a foundry.

Q. Well, that covers it in another way.

HIS LORDSHIP: He said they were magnetic. That is as far as he went. A. Yes. There is iron, coke and soot in those, from the look of them.

MR. SLAGHT: Then, I show you Exhibit 61. That is a map with some parts in different colours, and McAlpine told us that the blue parts show the spots where he got these deposits from the snow and got a similar result after— A. Where are the cupolas there?

Q. Well, now, the cupolas are not shown on here, I am afraid. I ought to be able to find them for you. There is a cluster here. The cupolas, I am told, are right underneath the cluster of buildings. In other words, the evidence is, from this copy, that similar deposits of this kind were found in the snow at these various points, and some as far away as Ontario, and some up on Ontario Street at the odd place; others over here, near the city limits, and others around there, and the blues indicate the places that he took his own samples and analyses and got his results. What would you say that is consistent with? A. Yes, the heavier particles would be found around these districts. The very light ash, such as would come from coal, that would be white

more or less in colour, that might carry a thousand miles; but the heavier particles would drop out just around this district, owing to gravity, of course.

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10 Q. Now, you have told us that these products are, in your view, from the McKinnon operations, that they operate deleteriously to the plants by helping to keep the violet rays from them, and that the iron dust and coke dust and so on deposits, bring about that result. Why do you reach that conclusion? Can you tell me anything about the characteristics of rust and coke and
20 as to why, if you can, without taking too long, why you reach the conclusion that they are injurious to these plants? A. Yes. Smoke and dust in the first place, as already explained, will filter out the solarinity. Soot, which is formed of carbon, will have the characteristic of absorbing gas that will be deposited in the vicinity, or may be on the plants, so that soot would be capable of carrying sulphur dioxide in this case in a more concentrated form, and given a sufficient quantity, to damage the plant. That is, I think, very plainly demonstrated by the fact that when the chlorophyl is attacked by this acid, the colour will change from green to
20 brown, so that the soot has that characteristic of being able to carry for storage in its cellular structure, any gas that would be deleterious. This gas is slowly emanated according to the atmospheric conditions and, in my opinion, in its more concentrated form, as the plant breathes it will take in a certain proportion of that poison and kill the chlorophyl.

Q. And what do you say as to whether or not, in your opinion, that process is happening in the Walker greenhouses?
A. I think it is definitely happening there.

30 Q. We heard it testified that, in the old McKinnon Dash plant, which is said to have preceded the present set-up, that they used air furnaces and not the cupola system. Can you give any comment as to the expected result in escaping gas and fumes from an air furnace, as compared to the expected result from cupolas?
A. They are two totally different processes. An air furnace is a horizontal furnace. The firing is done at one end and the stack is at the opposite end. The charge is placed in the middle of the furnace. Usually you lift the roof and put the charge in there. Combustion starts in a very much similar manner usually by using coal or oil in the air furnace. Now, the products—

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Q. We have heard from somebody that they used coal in the McKinnon Dash air furnace. A. Well, if they used coal, then the products of combustion in every case have to pass over the metal that is growing hot, and so you are able to, when the metal melts, there is a slag formed over it, so that it protects the metal from the atmosphere of the furnace, therefore it is possible to get and keep complete combustion going in an air furnace with the result that, a short time after the start of the operation, the gases passing from the stack of an air furnace consist of carbon dioxide, a nitrogen ash, and that is about all, and complete combustion takes place. The sulphur dioxide does not pass, only a very small amount could pass in an air furnace, because it is absorbed by the lime or calcium which constitutes part of the slag and which, on an incandescent heat, the slag being formed of calcium and sulphur which will not distil off and a great portion of the sulphur is therefore taken up in the air furnace. Again, owing to complete combustion, or the possibility of a complete combustion, there is only a small fraction of the amount of carbon monoxide that passes through the stack.

20 Now, a view of the stack will show you simply a light grey haze, and anything that is suspended in that stack or in those gases that come from that stack, will be of such a fine nature that they would not be deposited until probably 100 or 150 miles away, with moderate winds.

30 Now, the gas of the cupola atmosphere is an entirely different gas. You cannot get and dare not get an oxidizing temperature. The very fact of the fuel bed above the incandescent heat or melting heat, you can call it, distils that coal, there is not enough oxygen to burn in that coke in the melting zone, which is about eight inches above Tuyers; therefore this heat is distilled in the fuel, and the carbon monoxide that is formed does not have an oxygen supply and passes up the stack. Now, the gas of the sulphur, the sulphur from the coke, is distilled off and it has nothing to absorb, because even though lime be added in the cupola as an article to make the slag over it, the heat of that lime is not sufficient to absorb the sulphur. It will only absorb up around sixteen or seventeen hundred degrees, therefore the sulphur, in the case of the cupola, passes through the stack. That is again a difference and, as a result, you get a black smoke comprising soot, with incomplete combustion, that is the volatiles, you call them, 40 or nitrogen; you get in addition much more carbon monoxide than

you would in your furnace operation, and the air furnace is not as economical as a cupola insomuch as I think we used to put around 350 to 400 pounds of fuel in to get 18 ounces per square inch of metal, in the cupola; whereas in the air furnaces that operate on coal, they will take probably 500 to 550 pounds of coal per ton of metal, molten.

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10 Q. Now, having given us that explanation of the differences, let me ask you which form of furnace is more deleterious to the neighbours—the air furnace or the cupola style? A. Oh, you have very little effect from an air furnace, but you have a very definite effect from the cupolas.

HIS LORDSHIP: What about the iron rust? A. Oh, yes, a little iron rust in the air.

20 Q. Excuse me till I am through—the iron rust that is driven off that you have been describing, from the cupola? Is there iron rust driven off in the air furnace the same way? A. Yes, there would be a little iron rust, but very little, because instead of the air being able to pass up through the scrap and more or less clean it by abrasion, in the air furnace all the scrap is loaded on the bottom of the hearth and the heat of the blast is refracted through the roof, so it does not get the blast of air through it like in a cupola, but you get a certain amount of rust in the air furnace also.

Q. But, comparatively speaking, I would like you to compare it, for my own information, if you can? A. In the amounts?

Q. Yes. A. Oh, I would say—

30 Q. Yes, some idea as to how much more? A. I would say 75 to 80% of dust in an air furnace would be blown out, whereas possibly 60% of the scrap in the cupola would be blown out and then, again, in the cupola you get the iron blown out through the blast going up through the bed, in small particles of iron oxide, which you don't get in an air furnace on account of the slag.

MR. SLAGHT: I wonder, and I think this will conclude my questioning, whether you can give me any idea of the volume of gases being blown out of one of these cupolas? We will have to take any particular nine-hour shift, for instance, and then get some idea per day after that. A. That depends on the height of the cupola. Measuring—the usual method is measuring the furnace in the melting zone, between the four bricks you get the

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diameter. The square inches of that area constitutes a basis for measuring the furnace; one and a half pounds of metal melted per square inch constitutes, I think, the charge, and then the next figure is, which square inch of that area will melt—which square inch of that area will melt—oh, I have forgotten that figure for the moment.

MR. KEOGH: My lord, the witness says he has never made a measurement of what goes out. Then, isn't this pretty hypothetical? I object to it.

HIS LORDSHIP: I think you must confine your evidence in some way to the McKinnon cupolas.

THE WITNESS: All cupolas are calculated on that basis, my lord.

MR. SLAGHT: I think—again my friend will correct me if I am wrong—it is 60 inches. I may be wrong. A. Well, leaving that, it takes 30,000 cubic feet of air to melt one ton of metal. That means to say, out of three cupolas there will be emitted, according to their working, from six to eight million cubic feet of gas a day.

20 Q. That is assuming I am right in suggesting they are sixty feet? A. Sixty inches.

Q. No—I am not sure about this, but if they were only thirty inches, would it be relative? A. It is relative to the tonnage—all the metal that is poured out is to the amount of the tonnage that is poured in.

Q. I see. We will get that later on, then, as to the finality of that. Your witness.

CROSS-EXAMINED BY MR. KEOGH:

30 Q. How many years were you with the Ford Motor Company of Canada? A. Apart from the war period, about 29. I was out of there from 1914 to 1920, at the war.

Q. Just roughly, how many years? A. Service at the Ford, 25 years.

Q. Were you a metallurgist all of that time? A. Yes.

Q. And that is the Ford Company at Windsor, is it?
A. Yes.

Q. They, I understand, do not use cupolas? Is that so?

A. No, they don't use them.

40 Q. They use the electrometal system? A. They use the electrometal furnaces, the Brocklesburg furnace, which is akin to the electric furnace.

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Q. Did you notice one electric furnace in McKinnon's foundry? A. Yes, but it is not a melting furnace.

Q. No, I didn't say it was. But did you notice that was used to hold malleable iron to its proper temperature after it is transferred to the cupola? A. The time I viewed the electric furnace it was over at the metal for certain castings, and a certain amount of molten metal was being put in and then a certain amount of steel, to bring the metal to the condition for the object they wished to produce.

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Q. They were putting molten materials in it? A. Yes.

Q. Then, does the Ford Motor Company of Canada have any water-washed cleaning system and any stacks from its foundry? A. Not necessarily.

Q. But they have smoke stacks from the foundry?
A. No, we don't have smoke.

Q. No smoke at all? A. Very little.

20

Q. That is because of the electric melting system, is it?
A. Yes.

Q. So that apart from the cupolas that you have seen at McKinnon's and at the Ford Motor Company at Rouge River, Michigan, you have had no experience with foundry cupolas at all, have you? A. Just about 20 years.

Q. Where—cupolas I am talking about? A. Cupolas I am talking about. It is my duty as a technician of the Ford, to produce every plant that produces materials for us and therefore it was my duty to see the apparatus was there, or its equivalent to produce that material.

30

Q. How many plants have you visited with cupolas with a running water system, the same as McKinnon's? A. Oh, I cannot say I was interested in the water-wash system. I wouldn't answer that question. As a matter of fact, I was not interested.

Q. As a matter of fact, that is a comparatively new improvement, that water-wash system of cupolas, is it not?
A. This last eight or nine years—well, say more than that—six years.

40

Q. And there are many foundry cupolas, both in Canada and the United States, and large ones at that, that have not any such water-washed scrubbing system in them? A. They are all in great trouble today and rushing for—

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Q. Well, whether they are in trouble or not, is it not a fact that at the time McKinnon's installed this water-washed scrubbing system in their cupolas in 1945, that they were the first in Canada to instal it? A. I couldn't answer that question.

Q. Do you know any other water-washed system in Canada besides the McKinnon's, at this moment? A. At this moment, no, I do not.

10 Q. Now, in addition to your looking into the cupola stack at McKinnon's—well, perhaps I had better get the details of that before I go ahead. I am talking of the cupola stack on the day of the inspection, March 14th. A. We were.

Q. And you were able to look down inside the stack, were you, to see the operation of the water cones? A. We were.

Q. And have you ever been able to look down the inside of any other similar cupola stack, any place? A. Any cupola stack you claim you can look down inside, if you get away from the wind.

Q. Any cupola stack you can do that? A. Yes.

20 HIS LORDSHIP: You mean, you get a trade wind?
A. Yes.

Q. You get on the windward side, the side the wind is coming from? A. Yes. You observe that.

Q. You were watching it there.

MR. KEOGH: Yes. I see. Just coming to that, because you said it was a southwest wind, I suggest to you it was a north wind and that you were on the north side of the cupola stack? A. I don't know, I am sure. I wouldn't swear as to where we were on the cupola, but we were able to look down inside it.

30 Q. I know. And that is because the wind was blowing from the north away from you, I suggest? A. Well, we could look down inside, whichever way the wind was blowing.

Q. And the wind was blowing away from you, across the top of the cupola, blowing the smoke away from you, wasn't it? A. To my recollection, it was blowing the smoke in the direction—I mean in the direction of four stacks and coming in this direction.

40 Q. You said a minute ago it was blowing up towards Walker's. A southwest wind, I suggest to you, it was coming directly the opposite. What do you say? A. I will take my compass on the stack and give you the answer that is necessary.

Q. Oh, I am not talking about a compass. You remember going up the iron ladder? A. Yes.

Q. And, on the iron ladder, up to the left of the cupola stack, as you went up the steel platform? A. To your left.

Q. When you were up at the top of the ladder, you were to the left or south of the cupola stacks, weren't you? My friend says "no". I am cross-examining; I say "yes". A. I don't remember the position of the stack. I wasn't interested.

Q. And I suggest to you that after you were up this first iron ladder, you had to turn to your right and walk along a steel platform? A. That is correct.

10 Q. And go up another ladder and go to the north along this steel platform? A. We went to the right.

Q. That would be to the north? A. I don't know.

Q. Because when you were going up the ladder, you were facing west? A. I don't know. We went to the right.

Q. Well, at any rate, you finally arrived at a position to your right of the cupolas? A. We went to the right and off the ladder and followed along the line of the cupola stacks, yes.

20 Q. Now, you told my friend—or, just before we leave that, will you tell me the name and location and kind of any other cupola stack either with or without a water-wash cone like these, in which you were able to put your head over and look in it any time when the cupola was operating? A. Yes, Walker's.

Q. Walker's A. Yes, Walker's cupola.

Q. Where is that located? A. That is in Windsor, Walkerville; Geller Hoist, located in Detroit; Colbourne Malleable, Columbus, and Rouge; eight or nine of them there I looked into. Offhand those are the principal ones. There are many more.

30 Q. And that was all when they were operating? A. That was all when they were operating; no interest when they are not operating.

Q. And smoke and sparks coming up from the lower part of the cupola? A. Always.

40 Q. And how many of those besides the Ford River Rouge plant, how many of the others had water scrubbers? A. I am speaking of over a period of years in which the water scrubbers were not heard of. Water scrubbers, made as such, were only instituted six years ago. I have not had much contact with cupola practice since 1941 so therefore I cannot place many of them that were using the water wash, but they had an impingement chain, but none of them water washed.

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Q. And how many of those had what you call the impingement chain? A. Well, I don't know that I can go into detail on that. I know some at Columbus had.

Q. What is the name of the foundry at Columbus?
A. The Columbus Malleable, and also I didn't see, but I understand that the Geller Hoist tried the chains and, oh, there are several.

10 Q. What did the Geller Hoist cupola have on when you were able to put your head over and look down into it? A. That was 15 years ago. They had nothing, like the cupolas that were in trouble, and that is the reason we are making an investigation and trying and suggesting means to stop the nuisance and hazards which were called smoke nuisances by cities.

Q. And you say you were able to look over the cupola and you saw it had no water scrubber and no chains on it? A. It had no scrubber and no chains on it.

20 Q. Then, you told my friend that carbon monoxide, carbon dioxide and sulphur dioxide ash, particles of coke and rust, all these escaped through the top of these cupola stacks and, I was talking when you used the words "these cupola stacks", but you were referring to the McKinnon's stacks? A. I was referring to the general practising cupolas. We can make it McKinnon's if you like.

Q. I don't want you to make it anything. A. It is common to all cupola stacks.

Q. And it is upon the strength of what you say is common to all stacks that you make it apply to the McKinnon's stacks, is that it? A. No.

30 Q. Well, I mean, you never made any actual test at any time of what was coming out of the top of the cupolas and McKinnon's stacks, did you? A. Since being consulted in this matter I have examined the deposits.

Q. I am not talking about deposits.

HIS LORDSHIP: Just a moment. You asked him if he has made any tests.

MR. KEOGH: Yes, of what came out of the cupolas.

HIS LORDSHIP: Well, he is answering that question.

MR. KEOGH: I didn't ask him about the tests.

40 HIS LORDSHIP: You asked him if he made any tests of what came out of the cupola. He proceeded to answer and then you said, "I am not talking about that now." To save time or otherwise, I am going to hear what the answer is.

MR. KEOGH: I didn't mean to shut him off, my Lord. I thought he was switching into something else.

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HIS LORDSHIP: What was your answer? A. I examined the glass on the roof and the gulleys that divided the glass, the roofs of the greenhouses and took and examined them by a small microscope. The deposits that I took both from the glass and the drainage eavestrough, I recognized them as a certain amount of smoke and soot and iron rust. Those were analyzed; three distinguishable things that could be definitely ascertained just by visual examination by a magnifying glass.

MR. KEOGH: Q. Do you know how many other foundries there are in St. Catharines that melt pig iron? A. No.

Q. And was there anything about the analysis of this deposit at Walker's greenhouse roof, which indicated in any way that it came from McKinnon's foundry rather than some of the other foundries in St. Catharines? A. It was not labelled "McKinnon's", certainly not.

Q. No. I say, was there anything that indicated it came from McKinnon's, rather than some of the other foundries? A. No, not from any other foundry. Not every foundry would make the same deposit. If there was another foundry in the vicinity it might have come from that, but I don't think there is.

Q. Then, you told my friend that in the one case of one water cone, there was 30% running down halfway and 70% down the other half. Which cupola was that, starting from the west? A. The three running and, from the direction of Walker's, it was the second cupola.

Q. The second cupola from Walker's? There are four altogether? A. Yes.

Q. So that would be the third from the west? A. It would be the second from Walker's green house.

Q. Well, McKinnon's is west of Walker's, isn't it? A. Well, I am telling you it was the second cupola from the direction of Walker's.

Q. And that would be the third cupola, counting from the opposite direction? A. Correct.

Q. And did you notice a ring or a flange around the bottom of this water cone, in that particular scrubber in that cupola, the second from Walker's, at that time? A. You mean the collector for the water that flows down before it goes to the drain, to drop?

Q. No, I mean a ring or a flange around the bottom of the outside circumference of the cone. A. There is none showing.

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Q. You didn't see it? A. No; otherwise the water would not be able to run off the cone, if the flange were there.

Q. Well, I am talking, for instance, that lamp in front of you. If there was a little ring— A. You mean perpendicular?

Q. Yes. A. Oh, that would be a natural thing to put up a cone to stop any water from being drawn back into the furnace, to direct it into the two troughs, or the circular trough that runs around to give it the flow.

10 Q. That would be a natural thing to put up. Did you see it? A. I didn't examine it close enough for that.

Q. You couldn't say whether or not the water, when it hit this ring, exuded and ran around the ring and made it evenly? A. It didn't make it even. I am talking of the water being in streams, not the distance leaving the ring and the trough receptacle that it falls in and through which the smoke passes.

Q. If you don't remember the ring, then, how do you know what kind of curtain of water was leaving it? A. I don't understand what you mean. Are you doubting that I was up there?

20 Q. You have told my friend that up above, you said you saw 40% of the water running down one half of the cone and 75% running down the other half of the cone. A. That is mere observation. You look in here. There is a trickle of water down this side and a flood of water down this side. How would you express it?

Q. I am not quarrelling with that, but you are suggesting also that the water curtain, as it left the bottom of this cone, was not an even curtain; there were gaps in it. A. It definitely was not an even curtain.

Q. That is what you are saying? A. Yes.

30 Q. I am pointing out to you that if you did not see the ring around the bottom of the cone, you did not see the curtain as it actually left the cone, did you? A. Yes, we did see the curtain.

Q. You did? A. Yes; the portion of the curtain that was there.

HIS LORDSHIP: Mr. Keogh, this is adjournment time.—
Whereupon Court adjourned until 2.15 p.m.

Monday, April 25th, 1949, 2.15 p.m.

CROSS-EXAMINATION OF MR. BEAUMONT CONTINUED
BY MR. KEOGH:

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HIS LORDSHIP: Yes, Mr. Keogh.

MR. KEOGH: Q. Mr. Beaumont, if I understand you correctly, you told my friend that the flow of water to the water scrubbers in the cupola stacks in the Ford Company at Rouge, Michigan, was three times as much as the flow of water at McKinnon's? A. I approximated it about that much.

10 Q. How many gallons of water per hour was the flow at the Ford Company? A. Oh, that would be hard to say; between five and six hundred, I would think.

Q. Between five and six hundred gallons per hour, that is per cupola, is it? A. Yes.

Q. And how much do you say is the flow at McKinnon's, per hour? A. I don't know. I believe they gave me the information that it would be two hundred gallons. I am not sure. I heard it mentioned there.

20 Q. Do you know the capacity, in gallons, of the settling tank at McKinnon's that is used in connection with this water scrubbing system? A. No; it would be a mental calculation on that.

Q. Well, would you say 5,000 gallons? Would that be approximate? I am told that is what it is. A. Well, I wouldn't doubt that. If you will give me the measurement of the tank, I will quickly tell you, but, probably about 5,000.

HIS LORDSHIP: The tank would hold 5,000?

30 MR. KEOGH: In the settling tank, yes; it would hold that amount. And then, when you made this comparison of Ford's and McKinnon's, did you know that at the McKinnon's they add 300 gallons of fresh water every hour? A. From the information at the time—as regards the addition of fresh water, that information was given to me by their engineer—sufficient water was added to keep the level—to keep a certain depth of water in there, and I understood from his conversation with me that was a daily addition, or an addition after what they had called they had the sludge out; that is, swept the sediment from the bottom of the tank down the pipe and into the drain, and that the water was replenished in that way.

40 Q. Anyway, in making that comparison, it was not your understanding that McKinnons added 300 gallons of fresh water per hour? A. No.

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Q. And you know, do you not, that the water with the sludge in it from these scrubbers at McKinnon's, is pumped through three water pumps? You know that? A. Yes.

Q. And I suggest to you that for the sludge to go through the water pumps there must be lots of water along with it?
A. Correct. Pardon me. You said 200 gallons per hour? You mean 200 gallons per minute.

Q. I said 300 gallons per hour of fresh water added.
A. No, but during the pumping time.

10 HIS LORDSHIP: Excuse me. I want to see that I am not confused whether they are gallons per hour or gallons per minute.

MR. KEOGH: I never used the word "per minute".

HIS LORDSHIP: We are talking about gallons per minute?

THE WITNESS: Always, sir.

Q. The flow at Ford's would be five or six hundred gallons per minute? A. Oh, yes, and the one at McKinnon's is about 200 gallons per minute. Mr. Keogh said per hour.

Q. Now, Mr. Keogh is speaking of adding 300 gallons per hour of fresh water. They are two different units. A. Two
20 different units.

MR. KEOGH: Q. And just to make it clear, I think you have already said that was not your understanding about the 300 gallons per hour? A. No. There are certain questions I asked at the time, which I believe you, yourself, refused permission for them to answer to me, so that I left the matter alone.

Q. Well, I don't remember that. I might have given instructions that it was an inspection and not a discovery. You are referring afterwards to a conversation in Mr. Keogh's office?

A. Yes, and you were there, and I was asking for information
30 as to the amount of sludge I could calculate was being taken out of the tank, and I could not obtain an answer.

Q. Well, it was an inspection and not a discovery.
A. Well, I didn't understand that.

Q. Then, did you examine or make any observations as to the amount of ash and soot which might generally be described as cinders, which the McKinnon water system removes from the cupolas each day? A. It was impossible to view it.

Q. You didn't do that? A. We asked for a view of it and we could not be shown.

Q. You were shown the place on the top where this was
40 dumped down? A. We were shown the place on the bank, which was on the railroad, and it was impossible to get down.

Q. It is quite a steep bank, and I don't blame you for not going down. But you didn't get any information from them. And then, this foundry of the Ford Company at Rouge, that is one of the largest in the world, is it not? A. I think so.

Q. Probably the largest? A. Possibly.

Q. And how many cupolas have they there? A. Oh, that is a poser. Oh, it would be a wild guess; probably 20, 25, 30; a long row of them; the whole length of the shop is about a couple of thousand yards long.

10 Q. And how does the size of the average Ford cupola compare with the size of the McKinnon's cupola? A. Oh, I think that the McKinnon's cupola must be about 60 inch, and I think 72 is the largest that is commercially used. In very small foundries they may use 30 inch, but it is not, from an operational standpoint, from a profit standpoint they are not very profitable; they are too small, so that about a 60 inch cupola to 72, is the standard width.

Q. You are speaking now of the inside diameter? A. Between the fire brick.

20 Q. That is the usable space inside the cupola? A. Yes.

Q. They are all lined with fire brick. Is that what I understood? A. Yes.

Q. And what was the size of the average Ford cupola? A. Oh, they have a lot of 72 inch, but I have never measured this cupola, but they range from 60 to 72 inches.

Q. And you say they have a lot of 72 inch? A. Well, I couldn't say what number are 72 and what number 60.

30 Q. I know you didn't make an accurate count, but can you say from memory there would be half 72 inch and half 60 inch, or are you able to say? A. Oh, there would be 60's and 72's, because the operation of anything smaller would not be profitable. I have never had occasion to measure up any cupola there, so they may be all 60's or all 72's. I wouldn't be positive.

40 Q. Then, I have not got the exact figure, but there will be some one called later who will be able to give it. Did you make an approximate estimate of the inside diameter between the fire brick of the McKinnon cupolas in which you looked, on March 14th? A. I approximated it myself. I asked the question and no one would answer it to me, and I approximated it from what I could see. Of course, it is a very deceptive thing to try and tell the inside of a cupola when there are so many jacks on the inside, and it is merely—I estimated it was about a 60-inch cupola and then the top of the cupola being around 80 pounds per day, and they turn out there 75, then from that period of time to the point of about a 60-inch cupola; that is the only way I could gauge it.

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Q. Well, I just wanted to get a rough comparison with the Ford. Then, did you make any examination of the water in the mechanical scrubbing system after it left the settling tank and goes on its way back around the cone through the scrubbers?

A. As far as I remember, the settling tank at McKinnon's is a large tank, and I think there are three sections of it. The engineer could not, or would not, tell me what those sections consisted of; whether they were filter walls or not, so I looked into the three sections. The last section I took it to be the suction end of the pump, that is the end of the tank which took and pumped the water for circulating through the system and, in all cases, the water was, oh, slimy. I mean, that may have been occasioned by dust and dirt in it. It is also accentuated by the fact that they have an alkali in the water, so the judgment of one on that kind of thing must be rather guarded because though there was a lot of dirt in that—I will vouch for that—it would look from the cylinder itself to have more in than it had, because there is sodium carbonate added to it, sodium carbonate being added to counteract any acid value imparted to the water by its washing of the gases, particularly sulphur dioxide being emitted from the cupola stack and also to preserve the pump life; I believe that is the real reason of it, and it is alkali, so that water with the sodium carbonate alone not, as you know, being an alkali, would feel slimy and would feel worse than it actually is. Undoubtedly, from an examination of that portion of the tank, there is a lot of suspended matter in that tank.

20

Q. And it would not only feel, but I suppose it would look dirtier than it was? A. Oh, it all looks dirty.

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Q. And then, would you notice, or did you notice the water at the end of the tank, what we might call entering in at the west end, where it comes from the stack, is quite hot when it comes down into that first section and bubbles a lot? A. There is a little scum on the water and I say the temperature of the water, from the feel of the outside of the tank, would be about 80 degrees.

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Q. Then, you saw these three series of—I think you used the word "filter", but I think they are baffle plates, are they not? A. Well, I inquired into that as to whether they were baffle plates, which would not take out all the sediment. It would allow a lot of suspended matter to pass out of the tank where the pumps work, to operate to take a lot of that sediment out, and when I

explained they were baffle plates, I couldn't get any further information from it so I don't know whether they are baffle plates, or filters yet, because the tank was filled with water.

Q. At any rate, we have it that there are three main divisions in this tank through which the water passes before it goes into the pumps to be recirculated again? A. Correct.

10 Q. And did the water in the third section, just before entering the pumps, appear to be a lot cleaner than in the first section, where it enters? A. From the operation of the tank you cannot tell, because the heavier portion of any wash-out that occurs settles immediately to the bottom of the tank but is not circulated and so, as a consequence, the water in the first division—there was a little scum on that, but there was very little difference in the appearance of the water in any of the three compartments of the tank.

Q. Then, you spoke of the sodium carbonate being added to counteract the sulphur dioxide, I think you used the expression, in the water? A. Soda ash is the commercial and common name.

20 Q. And you said that was added to counteract the sulphur dioxide gas dissolved in the water and to preserve the life of the pumps? A. No. I say that was the reason of it being added. I didn't say there was sulphur dioxide or any acid to counteract, because the acid, owing to the inefficiency of the system, is not being washed out, so there is nothing much to wash out, or to counteract it.

Q. Then, did you test or smell the water to be able to tell whether it was in an acid condition, when you were there, or not? A. It could not be in an acid condition.

30 Q. It couldn't? A. Take more acid than the whole district produces to make one gallon, and you have a lot of soda ash there.

Q. Are you giving the impression that the sodium carbonate or soda ash is being added unnecessarily to this water? A. Oh, yes. It was added to preserve the pump, so the engineer told me. That was the sole reason of it, not for the absorption of gases, but to preserve the pumps from corrosion. The reason is that when that water is brought into contact with the gases it is able to dissolve it. In this case, the gases are not brought into contact with the water, therefore do not dissolve the acid content of that smoke.

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Q. Why do you say the gases are not brought into contact with the water? A. They are not brought into contact with the water by personal observation. On one cupola they told me 35% were not in the vicinity of the water, the other 75% passed away without any contact with the water.

Q. That is from your personal observations? A. Yes.

HIS LORDSHIP: How about the other cupola? A. Running about 35 and 65.

10 Q. Well, they would, to a certain extent, come in contact with the water just the same, would they not? A. No, sir.

Q. Well, if 35% was coming in contact with the water—
A. Oh, a portion would, yes.

Q. Well, would that not be reflected in the water that would be found in the settling tank? A. Yes. The acid value would be taken out of any gas, or 80% would be taken out of any gas that would come in contact with the water.

20 Q. Yes, but I understood you to say to Mr. Keogh a few moments ago, that none of the gases came in contact with the water; therefore there would be no gas in the water to be taken out by the sodium carbonate? A. A sufficient quantity of the gas does not come into contact with the water that would be necessary, or make it necessary to add sodium carbonate.

Q. All I want to do is to know accurately what you are saying, and that is quite a different thing from saying none of it comes in contact with the water? A. Well, I should not have said that. I explained previously that 35% of the gas on this cupola did come in contact, therefore I cannot go back on it.

Q. Well, we want to be precise about it; that is important.
A. I am sorry.

30 MR. KEOGH: Q. I believe you told us at Ford's, at Rouge, where the gas was in contact with the water, 80 to 85% of the gases were removed? A. The gasses? What do you mean by the "gases"?

Q. Well, the sulphur dioxide, for instance. A. Yes. The others are not hardly soluble, therefore they would pass, but the sulphur dioxide is soluble. I would say that 85% of the sulphur dioxide is therefore taken out in proportion to the water that came in contact.

10 Q. And I know that you do not agree that, on the day you saw that, there was a solid curtain of water around, and there will be other evidence given as to that. But assuming—and I must consider that you are able to speak in answer to this question—assuming there was a solid curtain of water all the way around this cupola which you saw at McKinnon's on the 14th of March, which was, I think you told us, the second from Walker's, that would be the second from the east—assuming such a solid curtain of water, would you expect that system in that cupola to remove 80 to 85% sulphur dioxide if the water curtain was solid all the way around? A. That is a presumption entirely, because they find it impossible to maintain a water current all around. They take on a theoretical value.

Q. Why do you make that statement? A. Because no one has been successful in doing that yet. They have not been able to maintain a complete water curtain basis. The form of which is at Ford, Rouge, they only get the completed curtain of which I have given an estimate, 85% perfect. I think one can be made 100% perfect.

20 Q. Well, passing that stage for the moment; assuming there was in this cupola 85% perfect, or 80% perfect, would you expect it in the McKinnon's cupola to remove 80 to 85% of the sulphur dioxide of the cupola smoke? A. A little less than that, but in the whole I think you are correct.

30 Q. In the whole correct, but possibly a little less. Then, what is the principle of the water scrubbers at Ford's? Are they nozzles, or are they a curtain of water flowing down the top of the cone? A. I don't know that I am at liberty to disclose that, because the operation that they are putting in here and are going to increase on their cupolas, is something that is, as I understand, patentable, but I can tell you that it is not a straight flow of water. It has a whirling motion. How that whirling motion is imparted, I should not discuss until they have obtained their rights on that patent on the way they do it. You see, I could not do that.

Q. Well, I am not going into this business, but do you know, yourself, whether—without saying how those whirls develop or anything like that, I take it from your answer that you know that the Ford system is not a nozzle system, at any rate?

40 HIS LORDSHIP: Q. Can you go this far? Is it the same as the system at McKinnon's? A. No, not identical, no.

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MR. KEOGH: Q. But the Ford system is not a nozzle system? Is that right? A. It is not a nozzle system, but nozzles block up by some means or other or corrode, and I think they have been more or less let out of the picture, and that is why the swirling or whirling motion is now coming in, where there is no clogging can occur.

Q. And however they cause the swirling motion to be made, you say, at any rate, it only swirls around 85% of the cone, at Fords? A. Up to now, yes. An addition, though, will be made on to that from the data of their observation so far, and it will be such that pretty much 100% will come in contact with the water before they are through with the check.

Q. If they got a harder swirl? A. No, no. It is a combination of and slightly different from, but along with the present installation.

Q. Then when you saw, as you say, these gaps in the McKinnon cupolas on March 14th, did you notice whether or not there was any swirling motion to the waters at McKinnon's? A. No swirling motion at all.

20 Q. None that you know? A. There was not a swirling motion.

Q. And did you see anything about the location of the nozzle, or the location of the cones, and whether they were in any way out of plumb when you saw them, because of these gaps? A. Yes; they were not centralized, which, had they been centralized, the operation would have been better; but there was an insufficiency of water on the angle of the cone and the pressure and the speed of the water running, to complete a full curtain on the larger diameter of the cone.

30 Q. And when you say they were not centralized, you mean that the outlet pipe above the apex of the cone was not directly over the apex of the cone. Is that what you mean? A. Correct.

Q. And on the one that you are complaining of, the second from the east, how far off centre from the apex of the cone was that outlet pipe? A. Oh, to estimate it, I would say probably three-eighths of an inch, half an inch off centre. You see, that distance is probably eight or nine feet from you when you are looking, and it is only a visual measurement. You could not get anywhere on top to measure it, but I would say anywhere from
40 a half to three-eighths; one or the other.

Q. And from one side of the cone to the other, taking a straight line of measurement, would be about 60 inches, would it; the diameter of that cone at the bottom of it? A. Yes, a little over that. It would have to be a little over five foot, because they have to overlap so the water could not run back in the cupola mouth; a little bigger.

Q. Is that why the centres at the top are built out, as shown in the photograph dated April 12th, 1945, which I will identify later? A. Yes, but what I was meaning on this, that the stack itself, that is the fire lining of the stack which goes to the top, if the cone which is inserted in the top here and this water pours in and it didn't overlap the chimney itself, there would be probably a tendency for some water to drip down on the charge, so I take it, as a good engineer, that it would be an overlap to allow the water in that orifice to drip back into the cupola. That is what I mean.

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10 HIS LORDSHIP: We will mark it for identification, or probably the witness can identify it.

MR. KEOGH: I don't think it was in this condition when he saw it. One of them has a chain curtain on it.

HIS LORDSHIP: Well, did you see that in this condition?

THE WITNESS: That is, the cupolas in the condition of the picture, as far as they are, yes. When was that picture taken?

MR. KEOGH: April 12th, 1945, and the third one has a chain curtain on it, I am instructed.

20 HIS LORDSHIP: Well, that is the one, away in the back-ground?

MR. KEOGH: Yes.

HIS LORDSHIP: I was pointing to the first one in the foreground.

THE WITNESS: Were these other two cupolas working at this time?

30 MR. KEOGH: I am not sure. There is a little smoke in one of them. A. From the depth of smoke, I understand, from the showing of the picture, that these are now operating with the water coil, but were those cupolas running, because they don't look as if they were?

MR. KEOGH: I am instructed at least the centre one was, but I don't know about the other.

MR. SLAGHT: What do you want to do? Do you want to put them in now, because I may want to know what it really means.

40 HIS LORDSHIP: I think if Mr. Keogh undertakes to identify it and submit the witness who took it to cross-examination, we can put it in now, because it is much more convenient for the purposes of record to know what we are referring to during these discussions.

MR. SLAGHT: I was proposing to have it identified by Mr. Keogh.

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MR. KEOGH: The photographer is in Toronto and I was not going to bring him over.

HIS LORDSHIP: I will take Mr. Keogh's word for it that he will prove it at a later stage.

THE WITNESS: I would question very much whether those two first cupolas are working, because they would have been—

HIS LORDSHIP: Well, we will see about that later.

THE WITNESS: All right.

10 —EXHIBIT No. 71: Photograph of the cupolas at the McKinnon plant.

MR. KEOGH: Q. You told my friend this morning, if I took you down correctly, that the hanging curtain chains do a better job in stopping ash and soot. Did you use words along those lines to Mr. Slaughter? A. That is only my personal opinion. I refer to confine the chain to a simple water flow such as McKinnon's have, because I think that the contact is much greater and the contact that takes the dust and particles out of any smoke is impact, hitting something. Where this water was insufficient, it could not hit the water with a series of chains around that
20 furnace. There is much more air for that smoke to make an impact with and for that reason, I say the chain is more efficient as regards taking particles—it will not take the gas out, but it will subdue the particles.

Q. And when you are expressing that opinion, you are assuming, of course, that there would be gas in the water curtain? A. Yes.

30 Q. If you had a water curtain which was complete without gas, then, would you agree that that was more efficient in removing ash and soot particles than a curtain of chains? A. It would be, provided the gas—it would dissolve some of the gas, you see, but that perfection has not been attained in any cupola yet.

Q. I was not talking about gas, but about a complete curtain of water. If you had such a thing—remove more ash and soot particles from a cupola—I say wouldn't it remove more soot and ash particles from a cupola than any hanging curtain of chains? A. If the curtain were perfect, that is, if no breaks in it, yes, I agree with you.

40 Q. Because no matter how thin the curtain of chains you would have, you would always have gaps between the chains—holes in the chains? A. Yes, but as that gas passes through each link of the chain is a small amount and it does not interfere with the draught, and you get a swirling motion. The soot and dirt hits the chain and you get a swirling movement, which the

gases make, which takes out the heavy particles of matter. It doesn't go straight through all the time.

Q. Did you ever see any of the chain curtains in operation on any of the McKinnon cupola stacks? A. No.

Q. So that your expression, as you say, is based on those premises, not from actual observation of the chain curtains and, secondly, the water curtain, at McKinnon's? A. It is based entirely from my scientific knowledge of this subject.

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10 Q. Then, I believe you told my friend this morning that the system that McKinnon's had before, of nozzles, for this water spray was a better system than the system they have now of a water curtain flowing down. Did you indicate that to my friend? A. If the nozzles do not block, it is better than the present curtain of water, yes, definitely.

20 Q. And did you ever see the nozzle system in operation at McKinnon's? A. No, I have not seen the nozzle system at McKinnon's, but I have seen nozzles from different operating cupolas that had them, that were blocked. They were simply full of congealed matter; probably a particle got stuck in the orifice and then she backed up and it became plugged and it became so necessary to so frequently clean them out that the system became more or less inoperative, and I believe that now both Whiting and the other firms are working on some different principle where the inaccuracies which always occur in a water supply where they dip down or leak can be done away with by a spiral motion.

Q. Well, some sort of flow of water, whether swirling or spiral or spray, appears now to be preferred to the nozzle system? Is that what you are suggesting? A. Definitely.

30 HIS LORDSHIP: Q. Will you explain the difference between the nozzle system and the water curtain? A. The water curtain is a straight drip of water through a pipe. You take a two-inch pipe. You see, there is a pressure of water and it simply bulges out as it comes down there. There is a coil on it and it impinges on the apex and spreads, or it branches and by the time it gets five or six inches of diameter, you can imagine the water is broken up into a curtain of streams. In the case of a nozzle, it is more like a curtain, sir, and sprays the atmosphere with mist, through which the smoke must pass, and that makes the mist heavy with it. The collected particles come back down on the wall and into a crushing chamber to go back into the
40 second tank.

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Q. As I understand the curtain, the water flowing on the cone, as it comes over the edges of the cone, the base of it forms a curtain there? A. That should form a curtain there, and the water that is supplied on the cone is for cooling over the cone itself on which, when they blow a furnace, a lot of metallic particles come up and, heated with coke, when it cools it will congeal from one to—goes up to two inches in thickness and break back and go into the furnace. That is to stop that also.

10 Q. And this is important, that you suggest that Ford's have debated the point as to, instead of the water just flowing down over the cone, it is introduced in the cone in some swirling motion? A. In a swirling motion, yes.

Q. So that that would prevent it forming the streams on the cone. Is that correct? A. Yes. The motion of it would be such that it would be circular and, instead of the water coming down in a flood and simply going into a stream, it would simply be thrown into motion where the velocity of water would create a curtain right around it. It does not depend on impingement at all.

20 Q. Well, would the effect of the water curtain, under the system used at McKinnon's, that is where it flows on to the cone, would the effect of the alterations of the pressure of water that one gets in an ordinary municipality, change the efficiency of the curtain? A. Not so much the velocity of the water as the volume of water. You see, if you have a cone and you put a quarter inch pipe, ten gallons a minute, there is only enough water to run little trickles down that cone; or you increase it to the capacity which it must be so that, although the water on top is two inches thick, from the time it is thinned down, it must be
30 a complete circle and therefore a tremendous amount of water must be used in that system.

Q. Well, would the alteration of the pressure not alter the volume of water for a second? A. If you get too high a pressure, it doesn't permit of the spread of water that is going in one direction. Lower the pressure, and you can change the direction after it has left the pipe, so in order to get a curtain, it is volume rather than pressure, you see.

40 MR. KEOGH: Q. Then, with the flowing type of cone, you get a straight up-and-down or vertical water curtain? Is that right? A. It is only water and because there is the velocity of it which comes down an incline, therefore it must shoot still on a tangent, the tangent breaking—

Q. It may not be absolutely perpendicular, but it is more or less? A. It is a continuation of the angle of the cone practically.

Q. Yes, whereas with the other nozzle system, you get more of a horizontal spray? A. An atmosphere; you get a fog, practically.

HIS LORDSHIP: Q. The nozzle system—is that fog produced by several nozzles? A. Oh, yes, I don't know how many.

10 Q. That spray, as you illustrated, was similar to a fine curtain spray? A. Yes, and through the series of these nozzles—it is not one nozzle. I don't know how many on the McKinnon's.

MR. KEOGH: Q. Did you see any cones down there that McKinnon's had described they were using with the nozzle system? A. No. I asked to see the nozzle system and was not shown it.

20 Q. Then, I am instructed that the nozzle used had the total circumference of the cone was 245 inches and that the 62 nozzles used were 319 inches apart. Would that be about what you expect—no, I beg pardon, 3.9 inches apart? A. Well, how many nozzles?

Q. 62. A. 62, and the cone is—

Q. 245 inches in circumference. A. That is about right; 245 and 62 will give you about four inches apart.

Q. 3.9? A. Well, that all depends on the orifice, as to the distance apart they will be.

30 Q. Would that be about the normal arrangement of nozzles if you were using the nozzle system you were talking about? A. If I were putting in a system of that type, that would be about the distance. I would first experiment with that. I would calculate what would be the usual system, that is under the pressure they are using right now.

Q. Well, that is the ordinary pressure, isn't it? A. I don't know whether McKinnon's pressure—they use pumps by which they can attain any pressure they like, or what volume they like.

Q. They have a pump on which a good deal—my friend reminds me, when it is in operation? A. Yes.

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Q. And did you notice a throw switch and a warning light in the circuit for each of these pumps to flash on, if the water for any reason was shut off? A. No, but that was explained to me, if anything went wrong with one pump there was another piping system whereby any pump could be used on the same cupola.

Q. There are three cupolas in operation generally and four pumps for the water cooling system? A. There is an auxiliary there.

10 Q. If such one is required? A. Yes.

Q. But did you also notice the throw switch that I mentioned, connected with each pump? A. No, I didn't particularly notice that.

20 Q. Then, just to finish this part, whichever system you use, whether you use the nozzle with a sort of horizontal projection on top, as you say, or the flow system with a more or less vertical flow, or an angle flow of water, whichever one of those curtains you use, the purpose of the whole thing is that all the smoke coming up the cupola is supposed to pass through either one of those types of curtains? A. Pass through the curtains, yes.

Q. And I believe you told my friend this morning that McKinnon's gave up the nozzles and changed to the curtain there because their water got slimy? A. That was the information given me at the plant.

Q. Who gave you that information? A. I can't remember the name. It was in general conversation. I asked whether or not the system had been used and they said "yes" and the orifice became blocked and the conversation went some way in this way, as to why they were using water instead of a nozzle.

30 HIS LORDSHIP: I am afraid that evidence is not evidence. In any case, I am not stopping your cross-examination on it now, but any information given to you by any members of the McKinnon's staff, is not evidence in this case. A. Well, the nozzle system was not on view, so we didn't see it.

40 MR. SLAGHT: My lord, with great respect, I think possibly my friend has made or can make it evidence by asking the question, "Why do you say so and so?" and he says, "I was told so by a representative of McKinnon's." That opening the door on cross-examination some times changes the situation. It would not be, though, if I tried to lead it in chief.

HIS LORDSHIP: No, I do not think it is evidence either one way or the other. A member of the staff is not the agent of the Company for the purpose of making admissions in this case.

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MR. KEOGH: May I just finish that by asking the witness if he could give me the name or the occupation of the man who he claims told him—I am talking about the nozzles being blocked up. You made the statement this morning that it became ineffective because McKinnon's water was slimy, and that is what I am asking about. Did anybody tell you that they changed over
10 from the nozzle to the curtain system because the water was slimy? A. No, not because it was slimy, because the nozzles became plugged.

Q. And then you say somebody did tell you it was because the nozzles became plugged? A. Yes.

Q. Can you give me the name or occupation of that man? A. No, I couldn't, because I was talking to eight or nine different people, and I couldn't say who answered it for me.

Q. Now then, you made some point this morning about the McKinnon scrap pile being rusty. Did you ever see a scrap pile
20 of metal or steel out in the open, say, that was not rusty? A. I said this morning it is in the general condition that all piles were, rusty.

Q. And then, I believe that you made the statement that the smoke from McKinnon's would produce damage to the plants, including orchids? Did you make that statement to my friend this morning? A. Definitely, no. Orchids were not mentioned this morning.

HIS LORDSHIP: I think Mr. Slight put the question to you whether you observed it, because the question was—he put
30 the question to you, "Would it produce damage to the plants including orchids?" A. I beg pardon. I didn't hear it.

HIS LORDSHIP: I didn't take down both the question and the answer, but he did mention both plants and orchids.

THE WITNESS: I beg pardon.

MR. KEOGH: Q. Then, I have a note here and I think before asking you I will ask you if this is correct, that you told my friend that the rust in the deposit would filter out the solar rays and they, that is I suppose the plants, could not get any sun. Did you make a statement of that kind or along those lines to my
40 friend this morning? A. I did.

Q. You did? A. Yes.

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Q. Well, do you really mean that they could not get any sunlight at all, or are you speaking in proportions? A. I can produce an experiment for you, if the parties were available, where I can prove to you that 80 to 85% of the wave lengths necessary to plant life can be filtered out and are filtered out by soot and oxide, dirt and grime on a greenhouse roof; yes definitely, I can.

Q. 85% A. Yes.

10 Q. And are you limiting that now to the ultraviolet rays, or to all the sun's rays? A. I limit it in my answer to all rays that are essential to plant life.

Q. And you are speaking now, are you, only of ultraviolet rays? A. Ultraviolet are included.

Q. What other kind are you talking about? A. Red, green, blue, yellow; all those are definitely essential in the beginning of the plant, in forming the structure of the plant so they will naturally and finally become a full grown plant and reproduce.

HIS LORDSHIP: You spoke—

20 MR. KEOGH: I beg pardon, my lord.

HIS LORDSHIP: I won't interrupt you. You are going to ask my question, or the one I had in mind.

MR. KEOGH: Well, I am not that smart, my lord, I don't think.

Q. How much sunlight is left when you take all these rays out of it? That is what I am trying to get at. A. How much sunlight is left on the visible rays?

Q. Yes. A. Oh, quite a lot of visible rays that are not necessary to plant life.

30 Q. In other words, you are not suggesting that it is dark inside all the greenhouses? A. The light—we will divide these rays into those that I think is most essential to the plant, and that is the violet ray and blue, and you can filter out by haze, smoke, smut and grime, 85% of these essential rays which, when they reach the plant and are necessary to the plant to make it strong from absorption by the chlorophyl that the plant creates within its own structure. It will filter those out and, if the plant does not get those rays, then the plant will wilt and die.

40 Q. And did you say this morning that, in Walker's greenhouse, all those things are taken out? A. Oh, no, no.

Q. You say it is dark? A. It is dismal, sure.

Q. Hard to walk around? A. Oh, no.

Q. You can see your way around without any artificial light? A. Mr. Keogh, you must understand bands of solar rays are in series. Now, it is quite possible to get a colour, red, which is a good light ray. That is no good to the plant; it would burn it; whereas, those rays that are necessary, you can filter out without practically noticing any of them.

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HIS LORDSHIP: I think what happens is this, that a glass, you have on it certain substances that will filter out certain rays, while other rays will go through and you will be able to probably not notice with the naked eye a great deal of difference as between daylight and darkness? A. That is quite correct. You know, there is a difference, because you see a roof, but you know there must be something on it, as it is impeding your sight.

Q. If you were setting up a camera, for instance, to take pictures, there would be a difference? A. There would be a difference.

Q. In the amount of exposure you would have to give? A. Yes.

Q. There is a way of breaking down the spectrum that you can see all these various rays? A. Oh, yes.

Q. There is a machine that does that? A. Yes, the spectograph.

Q. I recall seeing it done at the Chicago World's Fair in the Mechanical Building there, and you perceive them all in their different colours? A. Yes.

Q. And they carry it all through right up to the sound waves? A. Yes. That is what you do with this. Probably you might have seen it some time. They gather this dust and dirt and then they put it on. The apparatus has a switch. You put it at work and it is a picture of the spectrum and then on a screen 40 or 50 inches long and you see the different bands and you notice the different elements in that dirt, such as iron, sulphur, carbons and so on.

Q. And the effect of certain types of glass is to filter out certain rays? A. Yes.

Q. And is the filter that you put on the ordinary camera on the same principles? A. Yes.

Q. There are three or four, or several different types of filters you put on for different purposes, depending on the strength of the sunlight? A. Yes. It is like putting whitewash on the roof of greenhouses. I don't know whether they realize it, but the reason for that is to filter out the infrared which burns it.

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Q. That is when the rays get too strong? A. Yes.

MR. KEOGH: Q. Then, I believe in reply to a question of his lordship this morning, you spoke of two types of glass which, by reason of their constitutions, one had a pink shade and the other a green shade? A. Yes, sir.

10 Q. And, if I understood you correctly, you said the pink let in the ultraviolet ray and red this bluish— A. No. You can get practically a shade of sage green, which will filter out quite a lot of the violet ray, but blues, yellows, pinks, down to clarity, indeed to absolutely the clear. Of course, they do not filter out very much of the violet ray and the glass that does filter out the violet ray is not manufactured.

Q. Is not manufactured? A. Well, in a very small proportion, because health authorities some years ago, as you will remember, got after the necessity of violet rays in the houses and those Sinbads that produced that type of glass went out of business, because everyone that would have bought, went out and bought violet ray glass.

20 Q. And I am not sure this morning whether you said what type of glass was in Walker's greenhouses, whether ordinary glass, or some other type of glass? A. My knowledge of glass—I went, as well as I could, over sections of glass to put them together to visualize the colour, which is the ordinary means of identification, and I would say that that glass is the type that would pass—and I have tested hundreds of samples of glass—would pass about 90% of violet ray. There is always a little lag in glass.

30 Q. And you put it in which of those classifications? Which would you call for, the pink and green classification, or is that too concise, or how would you put it—violet and— A. There is no tremendous distinction like that; I mean, differences of colour are so—well, unless you are experienced, you couldn't tell it.

Q. I mean to say in what capacity would you put Walker's? A. I just remarked 85 or 90% would pass through that type of glass. This is a Pilkington glass with which I experimented a lot.

40 Q. Then, I believe you made a statement this morning that frequently soot and other smoke particles are carried as far as a thousand miles in the air? A. Diamatious. They are carried from Alaska, which is very many thousands of miles, and, over a period of a thousand years, they are deposited there in beds from which we obtain all diamatious materials today.

Q. Are they ground up? A. Yes, it is; comes down very fine. For instance, at Windsor power house, their ash pit is painted with white enamel. The cups are opened only once a year and they will take probably five or six tons of dust out. Probably 70 or 80 thousand tons of coal probably go up through the chimney. We have never had any reports where it goes to.

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Q. So much for soot and dust. Would the same thing apply to particles of iron oxide and something? A. No, iron oxide is too heavy to carry.

10 Q. How far would you think it would go, on the wind?
A. That is all I think a particle could—

MR. SLAGHT: You have been very kind so far, but you interrupted him.

20 THE WITNESS: The rust, which is natural iron oxide, is in flake, very light fluffy flake, and I would say may carry a mile or a mile and a half unless there was a gale of wind. You have so many factors to take into consideration, you see. If it were a still atmosphere, it may come down in a quarter of a mile, but all those heavy particles you will observe on the roof of any
foundry in the immediate vicinity of your cupola, you can feel
grit in the nose—well, that is because gravity dropped it, but
on that stuff it will travel a quarter of a mile. You can measure
more dust, and you can measure a finer temperature and so on
because it only disperses itself in the specific gravity. Ash pits
carrying light pine, it will be carried furthest.

30 Q. And you made a statement to my friend this morning that the amount of iron in Exhibit No. 20 almost identifies it as McKinnon's. I think you made a statement of that kind to my friend, did you not, or words to that effect? A. That was the glass bottle—in the little glass bottle?

Q. I beg pardon, Exhibit 20, a photograph which has a date on the back, 1946. If I took you down correctly in referring to that, you said the amount of iron almost identifies it as from McKinnon's, that there were no other chimneys sending out such iron, or words along that line? A. Wasn't that remark made on the view of a photograph that was much more recent and within my ken, than this one?

40 Q. Well, I don't know. I have a note of it, referring to Exhibit No. 20. A. I think the exhibit we were looking at was something much more recent that I know about, in 1945. Is this on—oh, no, this is 1949.

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Q. Well, you are looking at the Registrar's endorsement of the exhibit, but there is an exhibit in this case and there is a pencil note in the middle of the photograph, "1946". A. In 1946, not being called in on this case, I could not from my own observation of it, say that that was one thing or the other, but I can say that it is typical of a greenhouse roof in the vicinity of the cupolas.

10 Q. Then, referring to Exhibit No. 60, which I believe was a filter paper with some other deposit in it, you told my friend, if I took you down correctly, that that was typical of the deposits from the McKinnon foundry? A. Typical of a deposit from foundries.

HIS LORDSHIP: I think he said "was consistent with it."

MR. KEOGH: Well, my friend asked him yesterday "consistent", and the witness replied that it was typical. That is my memory, my lord.

THE WITNESS: I think it was the other way around.

20 Q. Well, I am asking you again, did you make that statement, that the dark appearing deposit in the folder paper Exhibit No. 60, was typical of the deposits from the McKinnon foundry? A. I don't know whether I mentioned the McKinnon foundry, but it is typical of the deposits from the area surrounding a foundry. There is no label on that to say it was McKinnon's. I didn't take a sample from there. It would be improper for me to say this is taken from McKinnon's when I didn't take it, so that I might say it is typical of the deposits surrounding a foundry.

30 Q. And you make that statement from examining deposits, or sampling deposits in the vicinity of other foundries, do you, or do you just make it on general experience? A. No. Owing to the question of the smoke nuisance being a more or less vital thing both in the States and Canada for some time, we have been investigating refuse, that is the discharge more of types of furnaces, so we have investigated these in order to know more or less what they are and, from knowing what they are, we are trying to find a solution to stop them.

Q. When you are referring to "we" are you talking of yourself particularly, or of science generally? A. I am talking of myself particularly, and one or two of forty odd technical men I had to help me with the job and to give me results.

40 Q. One or two of what? A. Of technicians we had at the time, at Ford's.

Q. Oh, this was at Ford's, Windsor? A. Oh, yes. Have you any facilities on the farm for making those investigations?

Q. How long ago was that? A. Oh, right up to the time I left Ford's, in 1940, we were investigating this proposition. We had one at Kelsey Hayes.

10 Q. Then, I believe you made a statement to my friend that soot would carry sulphur dioxide in a more concentrated form so as to cause damage to plants. Did you make a statement to that effect? A. I said that soot had the characteristic of being able to absorb into itself gases that surround it and would carry any gas that was toxic gas—would carry a deposit on a greenhouse or, if it were available to the plant leaf, would deposit it on the plant leaf.

Q. How do you know that soot will carry sulphur dioxide gas in a more concentrated form? A. Well, it is general scientific knowledge. I mean, it is just science.

20 Q. What I am trying to get at, did you make that statement as a result of any analyses, or a matter of speculation? A. I make that statement on the result of information and work I did at South Kensington during the first wartime period, on the absorption of gases by charcoal.

Q. I see. You worked with gas masks? A. We were finding out the best thing to put into gas masks, yes.

Q. Then, if that is right, it stays in the soot, does it not? A. No.

Q. Well, it stays in the gas mask, does it not? A. No, it becomes ineffective after a period of time.

30 HIS LORDSHIP: As I understood it, the carbon absorbs the gas and then, as the carbon settles on something and becomes moist, then the gas is given off? A. Yes, a certain amount of acid is exuded, according to atmospheric pressure.

Q. And it is absorbed into the plant? A. Because the plant is breathing and breathes some of it in, or it covers the pores of the plant.

40 MR. KEOGH: Q. And in connection with that, you made a statement about chlorophyl not being able to assimilate as well in the presence of that operation, and not being able to make an advance and not being able to make sugar and starches? A. Chlorophyl is the receiving set, the sole objective of which is to absorb the violet ray. If anything interferes with the absorption of the violet ray, it is just like you going off essential food, largely going off the violet D as in ricketts, and this was a similar question.

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Q. Is that the operation that is known among plant specialists as foto synthesis? A. Foto synthesis enters into it somewhat, yes.

Q. And have you made any special study of the assimilation of chlorophyl and foto synthesis? A. A certain amount of study, yes. I am always interested in those things.

Q. Do you agree with the statement that complete foto synthesis always takes place within 40% of normal light?

A. Where is normal light?

10 Q. Normal sunlight? A. Normal in Canada, or in the south?

Q. In this country? A. No, I don't agree. It takes more than that.

Q. But it is a well-known fact, is it not, that most plants receive far more sunlight than they can even begin to use? Is that a fact—plants in their natural state, I am talking about?

20 A. There is a super-abundance, otherwise life could not exist. You have got to have a reserve to draw on and everything in nature, and if you are referring to the fact that they put on the whitewash on the roof to stop the violet ray, they are not. That is to stop the infrared.

HIS LORDSHIP: Probably we will have witnesses who will deal with plant life. I think this witness is more of an expert on cupolas than plants.

MR. KEOGH: Q. You don't hold yourself out as an expert on plant life or foto synthesis or chlorophyl or things of that kind, do you? A. No, but since I have retired from business, as probably you are aware, I obtained myself a farm and say for the last six years, I have been very interested.

30 HIS LORDSHIP: But you are not a trained man and that was not what you were trained to? A. Most of my training in the past is of scientific knowledge, and this is only part of it, but I am not as big a man as some of those witnesses to be called later on.

Q. Well, there is no use in attempting to establish yourself as an expert in the field you are not expert in; if you have not devoted expert study as a professional man to plant life, I would advise you to stay out of it. A. Then, I simply don't answer the questions.

40 Q. Well, seeing you are not expert on that line—if you should claim to be one, that is one thing, but it is quite a different thing. There are certain things about the effect of light and so on as to the requirements of the plants, and different kinds of

plants. I would have thought it would have required a person that had made a special study of what they need? A. No. My information ends at the solar rays.

MR. KEOGH: Q. Then, coming to these air furnaces. Do I understand you to say—I may have examined you on it before but I am not sure—that you would have complete combustion taking place in these horizontal air furnaces? A. After the scrap is melted and you have your slag covering, it is possible and economical, and good practice to—

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10 Q. I know it is possible, but do you ever get complete combustion in any furnace, of anything? A. Yes.

Q. You do? A. Yes.

Q. And you can have combustion and absolutely no smoke or vapour or gas of any kind, can you? A. Yes.

Q. On what kind of furnaces do you get that sort of combustion? A. You can get that in almost any type of furnace ever operated.

Q. Almost any type of furnace? A. Yes, but you must have the conditions that accompany it.

20 Q. What are they, a vacuum or something? A. No, it is not necessary. A vacuum is a lack of oxygen. You must have oxygen, therefore you must have pressure.

Q. And are you serious in suggesting that from these old air melting furnaces there would be practically no smoke and practically no ash and only a little bit of nitrogen gas? A. A little bit of nitrogen gas?

Q. Yes? A. 77% of the volume of gases blown through air are nitrogen, so there must be a big bulk. I shouldn't say a little.

30 Q. Are you saying, from these air furnaces there would be no sulphur dioxide? A. After the metal has attained heat of around 1600 degrees, in an air furnace the sulphur dioxide would be almost completely escaped. It would absorb.

Q. And what about carbon monoxide? A. Carbon monoxide with proper combustion, very little of it will exist.

40 Q. Well, I am not saying with complete combustion. I am talking about this air iron melting furnace as you described it to my friend this morning, on a horizontal base; do you say that would not secrete any carbon monoxide? A. There would be very little coming from the stack, if properly operated.

Q. And what about carbon dioxide? A. Less of it.

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Q. Then, did you make this statement this morning, that the sulphur is not absorbed by the slag in the McKinnon cupolas?

A. Yes.

Q. Why do you say that? A. Because it is not in contact with the slag, and the sulphur is above the molten mass.

Q. Where is the slag located in McKinnon's cupola, when it is in operation? A. Down in the saucer.

Q. In the bottom? A. Yes, about eight to twelve inches below the melting zone.

10 Q. That is after the limestone is melted? A. No. Your sulphur is distilled off before the limestone melts.

Q. And you are making that statement as a result of what you saw on this date of inspection, March 14th? A. I am making that statement on my knowledge of the operation of cupolas.

Q. You are making that statement on the operation of cupolas generally? A. Yes.

20 Q. Then, you made a statement about heavy black smoke from McKinnon's cupola, and I believe you connected up with another statement that you could not get and you did not want an oxidized atmosphere in the cupola, or words to that effect? A. You must not have an oxidizing temperature in the vicinity of the metal. If you do you get what is known as a blown metal which is not fit for casting work if you do.

30 Q. Well, if evidence is given here that, on occasions, smoke from McKinnon's cupola, instead of being black is white or steam coloured, or straw coloured, what would that indicate to you? A. If that were either at the end of the day's work, or the beds of coke had been thoroughly distilled off, that is the only thing it would indicate to me, because if there is any heat in the furnace at all approaching eight or nine hundred degrees or eleven hundred, the volatile in the coke would distill and create a black atmosphere. You couldn't help it.

Q. That is, if it were coming out into the air? A. Well, it must go up the chimney.

Q. Unless the water curtain got it? A. If the water curtain got it—if there was a water curtain to catch it, yes, then I agree with you.

40 Q. Then, it might be a whitish or a light coloured smoke. Do you agree with that? A. No, I don't agree with that. There is no water curtain can take all the blackness out of smoke. No water curtain that is used today.

Q. Well, apart from that statement, if it took 85% out, as you say it does at Ford's, smoke light or straw coloured—

A. A grey haze, white, with a little black mixed with it.

Q. Well, if they take 85% out, it lightens it quite a bit?

A. Yes; black and white mixed together give grey and you can tell more or less from experience the proportions by the colour of the greyness.

Q. Then, you have never examined any of the slag from the cupola at McKinnon's, have you, for sulphur content?

10 A. No occasion to.

Q. Then, you made the statement to my friend that 50 to 60% of the rust in the cupola is blown out? A. That would be my estimate of the rust on all scrap put into cupolas at from 50 to 60%, being dry and being blown up, would filter out in the air.

Q. And what I want to clear up, do you say it was blown out in the air or up the stack? A. It would blow up the stack and if there is not anything to impede it, it would blow out in the air.

20 Q. What about the water curtain to impede it? A. If there was a water curtain it would impede it, but there was no water curtain there to hold it.

Q. Then, you would expect the water curtain to impede it to the extent that the water curtain was sufficient? Is that a correct statement? A. Correct.

Q. And in 1941 I think you told my friend—1940 and 1941 you visited McKinnon's on a trip on some war business for the Government? A. Yes.

30 Q. We filed No. 71; at that time, did you notice that all the cupolas were equipped with chain curtains similar to the third from the left in Exhibit 71? A. I had no interest in that matter whatsoever. My interest was in finished castings. I didn't even go to the cupolas to see them. The question I was there on was the mechanics of the Ford motor cars being made.

Q. Then, if you didn't notice what kind of structure was around the cupola stack, I suppose you didn't pay much attention to the smoke? A. Being familiar with conditions in foundries, I didn't make any observation.

40 Q. No, I don't mean that. I was wondering if you could make a comparison between 1940 and 1941 and March 14th, 1949? A. No.

Q. You couldn't tell whether it was better or worse on either of those days? A. Was too busy to observe it.

HIS LORDSHIP: Any re-examination?

MR. SLAGHT: Yes, my lord.

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RE-EXAMINATION BY MR. SLAGHT:

Q. My friend asked you something about war conditions at the McKinnon cupolas. You went there and you spoke of the little rivulets at intervals, and so on. I wonder if you could tell me what, or estimate the approximate width, or, rather the thickness of the water stream that you did see. Of course, in some places there was none at all; some places there would be a rivulet; in other places on the 70% side, there would be more water. If you cannot estimate it, tell me. A. Just as an intelligent guess, I would say about a thirty-second of an inch; where there was a little curtain, it would not exceed a thirty-second of an inch.

Q. Where there was water flowing, it would not exceed a thirty-second of an inch. That is all. Thanks.

—Witness excused.

—Intermission.

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LAWRENCE E. EDWARDS, sworn

EXAMINED BY MR. SLAGHT:

Q. Mr. Edwards, you live now in Texas? A. That is right sir.

Q. And I believe you have had a good deal of practical experience in engineering? A. That is true.

Q. In 1916 you started with the Grinnell Company in Toronto, who were fire protection engineers? A. Yes.

Q. Then you had plant experience in their engineering department, too, had you? A. That is right.

Q. And after the Grinnell Company with another branch of the Viking Corporation, in Detroit and Chicago? A. True.

Q. And in Toronto, you were in the fire protection business in partnership from 1930 to 1935? A. Yes.

Q. Then with the Bond Engineering works? A. That is true.

Q. And then you went with the McKinnon's, the present defendant company here, in St. Catharines? A. That is right.

Q. And you have not been with the McKinnon's for some little time? You are now living between Houston and New Orleans as Branch Manager of the Texas Automatic Sprinkler Company? A. Yes.

Q. Three and a half years with that company? Then you started with McKinnon's in 1941, when the war was on? A. Yes.

Q. And at that time how many cupolas were they working?
A. Three.

HIS LORDSHIP: Excuse me; when did you leave McKinnon's? A. May, 1944.

MR. SLAGHT: Q. And in that time they were working three cupolas and the electric furnace? A. Three cupolas and the electric furnace.

Q. And we have heard they were in pretty heavy production? A. They were working in fairly heavy production.

10 Q. Then, did you learn that Mr. Walker had made some complaints about trouble at his plant, at that time? A. I was advised.

Q. Don't tell me what you were advised or by whom, but I just want to know whether you became aware there was said to be trouble at the Walker plant, and, as a result of that, you went over and looked at it? A. I was made aware of that.

Q. You were Plant Engineer for the defendant company?
A. Yes, sir.

20 Q. Then did you go to Walker's greenhouses to investigate?
A. Yes. I went over to Walker's and made an investigation of the condition there.

Q. Was he there—who showed you through? A. Yes.

Q. Go through all the greenhouses? A. Yes, sir.

Q. And that would be—can you tell me about what time in 1941? I don't care exactly. A. I would say the latter part, sir; some time around October.

30 Q. And what condition did you find with regard to his plants when you went there? A. Well, I don't know too much about flowers, but the leaves of the plants and some of the blooms were covered with an accumulation of what appeared to be dust and dirt.

Q. And did you see some orchids? A. Yes, I saw the orchids.

Q. Do you recall anything that you may have noticed with regard to the orchid conditions? I understand you are not a plant expert—just a layman in that respect. A. There was a considerable number of leaves were discoloured. By that I mean they were brown and other shades, other than green.

40 Q. And did he have some white chrysanthemums there?
A. He did.

Q. Did you make any observation as to the condition of those? A. Well, the chrysanthemums in the south part of the greenhouse appeared to have a grayish tinge on them.

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Q. Did you take a bloom and do anything to push the investigation farther with regard to the chrysanthemums?

A. Well, we cut one bloom and wiped it on a sheet of white paper and the paper showed an accumulation of dust and other small particles of dirt.

Q. Then, did you report to your firm? A. I did.

Q. Then, did your duties, as Plant Engineer, involve any special task with regard to an attempt to lessen the dust or dirt particles which might emanate from your place? A. I was told to investigate the possibility of being able to either eliminate or help the condition.

Q. Well, as Plant Engineer, did you take on an attempt or an effort to eliminate or reduce the conditions that were coming from the chimneys? A. I did.

Q. And what—did you make any recommendations?
A. I made a recommendation that a certain type of water actuated arrester be installed.

Q. And what type was that? A. That was a type that was manufactured by the Whiting Corporation at that time.

20 Q. Did you have their literature? A. I did.

Q. Or some of it? A. I had it.

Q. And then, did the company undertake or did they follow your recommendation in purchasing any of the Whiting outfit?

A. No, sir; the cost was considered too excessive.

Q. At all events, they didn't go for that? A. No, sir.

Q. And then, did you make further enquiries after it was determined not to put the Whiting process in? A. I did.

30 Q. And did that result in any alternate system coming to the attention of your company? A. It did, sir.

Q. And what was done? What happened? A. Well, I recommended the installation of chain curtains on the cupola and, after estimating the cost, was told to go ahead with the installation.

Q. You recommended the installation of chain curtains?
A. Yes, that is right.

Q. And the cost was ascertained, and you were told to go ahead? A. Yes.

Q. And did you install chain curtains? A. We did.

40 Q. They were a cheaper method than the other?
A. Cheaper method, certainly.

Q. Then, after the installation did you keep some observation as to how they were working? A. Yes. We made periodical inspections of Mr. Walker's plant and the areas surrounding the cupolas at the roof, and we found Mr. Walker's plant had got less dust and there was a greater accumulation of dirt at the cupolas themselves.

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Q. And there was a greater what? A. A greater accumulation of dirt around the base of the cupolas, at the root.

Q. That is on your own property? A. That is right.

10 Q. My friend put in an exhibit this afternoon, No. 71, which he stated was a photograph taken of the plant on the 12th of April, 1945, that is the date marked on the back of it—and I will show that to you and see if you recognize that as a condition at your plant on or about the 12th of April, 1945? A. I couldn't recognize it, sir, at that time, because I was not with the company then.

Q. Oh, you were not with the company then? A. No, sir.

20 Q. Oh, I see. Then he, having put that in and suggested that that gives the Court some idea of conditions on April, 1945, you had left shortly before that A. I had left in May, 1944.

HIS LORDSHIP: Well, I don't think Mr. Keogh had suggested that was the condition. As I understood it, that shows the condition after two cupolas had been changed to the water curtain instead of the chain curtain.

MR. KEOGH: That just shows one cupola with the chain curtain.

MR. SLAGHT: Well, there was a chain curtain cupola, as you told us? A. Yes.

30 Q. They had set up a chain curtain before you left?

HIS LORDSHIP: I thought they were all chain curtains before you left? A. They were all chain curtains before I left.

Q. And then, at some time later they were changed to water curtains? A. That is right.

MR. SLAGHT: Well then, this picture indicates, I take it—is that or not an indication of a chain curtain? A. That is the chain curtain I am referring to.

40 Q. Now I am pointing to the third one. The other two do not appear to be in this picture. But, however that may be, you see there is a third one, and that appears to be a chain curtain of the kind you installed there? A. That is right.

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Q. Now, you told me just a minute or two ago that under the chain curtain system it seemed to lessen conditions at Walker's place, but increased the soot and dirt on your own property?

A. That is true.

Q. And what just would happen with regard to that? In what sense did it increase it, and did you have to take any steps to counteract or get rid of the dust and dirt that accumulated at your own plant? A. Well, the dust and dirt after moving on the chain would drop on the roof and, naturally, would pile up.

Q. And then, what system did you adopt, if any, to get rid of it from your own roof? A. We employed men to keep that roof clean and to remove that dirt.

Q. That dropped from the chimney? A. That is true.

Q. What did they do with it? Was it a wheelbarrow proposition? A. Well, it was a wheelbarrow proposition right at the cupola. They dropped it from that roof down to the lower roof.

Q. With shovels? A. Yes.

Q. They dropped it from that roof first down to a lower roof, and then what did they do with it from the lower roof? A. Transported it in a wheelbarrow to still another area where it was dropped to still another lower roof.

Q. And from there, where did they take it? A. It was transported by wheelbarrow over to a hopper and loaded into a skid and taken to the dump.

Q. Now that was what was going on there, and did that state of affairs continue until you left, in May, 1944? A. It was prevailing at that time.

Q. Then, did you make a trip, as part of your duties as Plant Engineer, to the Walker greenhouses, about the middle of 1942? A. I did.

Q. Did you collect any samples as part of the investigation for your company? A. I did. I collected several samples of the dust and dirt that had been deposited on the leaves and put them in separate envelopes.

Q. Then, what did you, as part of your duties for the defendants, do with those envelopes? A. They were mailed away for analysis.

Q. Do you recall the name of the person to whom they were sent? A. No, I do not, sir.

Q. Perhaps you would like to let me have that name of the company to whom your company mailed those samples?

MR. KEOGH: First I have heard of it.

MR. SLAGHT: Well, we might get it later. Before I pass from that, did you observe in your examination of the roof at Walker's place, his greenhouse roofs? A. Yes, I did.

Q. And what can you tell us about the conditions on his roofs? A. Well, the glass was covered with a copper coloured tinge and slight dust, and in the valleys between the greenhouses, there was an accumulation of dust and dirt such as would wash down by the rain.

10 Q. Between the greenhouses there would be washed down an accumulation of dust and dirt and some copper coloured substance accumulated on the roofs? A. On the glass.

Q. That was your observation of that? Then, did you take some samples of that stuff from the roof? A. No, I did not, sir.

Q. You just took the samples off the leaves of the plants? Then did you have anything to do with devising this chain device that you told us they set up rather than putting up the Whiting device? A. Well, that was more or less designed, sir, after talking to the Whiting Corporation, who manufacture different types of equipment, as to an economical method of arresting that dust.

Q. And who carried out the installation of it? A. Our own men.

Q. Your own men, in your own plant? A. Yes.

Q. And you, perhaps, have not been through the plant since you left in 1944? A. No, I have not.

Q. I believe you have been in the offices in 1946, but you have not been through the plant, or the works, or the foundry, or any other portions? A. No, sir.

30 Q. Now, whatever was done in your time, after it was done according to the history you have given to us, did you, from time to time, go over to Walker's place to see how it was getting on, or how he was getting on? A. Well, I would periodically go over and talk to Mr. Walker and look over conditions in the greenhouses.

Q. Well, you cannot tell us anything that Walker said, but in looking over conditions from time to time, did these changes eliminate Walker's trouble entirely? A. No.

Q. They did not? A. No.

40 Q. Now, on the steam hammer business. They were operating in your time there steam hammers? A. That is right.

Q. And were some larger than others? A. Yes, they were varying sizes.

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Q. And when I say "steam hammers", we have heard something about them—not very much. Tell us how a steam hammer is operated. When I say a "steam hammer", I mean as distinct from a gravity hammer? A. Well, a steam hammer is operated from a piston to which the hammer head is suspended and the steam is applied to the top end of the piston and it drops and the steam lifts the hammer back up again.

Q. And what can you tell me as to whether or not the operation of those steam hammers cause vibration on the Company's property, at the plant? A. I don't think I am qualified to state that, sir.

Q. I beg pardon. A. I don't think I am qualified to say what damage they might cause.

Q. No. I am sorry. If I said on the Walker property, I did not intend to. I mean on your own property where you were Plant Engineer. Did you observe the vibration there? A. You could when you were somewhere near the vicinity of those hammers, you could feel the vibration.

20

Q. And those hammers, we are told, I think, operated within the forge house? A. They did.

Q. Was there any estimate as to what the effect of the hammer when it made an impact would be, having regard to the weight of the hammer itself—I mean connected with the steam piston? When the hammer would come down, can you tell me what the impact weight was estimated to be having regard to the weight of the hammer, and aside from the steam push? A. I wouldn't like to make a definite statement on that.

Q. You don't recall well enough to make an estimate of that? A. No—it is so long ago.

30

Q. All right. I should have asked you, when you were at McKinnon's what did they manufacture? A. Oh, castings, iron and malleable fittings.

Q. For automobiles? A. And trucks.

Q. They did not make harness or dashboards? A. No, sir.

Q. That is all.

CROSS-EXAMINATION BY MR. KEOGH:

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Q. Mr. Edwards, I believe your first recommendation to the Company was the Whiting Corporation water acting smoke arrester? Was that the first recommendation? A. That is right.

Q. And that was the equipment that you had to the day that you left the plant? A. That is right.

10 Q. And it consisted of a cone in the cupola smoke stack with water either flowing down the outside of the cone, or by running through the cone under pressure? A. It is so long, sir, since I have seen that literature, that I am not too familiar exactly with it, but the smoke and gas from the cupola was passed through the curtain of water completely.

Q. And that was, if I may put it, not being an engineer, the remedial principle of the Whiting thing—was to pass the smoke through the curtain of water? A. True.

20 Q. Then, were you in Court this morning and heard Mr. Beaumont give evidence about the arrangement that is there, at McKinnon's, now, with the water flowing down the outside of the cone? A. Yes.

Q. Did you hear that? A. I heard part of that, sir.

30 Q. Naturally, you have not seen those cones since you went away in 1944, so I am not asking you to pass your judgment on whether they are efficient at the present moment, or, back in 1940, whether they were efficient or not efficient, but I am asking you, is that principle of a water curtain through which the smoke passes, if these cones are working properly, is that the same principle that was intended to be accomplished by the Whiting process? A. It is the same in general, only its adaptability was somewhat different.

Q. Its adaptability was somewhat different, but the same principle in general? A. Yes, that is right.

Q. Then, your second best—well, before I leave that, since that was your first choice, I take it you figured that was a little better than the chain curtains? A. We considered it a lot better at that time.

40 Q. And then, as you have said, for costs or for some other reason, that was not done, and then your second recommendation was the curtains of chains around the top of the cupola stacks? A. Right.

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Q. And you were permitted to go ahead with that and you installed that? A. Yes.

Q. And do you remember—I am not trying to pin you down to exact dates—but starting at the west, there were four cupolas?

A. No, there were three at that time.

Q. Oh, yes, that is right; thank you. I just remember now the other one was erected March 31st, 1937, and I believe they called No. 1 westerly, and No. 2 the second from the west, and No. 3 the third from the west; without trying to pin you down to any exact date, can you tell me approximately when the chain curtains were installed on those cupolas? The month would be good enough. A. The early part of 1945; I would say about February, 1945, or 1942 I mean.

10

Q. And you were there, as you have said, until May of 1944? A. That is right.

Q. And then, after the chain cupolas (sic) were installed—I am twisted in my words. After the chain curtains were installed on the cupolas, you told my friend that Walker was getting less dust and there was a greater accumulation of dirt at the base of the cupola? A. Yes.

20

Q. That would be on the roof toward the foundry, at the base of the cupola? A. That is on the roof over the charging floor.

Q. That is, the roof out in the open air on which you had to use a cat-walk to get to the ladder which leads to the top of the cupola? A. That is right.

Q. And then you had that dust swept up, collected in some way with wheelbarrows and carted away in the way you have told my friend. I was wondering if you can tell me how much of that dust was collected a week in that way after the chain curtains were installed in February of 1942? A. That would be pretty hard to put a definite figure on it, but there would be several tons.

30

Q. It would be several tons a week? A. Yes.

Q. That was collected from dust that the chain curtains had knocked down out of the smoke of the cupola stack? A. That is right.

Q. Several tons a week. And before you installed those chain curtains, where was that dust going? A. A small portion of it was still dropping on the roof, but the majority of it was blowing off, carried with the prevailing winds.

40

Q. So that before February, 1942, there were several tons of dust a week going up into the atmosphere, out of the cupola stacks? A. That is right.

Q. And that dust, I suppose, would be soot and iron oxide and ash and things of that kind, small particles of coal and iron? A. Any particles capable of being carried off in the air.

Q. Some particles of the cupola mix? A. Yes, and the cupola mix is composed of iron, manganese and a little quantity of sulphur in some of the coke and iron product, and things of that kind.

Q. Then, my friend asked you if the changes—I take it he was referring to these chain curtains—if the changes which you made eliminated Mr. Walker's trouble entirely, and you said "no"? A. No, it did not.

Q. And was there an amount—and it is a pretty good order—or did it eliminate a large part of Walker's trouble—these chain curtains? A. No, I would not say it eliminated the larger part of it; it eliminated about 20%.

Q. That is, this removal of this ton of dust a week eliminated only about 20% a week of Walker's previous trouble? A. Yes.

Q. Well, he must have been getting a lot of dust, then, before 1942? A. Well, you cannot assume that all the dust that came out of the cupolas went over to Mr. Walker's. His would be the first house, depending on the wind.

Q. I don't suppose you ever took any measurement of the dust that was going out of the cupolas before you put the chain curtains on them. A. No, we did not.

Q. And would you agree or disagree—I believe it was the last witness who said that the chain curtains would not have any effect on the stopping of or contact with sulphur dioxide or other gases in that smoke? A. The chain curtains would not stop that.

Q. Would you expect a water curtain to have some effect on sulphur dioxide and other gases in the smoke? A. I don't know too much about the chemicals to say, sir, but it should.

Q. Thank you.

MR. SLAGHT: That is all. Thank you.

—Witness excused.

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HARRY G. TIENKEN, sworn

EXAMINED BY MR. SLAGHT:

- Q. Mr. Tienken, you presently live in Syracuse, New York?
A. I do.
- Q. And I believe you are a chemist by profession? A. I am a graduate Master of Science from the Massachusetts Institute of Technology.
- Q. That is an Institute in Cambridge, Massachusetts?
A. Yes.
- 10 Q. And you have practised your profession since 1922?
A. Well, I got my B.S. in 1917. I went through service in chemical warfare and I have been since 1917.
- Q. And you have had your own business since 1930?
A. I have.
- Q. You have been also with the following industries, the Walter T. Lash Holding Company of New York, for eight years?
A. That is right.
- Q. And the American Chain, Bridgeport, Connecticut, manufacturer of tire chains? A. That was one of the holding
20 companies.
- Q. The Bridgeport Glass Company? A. Another holding company.
- Q. The Decker Steel? A. Another holding company.
- Q. The Sheffield Product Company of Syracuse? A. Yes.
- Q. And the Parrott Paint and Varnish Company of Bridgeport, Connecticut? A. Yes.
- Q. When you say "one of the holding companies", you mean one of the holding companies that had a great many subsidiaries A. That is right. This Walter P. Lash organizes the
30 industries of America and had 37 companies in this holding company.
- Q. What I want to get at—did you have contact with those various companies I have enumerated in your special chemical work? A. I did. I was assistant chief chemist for the Industries of America.
- Q. And have you had experience in analyzing for poisons, any plants? A. I have.
- Q. How long have you had to do that? A. Off and on
40 since 1930.
- Q. That is when you went in business for yourself?
A. That is right.
- Q. And what were you analyzing at the holding companies, iron and steel, paint and glass, etc? A. A general analysis as to what they made, and that was iron and steel.

Q. You were assistant chief chemist, as I think you told me? A. That is right.

Q. Then, in addition to being a chemist, are you an orchid grower? A. I am since 1941.

Q. Tell me to just what extent you grow orchids? A. I got interested in orchids in 1941 to see if they could be grown by careful culture, that is the hybrid pinks here in the north.

10 Q. That is, growing by water? A. The water solution is —which they did quite successfully in California, but our light intensity in the north here is not strong enough, so the orchid bug bit me, so I have got two greenhouses now and 1600 orchid plants, besides the fresh and the baby plants.

Q. Which you are operating at Syracuse? A. I am 11 miles outside Syracuse.

Q. And I believe you have visited Mr. Walker's greenhouses on several occasions? A. I have.

Q. And do you grow the same kind of orchids as Mr. Walker, or different? A. I grow Cattlaias, which is the majority of Mr. Walker's orchids.

20 Q. Then, he told us that he had something in hybrids. I believe you specialize in hybrids? A. I do.

Q. To greater extent than Walker does. Then, in the fall of 1947, did you visit Mr. Walker's place when you were going back from the Toronto Exhibition? A. I did. I had heard so much about the Toronto Ex., we came up in 1947 and when we came up I thought I would take advantage of seeing two of the largest orchid growers in Ontario, and I saw Dale's at Brampton, and then I stopped off at St. Catharines and saw Mr. Walker's.

30 Q. And in the fall of 1947, what was the general appearance of the plants, and so on, that you saw at Mr. Walker's? Did Mr. Walker show you through? A. Mr. Walker very kindly showed me through.

Q. I don't want you to tell me anything he might have said to you but, from your own observation as an orchid grower, what can you tell us of the condition of his plants at that time? A. Well, when I first started going through—

40 Q. Wait. Let me correct that. Don't confine yourself to orchids, if you saw other plants and you can speak of other plants. Give us your general observations. A. Well, I wasn't interested in the other plants, although we walked through some of the other houses. I took no notice of them. My main idea was orchids.

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Q. Then, your observations will be confirmed to— A. To orchids; and, on going through his orchid house, I was very much disappointed with the appearance of the orchids, because the leaves was dull. There was no evidence of root growth, that is, nice long white roots which we like to see. The psuedo bulbs was very, very elongated and even almost a starved appearance and at that time I started wondering how he could be the second largest grower in Canada and if that was the kind of stock, so I asked his permission to examine some of the plants. I run my fingers over the leaves and I discovered they was coated with a very tenacious brownish, black substance.

Q. Then, you spoke of a lack of roots and an almost starved appearance of the leaves. Would that or not be consistent with a lack of sufficient light? A. The elongation of the leaves generally designates a lack of light of a proper intensity, but the elongation of bulbs are also an indication of that, but also an indication of starvation and, with a lack of roots, why, it is very evident they were being starved.

20

Q. What is the function of orchid roots? We heard something from Mr. McAlpine. I want to see whether you may tell me something about the function of orchid roots. We have heard, I may tell you, and some photographs are in, showing the orchid is in a pot, where the growing material is not earth, but a fibre. The roots may creep over the edge of the pot and on down for some distance? A. Not only may, but in well grown plants they do. You cannot hold them into the pots at all.

30

Q. Different from other flowers where we like to see the root more down in the pot; but here it climbs over the edge apparently? A. That is right. In their native environment in the jungles, the root serves two purposes. The first purpose is to anchor it wherever the plant happened to be, which generally is in the crotch of a tree or some place holding it firmly. The second purpose is the absorption of moisture which, in turn, absorbs your nitrogen and carbon dioxide and other gases from the air and generally in the crotch of the tree in the jungles, there is bear droppings and so forth, that gives the rest of the mineral matter so necessary to plant growth.

40

Q. Then, what is the natural function of the orchid root as to attaching itself, or not, to articles when it goes on down over the edge of the pot? A. Wherever it touches it very tenaciously cements itself.

Q. And does that, or not, have to do with the continuity of its feeding itself? A. Well, naturally, the main function of the tenacious hold there is so it can be solid, so it doesn't vibrate and bruise, because that cutting bruises very easily and becomes dead, so nature has provided that method of cementing itself so the wind and that cannot blow it and, of course, chaffing or unevenly hanging causes death in that root.

Q. So it hangs on for that purpose? A. That is right.

10 Q. Now, did you, on this visit notice the appearance of the orchids? A. As I told you, Mr. Walker graciously let me examine some of the plants when I asked him, and I found this very tenacious deposit of brownish, black nature that I couldn't wipe off with my finger or thumb on the leaves.

Q. What is the natural appearance of an orchid leaf?
A. Very bright and shiny.

Q. And were these bright and shiny? A. No, sir, they were very dull.

20 Q. Then, you have told us about the deposit, you could not get it off and so on. Now then, that was somewhat of a courtesy visit. You went through out of curiosity? A. Out of curiosity, to see if I could find anything that would help my growing.

Q. And, later on, about the beginning of November, did you visit Mr. Walker's plant at his request? A. October 25th to be exact.

Q. Of October. Yes. You are right—in the year 1948?
A. That is right.

30 Q. And we are told that there was a strike on at the McKinnon plant and it was not operating at that time? A. No, it was quiet over there. There were some pickets and that walking up and down in front of the gates.

Q. Well, that has been established that from October till on in November the plant was not running. And did you take any samples from his greenhouses? Did he engage you to come then so as to qualify yourself to assist him in preparing this case?
A. He did. I had talked several times with him over the phone.

Q. And did you take any samples on that trip? A. I did. I took three samples.

Q. From where, on the roofs of his greenhouses?
A. From the roofs of his greenhouses.

40 Q. And did you take any samples off the leaf? A. I took one sample off the leaf.

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Q. Did you take them back to Syracuse for analysis?

A. I took them back to Syracuse and analyzed them.

Q. Now, let me ask you, before we take your analysis, when you made this visit on the 6th of October, 1948— A. That was October 25th. I made my report on November 6th.

Q. Oh, yes, but your visit was October 25th? A. Yes.

10 Q. And did you note whether or not there was any difference in the general conditions of the orchid growth that you examined then as against the conditions you had found on your courtesy visit, back in 1947? A. Yes, I did, amazing. They had white roots fully three inches long in most cases, which was not in evidence on the first visit; while the appearance of the leaves was not any different, the new growths that was coming up and forming the new leaf and psuedo bulb, was very, very shiny, and very vigorous looking.

Q. The old leaves were very dull but the new leaves that were coming up were shiny and vigorous looking? A. That is right.

20 Q. Then, I forgot to ask you, but Mr. Walker, in December, 1947, sent you samples? A. He sent me two samples.

Q. Did you analyze those samples that he sent you? A. I analyzed those samples.

Q. And can you give me the result of that analysis? A. I can.

Q. And did you report in a letter in 1947? A. It was in 1948, sir. I visited him in 1947, but it was not until 1948 that I was doing any work for him in regards to the thing.

Q. And what date in 1948? A. I received the samples August 11th, 1948, and made my report August 16th, 1948.

30 HIS LORDSHIP: Now, just a moment. I thought you were discussing the samples sent in December, 1947?

THE WITNESS: No.

Q. That is wrong, is it? A. That was wrong. He had sent some samples of leaves in 1948 which I did not analyze, because there was no way for me to. That was tried and I couldn't get the deposit off the leaves. The first samples I received from Mr. Walker was August 11th, 1948.

Q. Then you completed your analysis and made your report on this? A. On August 16th, 1948.

Q. And will you just let me know the result of what you found? Are you refreshing your memory? You may refresh your memory from your original records of the time. Is this in a condition that we could have the analysis filed?

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MR. SLAGHT: I would like to think my friend doesn't object.

HIS LORDSHIP: Well, show it to Mr. Keogh and see.

MR. SLAGHT: It is in the form of a letter containing the analysis.

10 MR. KEOGH: I have no objection to my friend filing the letter.

MR. SLAGHT: Thank you, my lord. That will certainly make our task simpler.

HIS LORDSHIP: It is easier for every one, if we wish to refer to it later on. Have you got a copy of the letter?

THE WITNESS: I have copies of everything here, if you wish them, that we have. That will represent my own files.

MR. SLAGHT: You don't mind parting with your copy when you are through here. If you need it, I can give you another copy.
A. O.K.

20 Q. Yours is the best record. Oh, yes, I am sorry. I have got the original letter here. That came to Mr. Ferguson.

HIS LORDSHIP: Well, show it to the witness.

MR. SLAGHT: I will show it to you. Is this your signature?
A. That is my signature and it is the letter of which I have a carbon in front of me.

—EXHIBIT No. 72: Letter dated August 16th, 1948, H. G. Tienken to R. I. Ferguson, Toronto.

30 Q. The letter is dated August 16th, 1948, from Harry G. Tienken to R. I. Ferguson, and will be put in by consent. Well, then, I will read the letter. "On two samples—" you just check with me and I will pause to ask you a question or two.

40 "On two samples I received August. 11, 1948, one "marked 'off top of different greenhouses' had a pH of 5.9 "while the one marked 'lots off of plants inside greenhouses "had a pH of 5.7. The pH system of acid or alkali testing is "very accurate with pH 7.0 being Neutral; pH 6.5 to 6.9 "slightly acid; 5.3-6.4 medium acid; pH 4.5-5.2 strongly "acid; pH 4.5 and lower very strongly acid. The sulphur "content is combined as some Iron Sulphide and Calcium Sul- "phate which evidently has absorbed what SO₃ fumes that "happened to be in the smoke. That there is SO₃ fumes is

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"very evident by the acid reaction of the residue. I have
"reported my findings on the same terms as Mr. McAlpine
"so as to avoid confusion. The composite of both samples
"is—

"Calcium as CaCO ₃	14.27%
"Iron as Fe ₂ O ₃	44.28%
"Ash insoluble in acid (SiO ₂).....	11.03%
"Ignition Loss	25.77%
"Carbon	16.42%
"Manganese14%
"Sulphur as H ₂ SO ₄	1.56%

"The enclosed letters will start you on a summary and
"I have more information coming in.

"I would like to obtain the pH of the soil around the
"greenhouses and of the soil some distance away. This in-
"formation is necessary to correlate the results obtained so
"far. I hesitate to suggest my going up to do this as the fee
"would be at least \$100.00 plus expenses. I will leave this
"decision up to you and Mr. Walker."

20 Then, there is the matter of your expenses, and so on. And
what do you say—what system did you take? Are you experienced
in making an analysis?

HIS LORDSHIP: In the first place ask him if what he has
stated in this letter is true.

MR. SLAGHT: Yes. Are the statements contained and the
figures set out true? A. They are to the best of my scientific
ability.

30 Q. And then, I believe, you made a later analysis—another
analysis? A. That is right.

HIS LORDSHIP: Excuse me, Mr. Slaght. Before you leave
this I want to see that I understand it thoroughly. What you
were examining was a lot of samples? A. There were two
samples that was sent up. I ran the acidity or the pH singly on
both samples.

40 Q. Those were the lots marked "plants inside greenhouse"?
A. Yes, and a lot off the top of the greenhouse, but I didn't have
any other sample of either one to make an analysis of them, so
after I reached the acidity value of that, I combined it and made
a composite sample of it.

Q. I just wanted to understand what it was. You were
able to get the acidity value? A. That is right, because—

Q. Just a moment; you were able to get the acidity value of the lot off the top of the greenhouse, and that was 5.9?
A. That is right.

Q. And the acidity value of the lot off the plants inside the greenhouse was 5.7? A. That is right.

Q. Then you combined the two together for the purpose of getting a large enough sample to make an analysis? A. That is true.

10 Q. And then the result of your analysis is set out in this table below? A. That is right.

Q. Well, now I understand.

MR. SLAGHT: Thank you, my lord, and, my lord, I undertook, you will recall, to recall Mr. Walker to prove the samples sent to Mr. McAlpine and as to who sent these samples, and I will undertake to call him to prove certain of these samples of which this is the analysis. I have that noted.

20 Q. Then, Mr. Tienken, translate for me, as a layman, the technical analysis that you made, as to whether or not that disclosed conditions healthy or unhealthy for the growth of orchids?
A. It would be very unhealthy for the growth of orchids.

Q. Now then, may we have your next visit there was—

HIS LORDSHIP: Are you in a position to say whether it would be healthy or unhealthy for the growth of other plants?

A. Would be extremely unhealthy for other plants until the deposit had a chance to oxidize. May I further qualify that?

30 Q. Yes? A. When that first comes over there is quite a lot of SO_2 , which has the power of reducing the ferric iron, which is the oxidized state of iron, to a ferrous salt, and these ferrous compounds are very, very toxic to plant life, but after they have had a chance to be in the air for some time, these ferrous compounds change to ferric compounds, which is tolerated by plants. Does that answer your question, sir?

Q. Well, you say after it has been in the air some time it changes its effect? A. Yes. That is the absorption of oxygen with moisture, sir.

Q. Then, if there is a daily application— A. Then a little daily effect as long as you have this daily application.

40 Q. How long will it take that to oxidize? A. It will all depend on the atmospheric conditions. If it was humid and fairly warm, it probably will oxidize back to a ferric state inside of a week.

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Tienken
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Chief
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MR. SLAGHT: Q. Then, supposing it got a redosage from more fumes, and so on? A. If it was a case of an everyday occurrence, what would be oxidizing back would be just that, that you would have in that re-application, there would be ferrous irons all the time.

Q. Well, I cannot put it to you as a daily occurrence. I shall have some evidence about that later, but supposing twice a week? A. You would have an extremely toxic condition there all the time, because we know it takes from five to seven days under humid conditions to oxidize ferrous salts back to ferric salts.

Q. Now, I don't know that I asked you what is the significance of finding that quantity of iron, forty-four point some per cent.? Mr. McAlpine found 45. What is the significance of finding that iron in your analysis? A. This analysis would be typical of fly residue that would be given off from a normal cupola operation.

Q. And when was your second analysis made? A. I suggested to Mr. Walker it would be better if I took many samples and I could find the condition. When that was taken and how was on October 5th, 1948. I came to St. Catharines to take my samples.

Q. And did you make an analysis then? A. I did. On that date I took three samples back with me. One of them was off plants in the greenhouses; one of them was off the outside of the greenhouses and then there was a glass structure back there, which he called the cloth house, which I also took a sample off of.

Q. Have you got your carbon copy of that letter? The date of it is what? A. November 6th, 1948.

Q. Then if you will listen. That one will be marked as Exhibit No. 73.

—EXHIBIT No. 73: Letter from Harry G. Tienken dated November 6th, 1948.

THE WITNESS: I took those samples in the presence of George Thomas, who helped me get up on the roofs.

HIS LORDSHIP: Well, let Mr. Keogh see it.

MR. SLAGHT: It has some other things we can cut out and just put the analysis in, if you would rather.

HIS LORDSHIP: Probably it would be better for the purposes of those two exhibits, just to put in the part that deals with the expert evidence.

MR. KEOGH: I don't want to be in the position of attempting any comments at this moment.

HIS LORDSHIP: No, that which he can swear to in the witness box as being the correct analysis and pertaining to the samples. If you will just mark that tentatively now and you will have copies made and submit them to Mr. Keogh and we will have the copies marked.

MR. SLAGHT: So we can substitute the copies?

HIS LORDSHIP: You may substitute the copies.

MR. SLAGHT: Thank you, my lord.

10 Q. Now then, just dealing with the matter of analysis. Your analysis is again the samples as stated in this Exhibit No. 73? A. That is right, and these three samples are substantially the same as the original report. They vary slightly, but no more than any samples would be taken under similar conditions.

Q. And I think you told me that on this visit, which was during the strike, you found the new young growths were clean and healthy, but the old ones— A. The old leaves still dull and he had a nice root system started at that time.

HIS LORDSHIP: Well, I do not think there should be any part of this letter filed, excepting the analysis.

20 MR. SLAGHT: Very well, my lord, it does contain other matter.

THE WITNESS: Would it be better if I tore that right off?

MR. SLAGHT: No, we will fix that up. The Court has directed this and I will submit to my friend a copy of the analysis only, which will go in as Exhibit No. 73.

30 Q. Then, can you tell me, from your experience, if orchids brought up here and properly grown are healthy and do not have to carry a handicap, when you would expect them to double themselves? A. Normally orchids should double themselves at least every three years.

Q. And then I believe, Mr. Tienken, you were present with Mr. McAlpine on Monday, April 4th, the day it was expected this trial would begin? A. Yes, sir; it was either the 4th or the 5th.

Q. Well, Monday was the 4th, and at the Walker plant did you experience any vibrations on that occasion? A. Yes, there was considerable vibration on that occasion.

Q. Had you been with him to the forge shop? A. No, I have never been inside the McKinnon plant.

40 Q. Oh, no. That was not the day of the visit. You and he were there on that day, together? A. That is right.

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Q. And describe how those vibrations happen, or just tell us what occurred? A. Well, I was checking the condition of the plants and looking for some of these here roots that I had noticed the 25th of October, and some of them were non-existent, but this time they had apparently been reborn, and Mr. McAlpine asked me if I noticed anything peculiar about the behaviour of the plants and, after standing there a few minutes, why, I could see what he meant, because every once in a while the whole plant and bloom and leaf and all would start quivering and then stop.

Q. Now, "every once in a while." Was it consecutive or were there intervals? A. There were intervals; I mean, it would maybe be for 15 seconds to 25 seconds duration and then maybe half to a minute and a half with nothing, and some of those leaves were vibrating fully a half inch.

Q. The leaves would vibrate as much as half an inch? And what do you say as to whether or not that vibration of the leaves of the plants, leaving out the orchids for the moment, or including the orchids, as to the vibration of leaves—

20

HIS LORDSHIP: Well, deal with them separately.

MR. SLAGHT: Yes, I will take them separately. Take the other plants, then the orchids. Were you in different greenhouses? A. Again I was interested in the orchids only. I was not in any of the other greenhouses.

Q. How many orchid greenhouses are there—three, there, is it? A. Either three or four.

Q. Well, whatever orchid greenhouses there were? A. And the fourth one may be a continuation of the third one.

30

Q. You were interested in the orchid houses. Were you in where the orchids were produced? A. That is right.

Q. Now, tell us what effect the vibration, in your opinion, would have, if any, upon the future of the orchid, when it would be subjected to such vibrations, let us say, at intervals?

40

A. Well, as I stated before, in its natural state the function of the root is to hold the plant firm and when we grow them in the greenhouse we have got to use artificial means of supporting those roots and we use the roots of the osmunda fibre, packed very, very tightly in the pots, and your roots, first in there the osmunda fibre and then the roots comes out and holds itself to the side of the pot or bench to which it happens to attach.

Now, that vibration was strong enough, under the conditions that I saw, to shake the plant loose in the matrix of the osmunda fibre, causing damage by chafing of these roots, which eventually caused them to turn brown and die.

Q. And you saw that condition on the 4th of April? A. I did.

Q. What about feeling any vibrations in your own body, or in any walking through the three or four orchid greenhouses?

A. As far as feeling any walking through, you didn't, but if you would stop and lean against one of the purline supports, that is the iron supports that hold the original poles up, you could feel this tremor transmitted through your body, and it seemed to come in direct relation with the sound of the hammer, which you could hear.

Q. That is all, Mr. Tienken.

HIS LORDSHIP: Now, Mr. Keogh, probably you don't want to start your cross-examination now?

MR. KEOGH: I don't think so, my lord. I certainly cannot be finished in five minutes.

—Whereupon Court adjourned until 10.00 a.m. Tuesday, April 26, 1949.

Tuesday, April 26, 1949, 10.00 a.m.

CROSS-EXAMINATION BY MR. KEOGH:

20 THE REGISTRAR: Mr. Tienken, you understand this is a continuation of your evidence of yesterday and you are still under oath? A. I do.

HIS LORDSHIP: Just a moment, Mr. Keogh, please. Very well.

MR. KEOGH: Q. Do I pronounce your name correctly when I say—A. Tienken.

Q. Tienken? A. T-i-e-n-k-e-n.

30 Q. Then, you spoke yesterday about the lack of light for the orchids. Isn't it a fact that you can seldom get two orchid growers to agree to just how much light or lack of light orchids really need? A. The conception of the light—I agree to that, but also if you will notice that this here contention of the lack of light or quantity of light generally comes from the different localities. In Southern California they use heavy shades because their light is of a much different quantity than it is up here.

Q. But even around here? In New York State there are a lot of orchids grown, are there not? A. There is.

40 Q. And even there there is some difference of opinion between orchid growers as to whether orchids need a lot of light, or a little light, or medium light, is there not? A. That is rapidly fading. They are all crying for more light.

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Q. They are all becoming unanimous? A. That is right.

Q. Then, speaking of orchids as referred to yesterday, as having an elongation of the leaves, what genera of orchids were you referring to? A. Of the Cattlaias, which I have had 95%, in my experience.

Q. Pure Cattlaias or hybrid Cattlaias? A. Cattlaias hybrids, in general.

Q. Any particular kind of hybrid? A. Well, when we speak of hybrids, we speak of the Cattlaia genera.

10 Q. Are they crossed, those hybrids, with any other named brand? A. Well, we cross the species first in order to get the hybrids.

Q. I see. But I was wondering whether you can call them anything more definitely than Cattlaia hybrids? A. That is about all you can call them, sir.

20 Q. Then, you referred yesterday to starvation of the psuedo bulbs. Starvation from what or of what were you referring to? A. If they don't have roots in order to take in the moisture and contain food, that generally causes your bulbs to become elongated and don't have a plump appearance. Orchid plants are a lot different than normal plants. Your psuedo bulb and your leaf are very fine grained and dense, and there is very little transpiration goes through them, sunlight; very little food goes through the air to them. Most of the food is through the roots.

Q. Well, when you were referring yesterday to starvation, did you see starvation of nutrients, or moisture, or what? A. Of both. If there are any lapses, it has to be both, and with orchid plants, you have to have moisture in the roots in order to take up the nutrients from the air.

30 Q. And were those psuedo bulbs you observed in 1947, were they dehydrated? A. They were very, very slim and shrivelled.

Q. Would that indicate dehydration, the shrivelling? A. It is hard to say dehydration. I would say lack of food, more than dehydration, because we do know the orchid will, in every year, have moisture, and still not shrivel—not apparent to the eye.

Q. So you would not say it was a possible lack of moisture? A. No.

40 Q. You had not seen these before the fall of 1947, had you? A. No, I had not.

Q. Then you referred just now, I believe, to the aerial roots. Is it not a fact that the most important roots of the orchid are the roots inside the pot? A. It is not.

Q. That is your opinion? A. That is my opinion.

Q. And is it not a fact that the aerial roots can be cut off entirely at re-potting time, without doing any damage to the orchid? A. That is true, because the feeding is done by the new psuedo bulbs, and the new roots that are formed.

Q. Despite the fact that the aerial roots could be cut off without damage, you still say they are the most important? A. The new roots that form are the most important.

10 Q. Then, isn't the best modern practice in orchid growing, to re-pot the orchids with the roots inside the pot? A. Only for anchorage.

Q. That is what you say? A. That is right.

Q. Then, you told my friend that, on the 25th October, 1948, when you visited Walker's premises during the strike, that there was an amazing difference in that the white roots on the orchids were fully three inches long? A. That is right. Those are the new roots coming out of the new growth.

20 Q. Are they aerial roots, or what kind of roots do you call those? A. Orchid roots are entirely aerial roots. They have no capacity of taking roots from the ground as an ordinary plant does. There is no fibrous nature to orchid roots.

Q. They have also roots inside the pot? A. They do anchor themselves, but some of our best orchid growing—if we had the space, would be to put up a piece of bark suspended from the greenhouse and just attach the orchid plant to it and they make better growth than they do if they were in a pot, as long as they have something firm to grab and support themselves on.

30 Q. But in a pot, if you took the orchid and leave it out of the pot, you would find a whole mass of roots inside the pot in the compost, or peat, or osmunda fibre, or whatever it is? A. That is true. They send them in until they get firmly anchored and then send their roots out.

Q. Were you here, at Walker's orchid house, in the month of June, 1948? A. No, sir.

Q. I suggest that those white roots that you speak about as being three inches long in October, 1948, would have been fully grown by the end of June the same year. What do you say about that? A. It all depends on the species.

40 Q. Well, I am talking about Cattlaias and Cattlaia hybrids, that you are talking about? A. Again, I am talking about the same thing that you are talking on, the species, which Mr. Walker has quite a lot of. If it is dryness, your root system has not started growing until May and June. If it is a mossiac, your root system is almost completed by then.

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Q. Well, you are suggesting that because of the strike these roots had made an exceptional growth, being three inches long. You said there was an amazing difference? A. There was an amazing difference. It was nice and clean and they was long.

Q. I am suggesting to you those roots would have made that growth by the end of June last year? A. Not on the plants that I saw.

10 Q. Then, you referred yesterday to a pH analysis of 5.9 from one sample, and 5.7 from another sample, if I took you down correctly? A. That is right.

Q. The 5.9 being, which was the first mentioned, being the deposit on the roof? A. That is right.

Q. And the 5.7 being the deposit on the leaves inside the greenhouse? A. That is correct.

Q. What is the pH of ordinary city tap water? It is more than that, isn't it? A. I don't know what your pH of this city's tap water is.

Q. Well, what is the pH of the city tap water over at Syracuse? A. 6.9.

20 Q. In other words, it is higher than this pH?

HIS LORDSHIP: What do you mean by pH?

A. It is the acidity or alkalinity of water, 7.0 being neuter.

MR. KEOGH: Q. Are you suggesting the pH of 5.7 is in any way dangerous to orchids? A. I am not.

Q. Then, you told my friend that normally orchids should at least double every three years? A. That is correct.

Q. And you are speaking now of these Cattlaias and Cattlaia hybrids, are you? A. I am.

30 Q. And what do you mean by "double"? Are you referring to bulbs, blooms, or division of roots, or what? A. I am speaking about new growths. We have to understand the inception of your orchid plants. Orchid plants have what we call new growth. Your new psuedo bulbs on Cattlaias are of a manyplies nature. That is, they grow out in the form of a bud and come up just like your iris and on the other old growth there are these hidden eyes, latent; they will form from one to two new growths per year and they soon overcrowd the pot, so we take them out every three years, divide them, re-pot them, and in that way we generally get two new bulbs and a series of back bulbs, which latent eyes
40 will generally break off—

Q. The latent eyes are what the layman might call the underground root? A. No, it is on the base of the psuedo bulb which is above the compost.

Q. And that is out in the air, you say? A. It is out in the air.

Q. So what you mean, then, is, when you say they should double themselves at least every three years, you mean that another eye would start a new shoot or new leaves? A. A series of—I mean the continuation, because we generally take the newer
10 three growths for the new plant.

Q. And then you would be able to separate them?
A. From the parent plants.

Q. And have two new plants, where you had one before?
A. That is correct.

HIS LORDSHIP: Q. When they are growing wild in the crotches of trees and places of that sort, do they move or reach out from one crotch to another and start a new plant? A. No, they do not. It forms a clump. I have imported clumps from South
20 America in the past; where clumps are got, we generally divide the plants, but where you could, by not separating the clumps, could have as many plants as twenty out of it by just breaking it off.

Q. How do they spread, then? A. By seed, from one point to another.

MR. KEOGH: Q. You don't get them new on the growth, on the average orchid plant, do you? A. Yes, sir, every year.

Q. Every orchid plant? A. Every year; sometimes twice a year.

Q. Are there not lots of orchid plants that, even with the
30 best of care, just replace the leaves that die off? A. The leaves do not grow again. When they drop they are done.

Q. I say, are there not a lot of orchid plants that, even with the best of care, just keep on replacing the leaves that die off?
A. They do not replace the leaves.

Q. Perhaps I am not using the right expression, but growing new roots in the place of the ones that die off? A. No. The only way they can make a new leaf is to make a new growth from the latent eye.

Q. Then, you used the expression to my friend yesterday
40 about the orchids quivering and waving from the solids as much as half an inch? A. That is correct.

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Q. I somewhat rather inferred, at least I got the impression that that was detrimental? A. It was, because it was disturbing the roots of the matrix in the pot.

Q. When you have your ventilators open in an orchid house, you get a breeze through, don't you? A. I do not. I get no direct draughts through any good orchid house.

Q. Well, you have seen the ventilator system on Walker's greenhouse? A. I have.

10 Q. And when that is open, is there not a breeze or a draught through? A. Except if the wind was blowing directly into the ventilators there would be no disturbing your plants.

Q. I understand he has his ventilator on the east side but not on the west side; but at certain times, as you say, when the wind was blowing that would be from the east into the ventilators, there would be a draught or a breeze, would there not? A. If it was blowing directly in, there would be some draught.

Q. And wouldn't that be apt to shake the heads of the plants half an inch sometimes? A. If the wind was strong enough.

20 Q. Well, a half inch isn't much of a movement, is it? A. Well, it is quite a movement. I would hate to be vibrated a half an inch for an hour.

Q. Well, these orchids, when they grow on trees in the jungle, you are not suggesting that the wind there doesn't shake them a half inch occasionally, are you? A. I am not, and then you have got them anchored there firmly with their roots. They are another element there.

Q. Well, they are in the pots in the Walker greenhouse? A. But out of their element.

30 Q. Yes, but with a stake driven through each pot and tied to the stake, aren't they? A. We have tried to keep them solid for that one reason, when the stakes go—you are suggesting that the plant tied to a stake will shake?

Q. And, as you say, the pot, and the osmunda fibre packed very, very tightly in the pots, and the plant tied to a stake, that the shaking of the head of the plant one-half inch could do it serious harm? A. I do, because the vibration is transmitted down through into the roots and eventually shake them loose from the matrix.

40 Q. Now, did you ever hear of some of these large orchid houses in New York State using pneumatic tampers to pack the orchids in the pots? A. They do not use pneumatic tampers inasmuch as it is like—well, they are just one stroke of the piston that drives the osmunda home.

Q. I don't say they are as big as the drills they use to cut the pavement with. A. But you are inferring there is a sudden series of shocks.

Q. Well, I don't know how many. A. I am saying that with these pneumatic potters, you place your osmunda around the plant, set it in the pot and there is one stroke comes down and sets the fibre in place and it is a one-stroke system.

Q. You say it is only one stroke. It doesn't move?

10 A. Well, I have potted about 15,000 plants with the pneumatic potter, so I ought to know.

Q. And does that little machine that comes down and binds the pot and the fibre, set up a certain amount of vibration?

A. I would say no, because it is just one stroke that comes down as a push.

Q. You say it is only one stroke. Then, I believe you told me that Walker's plants had the osmunda fibre which, by the way, is the covering of the fern? A. It is the root of the osmunda fern.

20 Q. It is something like the husk of a coconut, isn't it?
A. No, it is the aerial root of the osmunda fern.

Q. I know, but if you peel it off and you peel off the outside husk of a coconut, the shell, wouldn't you have two fibres which are pretty much the same? A. That is generally true. They do grow a coconut fibre in some places.

Q. And that is a stiff sort of fibre that has to be packed down, as you say? A. Yes. We push it in the pot with pounding stakes.

Q. It has to be tamped down with some pressure to make it stay? A. Yes.

30 Q. And you say you use the pneumatic tamper to pack it down? A little machine which, as you say, gives it this one blow? What does Walker use to tamp his fibre, as you put it, very, very tightly into his pot? A. He uses a hand potting stick.

Q. Is that stick, or stake, that tamper or something, round on the end of it? A. No, it is an old English potting stake, just like a broomstick, about 15 inches long and chisel pointed.

Q. And you go around and bang them down? A. You don't bang it, you push.

40 Q. And you push it down into the fibre with the stick?
A. That is right.

Q. All right. Thank you.

MR. SLAGHT: Thank you, Mr. Tienken.

—Witness excused.

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TENNYSON JARVIS, sworn

EXAMINED BY MR. FERGUSON:

MR. SLAGHT: Mr. Jarvis, my lord, is one of our experts, and if your lordship pleases, my friend, Mr. Ferguson, has had a better opportunity than I of going over it with him, and he will take the evidence in chief.

HIS LORDSHIP: Very well.

MR. FERGUSON: Q. Mr. Jarvis, I understand you are a plant pathologist? A. Yes.

10 Q. And are you a graduate of the Ontario Agricultural College? A. Yes.

Q. In what year? A. 1900.

Q. And have you specialized in any work since that time? A. I have specialized in biology at the College and then taught biology for the next 14 years at College.

Q. That is the Ontario Agricultural College? A. Yes.

20 Q. And did you have some post-graduate studies in plant pathology? A. Yes, in 1904 I went to Cornell University and took special subjects in pathology and physiology and plant etymology.

Q. And you had also some post-graduate work in England, had you not? A. At Oxford, in 1912 and 1913.

Q. And after you finished Oxford, or before you went to Oxford, were you on the staff of the Agricultural College of Ontario? A. Yes. That was the time when I went to Cornell.

Q. And that is 14 years from 1900, would be 1914 you were at the Agricultural College? A. Yes.

30 Q. And after 1914, where were you engaged? A. I was with the International Nickel Company from 1915 to 1924—to the end of 1924.

Q. In 1915 to the end of 1924 you were with the International Nickel. That would be at Sudbury? A. Yes, in charge of smoke investigations.

Q. For the company? A. For the International Nickel Company, and I also had worked with the Mond Nickel Company, and the British American Nickel Company, doing special work for them at times.

Q. Were they at Sudbury, too? A. They were close to Sudbury.

40 Q. We will come back to that in a moment. I just want to complete the story. First, from 1925 and after 1925, where did you go then? A. I farmed in Grimsby; went to my fruit farm at Grimsby; was there for five years and then went to the Ontario Research Foundation for the next 14 years.

Q. That was up to what year? A. To 1944.

Q. And when you were with the Ontario Research Foundation, did you have any special work with them? A. I worked particularly on environmental conditions; plants in relation to environment and health conditions.

Q. Now, going back to Sudbury, the International Nickel Company, it is a very large copper nickel mine, is it not?
A. Yes.

10 Q. And the ores in Copper Cliff, have they any sulphur in the copper nickel ore? A. Yes, plenty.

Q. It is quite a high percent? A. Yes, a high percent.

Q. Say around 23 or 25% A. Well, I have just forgotten. It varied so from time to time.

Q. Now then, you say you studied the effect of smoke in Sudbury, did you? A. The effect of smoke, yes.

Q. What was your special position with the company up there? A. I was pathologist in charge of the sulphur smoke investigations and settlements.

20 Q. And settlements of the claims? A. And settlements of the claims made.

Q. Now, that would be claims being made by whom?
A. By the farmers and the town people for gardens and there was one greenhouse there.

Q. Now, in all those years, have you been consulted, outside of the International Nickel Company, concerning the smoke nuisance? A. Do you refer to my visits to other parts?

Q. Yes. A. Yes. In 1920, when the nickel business was closed down, I visited the large smelters in the United States and Canada.

30 Q. Did you visit the Trail smelter? A. Yes. I went to the American Smelting and Refining Company at Salt Lake City first. Then I went to two or three smelters. From then I went to the Anaconda at Butte, Montana, and then next to Tacoma, in Washington, and then to Trail. On the way there—

Q. Where there are similar smoke conditions? A. They are all big companies.

Q. Now then, you were, I understand, asked by Mr. Walker to investigate the conditions in his greenhouse? A. Yes.

40 Q. When were you first consulted by Mr. Walker?
A. August 22nd, 1946.

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Q. And did you make an examination of his greenhouse at that time? A. The same day.

Q. Would you describe the conditions in the greenhouse on the day you first examined it, Mr. Jarvis. A. On my arrival, I went into the greenhouses and the most conspicuous thing at that time was the darkened glass which gave the greenhouse a very dismal look and then, after going through the greenhouses I found that on the leaves, too, there were particles of dust and, well—or, it might be dust.

10 Q. What colour was the dust? A. It was dark.

Q. Now, since that first visit, have you made other visits from time to time to Mr. Walker's place? A. Yes.

Q. Did your visits become fairly regular after the first period? A. Yes.

Q. When did your visits become regular? A. Well, they started again in 1947, but I would like to say something more about 1946; I mean in the gardens outside.

20 Q. I just want to speak about the greenhouses for the moment. You made regular visits after 1947, did you? A. Yes, I made regular visits in 1947 and 1948.

Q. Well, then, was there any change in the condition of the light and the dust on the leaves, in his greenhouses? A. Well, from time to time it was washed, but didn't last. The light didn't last very long; after the washing it became quite darkish again.

Q. And what about the dust on the leaves—any change in that? A. No, I didn't notice much change.

Q. So that since 1946 and since you have first been there, outside of the washing, the light has been about the same? A. The light has been about the same.

30 Q. And the dust on the leaves? A. The dust on the leaves varied a little with the type of the leaf. The rougher leaves seemed to collect more of the dust and the hoary leaves than some other ones; not very much difference, but there was some difference.

Q. And this dust, is it dust that you could shake off? A. No, it was stuck very closely to the leaf.

40 Q. And how could that dust be removed from the leaf? A. Well, it was sticky. I don't think it could be washed off with a spray. You might get some of it off with a spray, but I don't think you would get very much of it off with a spray. It didn't vary very much from time to time.

Q. And from an ornamental point of view, what effect would that dust have on the plant? A. Well, it was probably more serious on some plants that were sold, some of the leafy plants, than it would be on the flowering plants.

Q. Did the dust affect them? A. The dust would in a way affect them to some extent, but I would say only slightly, from an ornamental standpoint.

Q. Now, you visited him on August 22nd, 1946. Did you make any other examination than just inside the greenhouse?

10 A. I examined the condition of the plants and I found a lot of leaves—sickly leaves.

HIS LORDSHIP: Is this inside the greenhouse? A. This is inside the greenhouse.

MR. FERGUSON: Q. Then, in the surrounding area, did you look at the plants outside the greenhouse? A. Yes.

Q. What did you find? A. And I found what looked like typical SO₂ markings in that particular area on the plants that I knew to be susceptible.

20 Q. You mean markings as if the plant had been damaged by SO₂? A. Yes, that I knew to be susceptible, such as peaches, plums, apricots and ferns and glads.

Q. That would be the first time you had seen markings on Mr. Walker's plants? A. Yes.

30 Q. Did you come to any conclusion at that time as to what the markings were? A. Well, I was fairly well convinced, myself, because they were in the particular area and the markings, many of them, were on the borders of the leaves and the tips of the leaves, all of which showed good characteristic SO₂ markings. But there is really no definite technical means of identifying the sulphur smoke bleach without a special study of it, seeing the plants before and watching it at work in its definite pattern and all the other characteristics which, you might say, appear suddenly, almost overnight.

Q. Well, at any rate, you didn't have a chance to do all that in August, 1946? A. Well, I knew—in fact, Mr. Walker hinted at litigation, and I knew I could not satisfy the Court by saying that these markings were sulphur smoke markings.

40 Q. Well, at any rate, you didn't come to any definite conclusion in 1946. Did you go back again in that year? A. Yes, on September 10th.

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Q. And did you make any further examination then?

A. Yes, I made further examinations and could not find any fresh bleach on any plants.

Q. At that time? A. At that time.

Q. Now, before we leave August, 1946, you looked at plants outside the greenhouses. How far afield did you go to examine the vegetation? A. Well, I went probably a quarter of a mile beyond the greenhouses in a northeasterly direction knowing the wind—the prevailing winds were in the southwest.

10 Q. You have, as you say, lived in the Niagara Peninsula since about 1924? A. Yes, I have been on a farm since 1908.

Q. And are you familiar with the conditions in this area?
A. Oh, yes.

Q. Well, now, then, you have said you were back again in September, 1946. When did you next visit Mr. Walker's place?
A. Not until May 5th, in 1947. By the way, I had advised Mr. Walker in 1946 to plant some susceptible plant, like barley, oats, and wheat, in a plot.

Q. And did he subsequently plant them? A. He did.

20 Q. Those were planted where? A. Beside the greenhouses.

Q. You might just show us on Exhibit 1. This is a plan of Mr. Walker's greenhouses and the surrounding area. This is north and this is south. Now, whereabouts did you have the special plots planted? A. Where is the house?

Q. This is the house. A. Right there.

Q. You are pointing to the spot immediately in front and to the south of the No. 1 greenhouse? A. Yes.

30 Q. You had Mr. Walker plant some special plants there?
A. Yes. I also had him plant glads along with the other varieties and then there were ferns in front of that house just beside the test plot which was also very sensitive to sulphur bleaching, and I also suggested using those.

Q. Then, did you go down at some later day that spring?
A. Yes, I went down again on the 9th.

Q. Did you find anything—I don't want you to waste the time to tell us what you found, but what is the first time you went down and found something? A. I didn't find any fresh markings on the 5th or the 9th, outside or inside.

Q. Then you went down some day in June? A. I asked Mr. Walker to watch for any sudden appearance of markings on plants.

Q. And was it as a result of some communication from him that you went down? A. On June 17th he phoned me that he had —

HIS LORDSHIP: Well, he phoned you and you went down? A. I went down the next day.

10 MR. FERGUSON: Q. And, as a result of that phone call, did you go to St. Catharines? A. Yes.

Q. What did you find when you came here? A. I found a bleach.

Q. Now, did you take some specimens when you were here that day? A. Yes.

Q. Have you them with you? A. Yes.

Q. Then, the first one you have is what? A. That first one is a glad.

Q. That is a gladiolus? A. Yes. You can see some there.

20 HIS LORDSHIP: Q. You are proposing to file these as exhibits?

MR. FERGUSON: Yes, my lord.

HIS LORDSHIP: I suggest probably the best way to handle them would be to prepare a sheet with the exhibit number and then put them all together in the press that the witness has prepared, so they will be kept securely.

MR. FERGUSON: Very well, my lord.

Q. Where was this specimen of gladiolus leaf, which will be Exhibit No. 74, taken from? A. From the test plot just in front of the greenhouse there.

30 —EXHIBIT No. 74: Gladiolus leaf taken from the test plot in front of the greenhouse.

Q. That is in front of the No. 1 greenhouse? A. Yes.

Q. And we will deal with it through the next specimen. A. Is a grape—an enlargement of a leaf.

—EXHIBIT No. 75: Enlargement of a specimen of leaf of grape vine.

Q. And have you another one there, taken on the 17th June, 1947? A. Yes; a Lombardy poplar, but it is not very plain. It is along the edge and the borders of the leaves.

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HIS LORDSHIP: Just before we get away from Exhibit No. 75. Now, what observation do you make with respect to the grape leaf? A. The borders of the grape leaf are killed; this part here.

Q. You are drawing your finger around the border that is showing a dark brown? A. Yes, my lord.

MR. FERGUSON: Q. And the specimen of the Lombardy poplar will be Exhibit 76.

THE WITNESS: There is a very light bleach.

10 —EXHIBIT No. 76: Specimen of Lombardy poplar.

Q. What do these three —

HIS LORDSHIP: Just a moment till we get organized here. Let me see the frame that you have. If you will take that frame and just lay the exhibits face down so we won't get these exhibits mixed up. Now, can you point —

MR. FERGUSON: I was just going to go into that, my lord, — make some observations on these three exhibits. Will you just put the three exhibits, the specimens, Nos. 74, 75 and 76, before you, Mr. Jarvis, and tell us, do those markings on those
20 specimens indicate any damage to the plant? A. Yes. It is not a severe bleach, but they do indicate damage.

Q. Damage from what? A. Damage from the sulphur dioxide, which is absorbed by the plant.

Q. Taking the gladiolus leaf first, what markings indicate the bleach from SO₂? A. At the tip of the leaf, and these stripes along the veins; these whitish or lightish coloured markings along the veins.

Q. That is, you are pointing to the markings at the tip. Now, is there any special distinction between that marking and
30 the paling of the leaf that I see? A. No, that is the bleach. The part that is dead; the rest of it, the part that is acute injury.

Q. You mean the tip of the leaf denotes the acute injury?
A. The tip of the leaf denotes acute injury.

Q. Is there any distinguishing mark or border between that acute injury and the rest of the leaf? A. There is a sharp line of demarcation between that and the healthy part.

Q. Is that in any way typical of SO₂ injury? A. That is very typical. You get a sharp line of demarcation between your sulphur bleached area and the healthy area.

40 Q. Now, let us look at the grape. Where do you see any evidence of injury to the grape leaf? A. On the margin of the leaves.

Q. By the way, where was this grape leaf taken from? A. Just from one of Mr. Walker's neighbors. On the map you will see "grape" marked there, but it is all within a quarter of a mile of Mr. Walker's greenhouse, in a northeasterly direction.

Q. Then, the brown markings, you say, on the edge of the grape leaf, they denote injury, do they? A. Yes. That part is killed. When it suffers a bleach with an acute injury, you get the killing of the plant tissue.

10 Q. Then look at Exhibit No. 76, Mr. Jarvis, and tell us what evidence of injury from sulphur dioxide is there on that specimen? A. Well, this has a very — you can see the brownish markings and there you can see the brownish margin there and there it only comes within about a sixteenth of an inch inside the leaf.

Q. Now, Mr. Jarvis, you call that type of injury acute? A. Acute, yes.

Q. What kind of injury does sulphur dioxide cause. A. Three kinds, acute injury, chronic and invisible.

20 Q. What would be the distinction between acute injury and your invisible injury? A. Well, in an acute injury, we have a very — the killing of the leaf at once. I mean, it acts immediately on the leaf, whereas a chronic injury is slow in its action. It is taken, is absorbed by the plant, and gets in the interstices of the plant and there it affects it, retards the growth; it affects the metabolism in very many ways.

Q. What are the manifestations of chronic injury? A. You get a retarding of growth; you get an absence of flowers and fruiting and everything that does — when the starch is not formed in the plant.

30 Q. An absence of flowering and fruiting, you say, is one of the typical results of chronic injury? A. Yes.

Q. How do you distinguish that from the third classification you gave us, of invisible injury? A. Well, invisible injury, you can get it in trees by noting the rings of growth, or you have a smaller or narrower growth which indicates less growth than in the normal years.

Q. That is, the irregular growth of the tree would be an invisible injury? A. Yes, it is just diminished.

40 Q. How does sulphur dioxide poison? What goes on that makes sulphur dioxide affect the plant? A. Well, it affects the plant in very, very many ways. After it enters the leaf it may stop.

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Q. Before you go into that, tell us about the mechanical process of the injury entering a leaf, and so on? A. It enters the leaf. It is absorbed through the thousands of stomata on the leaves, taken in, and if it is strong enough, why, it enters the leaf cells and kills the chloroplasts and kills the tissue.

Q. Would that be an acute injury? A. That would be the acute injury.

Q. What part of the leaf is most susceptible to acute injury? A. The tips, the margins, and sometimes you get it in the veins, get a mottling between the veins.

Q. Does that occur more when the plant is growing? A. It is most abundant when the plant is most active and at certain times of the year, in June, July and August.

Q. The gladiolus that you put in as Exhibit No. 74 was taken from in front of No. 1 greenhouse, that is outside? A. Yes.

Q. On the 17th day of June? A. Yes.

Q. That would be in the growing season? A. Yes.

20

Q. Now, what are the particular conditions? Are there any atmospheric conditions? Does sulphur dioxide come about from day to day, or how? A. To get a bleach, you must have usually daylight and a growing temperature and a high humidity. That is the most important of all, perhaps, and a concentration of gas sufficient to cause a bleaching, with a high temperature to assist, you get a heavier bleaching. If you get a high temperature, high humidity in any hot, muggy day, that is one of the worst days, but daylight growing temperature and high humidity and sufficient concentration.

30

Q. Did you investigate to see if those conditions were present around or before June 17th, 1947? A. Yes, I did.

Q. And were they present? A. Yes, they were present.

Q. Then, tell me, you went back to Mr. Walker's place, I presume, afterwards, did you? A. Yes.

Q. When was your next trip back there? A. July 9th.

Q. And what did you find on July 9th? A. July 9th, he called my attention to the sweet peas in the cloth house, which were bleached.

Q. And did you take a specimen? A. Yes.

40

Q. This is it? A. It has a typical —
—EXHIBIT No. 77: Specimen of sweet pea taken from the cloth house.

Q. That was taken on July 9th, 1947. Now, is the sweet pea a susceptible plant, Mr. Jarvis? A. Yes, quite.

Q. What is the marking on that at present, which would indicate sulphur dioxide injury? A. Very white; whitish colour, white, you might say, but chiefly whitish, creamish.

10 Q. What would distinguish a marking of that sort, Mr. Jarvis, from the markings caused by other means? You get markings from diseases in plants? A. You may get a physiological marking that might resemble it more closely than anything else, but with disease, of course, you can identify those by the organisms and the method of work, on physiological markings. For instance, too much water, too little water, might cause discolouration of the leaf, and the lack of certain elements in the soil may also cause a discolouration of the leaf, or too much of something in the soil might.

20 Q. Now, I want you to tell the Court the way in which you distinguish the markings caused by SO₂ acute injury from the markings caused by physiological changes? A. Well, in the greenhouse it is much more difficult to identify a sulphur smoke bleach than outside. Outside, in the first place, we know the susceptible plants. We know the characteristics of them but, inside, there is so little work being done on the greenhouse plants —

Q. You mean scientific work? A. Scientific work, and you cannot get your pattern inside like you can outside.

Q. Then, let us deal with what you took on the outside? A. It appeared suddenly, and it has a bleach quite typical of the sweet pea markings outside. Now, those are only two things.

30 Q. You mean the sudden appearance? A. The sudden appearance and the appearance of the SO₂ on the sweet pea outside, which I am familiar with.

Q. And that is a distinguishing feature apparently between the SO₂ markings and physiological change? A. Yes.

Q. That is, the sudden appearance? A. Yes.

Q. Then, is that the only specimen you have before July 9th? A. Yes.

Q. Then, when is the next occasion you went there? A. There was nothing outside of July 9th. The next was July 16th.

Q. This is a sword fern, isn't it? A. Yes.

40 —EXHIBIT No. 78: Specimen of sword fern.

Q. Now, Mr. Jarvis, is the sword fern a susceptible plant to SO₂? A. Yes, all of the ferns that I know of are quite susceptible to SO₂ bleaching.

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Q. Did you have any experience with the ferns up north, in that connection? A. Ferns up north?

Q. Yes. A. Yes, the ferns up north — the bracken fern up north was one of the most susceptible plants we had.

HIS LORDSHIP: Mr. Ferguson, the witness is presenting two samples of the sword fern. If they were both taken on the same day, and apparently they were, they will be Exhibits No. 78A and 78B.

—EXHIBITS 78A and 78B: Two samples of fern.

10 MR. FERGUSON: Q. Now, will you comment on those two exhibits, 78A and 78B, and tell his lordship how they indicate SO₂ injury? A. The tips of the leaves are also typical SO₂ bleaching and, in addition to that, and before mounting them which was maybe two or three weeks after I got them, the pinnies dropped, which is very unusual.

Q. I suppose we all know what the "pinny" is? A. Little leaflets.

20 Q. Now, the dropping of the pinny, is that in any way typical of SO₂ injury? A. Yes, it does affect it. SO₂ injury affects the tissue which unites the petiole of the leaf to the stem. There is a special tissue which is quite characteristic and they fall off at the regular time — the leaves fall off in the autumn but, in this case, they fell off earlier.

Q. Now, when you were at Mr. Walker's place on July 9th of that year, which was just a week before, did you examine this test block in front of Mr. Walker's No. 1 greenhouse? A. Yes.

Q. Did you find the ferns on that date in any way injured? A. No, nothing outside on that date.

30 Q. So this injury took place between the 9th and the 16th? A. Yes, it did; between the 9th and the 16th.

Q. And have you any more specimens for July 16th? A. I have just another for the same —

Q. You have another fern? A. Yes, but it is not necessary to put it in.

Q. No, we do not need to put that one in: and that was July 16th, 1947. And when did you next go and examine this place? A. On July 31st.

Q. Were you sent for? A. Yes.

40 Q. And did you make an examination of the greenhouses? A. Yes.

Q. Let us see what you found on July 31st? A. I didn't find anything inside on July 31st, but a severe bleach outside. It was more severe than the other two.

Q. And the first specimen you have is gladiolus taken on July 31st, 1947? A. Yes.

Q. Exhibit No. 79, specimen of gladiolus taken July 31st, 1947.

—EXHIBIT No. 79: Specimen of gladiolus taken July 31st, 1947.

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10 Q. How does this specimen indicate any injury? A. Well, the light markings on the plant are SO₂ markings, all yellowish.

Q. Again you are pointing to the tips of the leaves? A. Yes, and in between the veins of the leaf.

Q. And the next specimen we have is — A. Is this one,—an apricot.

Q. There is an apricot specimen taken on the 31st of July, 1947? A. Yes.

20 —EXHIBIT No. 80: Specimen of apricot leaf taken July 31st, 1947.

Q. How does this Exhibit 80, which is a specimen of an apricot leaf, how does it indicate anything? A. All the dark brown marking on the leaves are injury by SO₂.

HIS LORDSHIP: What do you say are injury? A. The apricot is very susceptible.

30 MR. FERGUSON: Q. By the way, you spoke in connection with the fern, about the leaf falling. Did you find that in other plants besides ferns, that the leaf sometimes falls? A. The peach, especially; sometimes the ground is covered with leaves with no markings, or very slight markings.

Q. And the next specimen we have is what? A. Is the peach.

Q. And that is also taken on July 31st, 1947? A. Yes.
—EXHIBIT No. 81: Peach leaf specimen taken on July 31st, 1947.

Q. And where did you get Exhibit 81 from — Mr. Walker's property? A. No, on one of the neighbour's.

40 Q. And in what way does this specimen indicate that the peach leaf has been damaged by SO₂? A. The discolouration of the leaf is caused by SO₂.

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Q. I notice in all of these specimens, Mr. Jarvis, we have been looking at an injury which appears to be on the edges or the tips of the leaves. What is the reason for that? A. Well, on these plants particularly it is much more common on the edges and tips of them, although, on the apricot it is not so much on the tips.

Q. Is that because the plant is probably growing? A. But it is in the centre, too, but it is mostly on the tip, too, there; but it is much more common on tips and margins than in between.

Q. Now then, did you find any further evidence of damage from SO₂ in the year 1947? A. No.

Q. And did you make regular visits from that time, to Mr. Walker's place? A. Yes, I made several visits after that.

Q. And, in 1948, did you go there, or in the fall of 1947? A. Oh, yes, in the fall of 1947 I visited the plant and I was asked to — one of the boys asked me to —

Q. Well, you visited the plant. Just tell us what you saw. A. I saw chrysanthemums, bronze chrysanthemums had turned from a bronze colour to an insipid yellow.

20

Q. Have you got a note of the date that was? A. That was November 24th, I think.

Q. November 24th, 1947? A. Yes.

Q. And you say that you saw a chrysanthemum and it had changed from a bronze to — A. From a bronze to an insipid yellow.

Q. I am showing you what has been marked in this trial as Exhibit No. 32. Is that the kind of chrysanthemum you saw? A. Yes.

30

Q. And, having examined it, did you come to any conclusion as to what caused the change? A. Well, I know that chronic injury produced that result, but I wanted to take a little

HIS LORDSHIP: Q. Chronic injury of what sort? A. From SO₂ being absorbed and held in the plant.

MR. FERGUSON: Q. And what do you say caused the injury that you saw and which is indicated in Exhibit No. 32? A. That was chronic injury.

Q. From sulphur dioxide? A. From sulphur dioxide.

40

Q. Inside of the greenhouses, Mr. Jarvis, you have told us before that you require growing conditions. You get growing conditions, I suppose, in the greenhouse? A. Yes.

Q. They have it the year round? A. Yes.

Q. Some flowers, in the growing stage? A. Yes.

Q. And would those plants be more susceptible to chronic and invisible injury than plants outside, in the growing season?

A. Yes. If there is sulphur dioxide in the air to cause acute injury it is taken in by the plants just the same, whether it kills them or not, and you are liable to get chronic injury or invisible injury in any smoke zone where you are getting the acute injury. In fact, all the air contains some concentration.

10 Q. Now then, let us get on to the next year, 1948. You visited the plant in 1948? A. Yes.

Q. And did you find any evidence of injury during that year, that is just last year? A. Yes.

Q. What date? A. June 26th. I made several visits before that, but June 26th — no, June 11th is the first date.

Q. Well, you have got no specimen for June 26th? A. No, but there was a bleaching on June 11th.

Q. There was a bleaching on June 11th? A. Yes.

Q. Well, you apparently took no specimens on that date?

20 A. Yes, I have some, but, in going over them, I must have left them out.

Q. Well, here is one on June 26, 1948. This is again a gladiolus leaf? A. Yes. We had three bleaches in 1948, June 11th, June 26th and July 7th.

Q. Three bleaches in 1948? A. Yes.

—EXHIBIT No. 82: Specimen of gladiolus leaf.

Q. Now, does Exhibit 82 show evidence of sulphur dioxide bleach? A. Yes.

Q. Again it is — A. A typical leaf.

30 Q. And again it is a sharp border between the light straw colour and the rest of the leaf? A. Yes.

Q. Then what is this? A. That is an apricot.

HIS LORDSHIP: Let me see Exhibit 82, please.

MR. FERGUSON: This was taken also on June 26th? A. Yes.

—EXHIBIT No. 83: Apricot leaf taken on June 26, 1948.

Q. Where did this apricot leaf come from? A. One of the neighbours.

Q. From one of Mr. Walker's neighbours? A. Yes.

40 HIS LORDSHIP: Q. Was the gladiolus leaf taken from Mr. Walker's place? A. Yes, the gladiolus from in front of No. 1 greenhouse, the test plot.

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MR. FERGUSON: Q. What evidence is there of injury on the apricot leaf? A. Well, the leaf is browned and shows a lot of injury over the leaf.

Q. You have that one branch. Was that typical of the tree, or is that just an isolated branch? A. All of these are typical of the tree. The average is —

HIS LORDSHIP: Well, as I understand, Mr. Jarvis, these are samples or specimens and in all cases they are typical of a sort of general injury? A. Yes.

10 Q. At that time? A. Yes.

Q. For instance, the gladiolus, it would not be one leaf from the bed? A. No, general.

Q. But a general bleaching of the bed, and the same with the apricot, the tree would indicate a bleaching of this character? A. Yes.

MR. FERGUSON: Q. Now then, we come to — A. June 26th.

20 Q. What is this specimen? A. Brown plum. It is also a very susceptible plant and the bleaching is on the margin of the leaf.

—EXHIBIT No. 84: Specimen of brown plum taken on June 26, 1948.

Q. Does that show injury similar to the other specimens? A. Yes, on the margin of the leaf.

Q. Where is the injury indicated on that specimen? A. On the margin of the leaf.

Q. And the next specimen is? A. Is on the oats on the test plot.

30 Q. That is Walker's test plot? A. Yes.

Q. Also on June 26th, 1948? A. Yes.

—EXHIBIT No. 85: Specimen of oats taken from Mr. Walker's test plot, June 26, 1948.

Q. And before you comment on the oat specimen, let us take the next one. What is the next one? A. The next one is barley.

Q. Also taken from the test plot? A. Yes.

Q. And on the same day, June 26, 1948? A. Yes.

40 —EXHIBIT No. 86: Specimen of barley taken from Mr. Walker's test plot, June 26, 1948.

Q. And oats and barley, are they susceptible? A. Yes, not nearly so susceptible as peach or apricot or plum or glad.

Q. What do you say the evidence of injury on the plum and the oats and the barley is due to? A. Sulphur dioxide bleaching.

Q. Now, what about the barley and oats? Are they particularly susceptible? A. They are. Barley and oats in the north country, when we were working with farm crops, they were two of the most susceptible and down in the Niagara District we find the peach and the apricot and the plum and the glad. very much more susceptible than either barley or oats.

10 Q. Do I understand, if barley is susceptible in Sudbury, then it necessarily follows that it is susceptible in the Niagara District? A. No; they all vary to some extent.

Q. What are the varying factors? A. Well, your different points have different environmental conditions. In one place, for instance, in Trail — may I mention Trail? — they say that these particular trees, peach, plum, and so on, are quite resistant. Here we find them more susceptible than any other plant and there they find oats more resistant than wheat. In the north country, the nickel country, we found oats much more susceptible than wheat, and the same down here. We find oats more susceptible.

Q. So apparently climatic conditions affect it? A. Yes, very much. You have to study every sulphur smoke climate in its definite locality; they all vary.

Q. Then, what is the next specimen? A. The next is July 7th, that was the most severe bleach we had in the three years I have examined. This plum is the first one.

Q. The first specimen is the plum.

—EXHIBIT No. 87: Specimen of plum leaf taken on July 7th, 1948.

Q. And the next one is what? A. Is a peach of the same date.

Q. July 7th, 1948.

—EXHIBIT No. 88: Specimen of peach leaf taken on July 7th, 1948:

Q. And the next is what? A. That is the fern in front of the house, right beside the test plot. That was one of the plants I used along with other test plants.

Q. You had ferns in the test plot?

40 MR. SLAGHT: My lord, yesterday morning we forgot the Reporter's interval.

HIS LORDSHIP: Well, we are not going to forget it this morning.

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MR. FERGUSON: Q. You have two specimens of fern?
A. Yes; the same thing, from the same place.

—EXHIBIT No. 89A and 89B: Two specimens of fern taken from beside the test plot.

Q. What next? A. There is a grape.

Q. The next specimen is a specimen of a grape? A. Yes.

Q. That is taken from where? A. That is taken from right close to the plant; maybe a stone's throw away.

Q. Close to? A. Close to Mr. Walker's greenhouses.

10 —EXHIBIT No. 90A and 90B: Two specimens of grape leaf.

Q. And the next one is also a grape? A. This is also a grape; you sometimes get a mottled effect with a grape, as well as the effect around the border.

Q. Is that peculiar to a grape leaf? A. Yes. You very often get a mottling, as well as a marginal effect.

Q. The next specimen? A. This is a glad. from the test plot.

Q. From the test plot in front of the house? A. Yes, or in front of No. 1 greenhouse.

20 —EXHIBIT No. 91: Gladiolus leaf taken from the test plot in front of the greenhouse.

Q. Now, I just want to pause with this one for a moment. This Exhibit No. 91, what do you say those markings are caused by? A. Sulphur dioxide bleaching.

Q. Is that a severe bleach? A. That is a severe bleach.

Q. And the next one? A. Is a peony from a neighbor's garden just about 100 or 200 feet away.

Q. 100 or 200 feet away from the greenhouse? A. From the greenhouse, yes, in a northeasterly direction.

30 —EXHIBIT No. 92: Specimen of peony leaf.

THE WITNESS: These two are also from the same garden; garlic leaves.

Q. What is the garlic? A. That is the garlic.

Q. And from the same garden? A. From the same garden as the peony.

—EXHIBIT No. 93: Specimen of garlic leaves.

Q. And the second one you say is a specimen of — A. Day lily.

—EXHIBIT No. 94: Specimen of day lily.

40 Q. And we have one from — A. This is just an apricot leaf, quite a distance — about five-eighths of a mile from the McKinnon plant. That specimen is the farthest away of any.

—EXHIBIT No. 95: Specimen of apricot leaf.

Q. You say the apricot leaf is taken about five-eighths of a mile away from the McKinnon plant? A. That was, yes.

—Intermission.

—On resuming?

Q. Mr. Jarvis, you referred to this last series of exhibits all dated July 7th? A. I think it is, 1948.

Q. Numbers 87 to 95 inclusive. What do you say as to whether these specimens have been injured by sulphur dioxide? A. They have definitely been injured by sulphur dioxide gas.

10 Q. And is there any doubt about your ability to distinguish those markings of injury from injury that may be caused by physiological changes? A. Absolutely no question at all.

Q. How do you account for the fact that the injury is just caused on occasional days, such as you have found? A. Because you have got to have the coincidence of natural conditions right, perfect, to get a bleach. You have to have daylight and temperature and a high relative humidity and concentration of gas in the air sufficient to cause a bleach. When those are present, why, you get your bleach.

20 Q. And that has to be the coincidence — you have to have a coincidence of all those things present at the same time? A. Yes. If any one of them are missing, you may not get a bleach.

Q. And on the occasions of your visits to the Walker plant, have you observed any smoke? A. Yes, several times.

Q. Smoke coming towards Mr. Walker's greenhouses? A. Yes, right over, going in a northeasterly direction from the McKinnon plant.

30 Q. And having regard to the injuries which you have shown us, where do you say this injury originates from? A. Well, I would say quite definitely that it comes from the McKinnon Industries, just located just a short distance away, a few hundred yards, and the wind blowing — the prevailing winds coming in a southwesterly direction, blowing northeasterly, it looks as if it was quite definitely coming from the McKinnon plant. In fact, I have seen the smoke go through there and seen the blue haze, as I saw on several occasions, and sometimes last pretty much the whole day.

40 Q. And have you seen it recently? A. Last Wednesday was the last time — yes, last Wednesday and it lasted nearly all day, coming right over from the McKinnon plant and right over the Walker plant and going in a northeasterly direction.

Q. Going off in a northeasterly direction. A. Yes.

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Q. That would be Wednesday, the 20th, — last Wednesday? A. Yes.

Q. The 20th day of April, 1949. Now, these injuries that you have shown us, as you have said, are all acute injuries? A. Yes.

Q. You have on each occasion, as you say, visited Walker's greenhouse. Have you gone through the greenhouses every time you have been there? A. Yes, I think so.

Q. And observed the flowers? A. Yes.

10 Q. What do you say as to whether or not those flowers have been subjected to any other injury by sulphur dioxide other than this acute injury? A. There was one other investigation on December 27th, when I examined the azaleas.

Q. December 27th, 1947 or 1948? A. 1948 — I have forgotten — 1948, the azaleas.

Q. What did you find on your examination on that date?
A. I found they had another typical chronic injury action. The azaleas, which are usually a magenta colour, had come out very pale; a palish pink, almost white, and the magenta colour was the regular colour of it. As they came out, they appeared with this pale, whitish colour.
20

Q. And that indicated? A. That indicated another chronic injury.

Q. From your examination of Walker's plants over this period of three years, are they, in your opinion, or are they not being subjected to any other injury than an acute injury? A. Yes, definitely. If you have acute injury by sulphur dioxide in the air outside, you are going to get it inside and as we found, we did find it inside on several occasions, the markings, and when
30 you have that, you have definitely a chronic injury and an invisible injury. You may not see it all, or anything like all the bad effects, but it is there and it may affect the plants. I think all of the plants in the greenhouses would be poisoned to some extent, because they all breathed in that sulphur dioxide.

Q. But it means it was not strong enough to bleach —
A. Not strong enough to cause acute injury. I am not familiar enough to know all the chronic injuries. For instance, one of them is stunted growth, or retarded growth. That is a very common chronic injury, but, not being a specialist on greenhouse culture, I would not be able to say one was and one was not. Mr.
40 Walker pointed out very many others which were retarded in their growth.

Q. You are not speaking of any particular plant in the greenhouses? A. No, I think they were all poisoned and all subject to chronic injury and invisible injury.

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Q. I see. Now, Mr. Jarvis, you spoke in your first examination of the greenhouses of the quality or quantity of light. A. Yes.

10 Q. Have you made any special study during your practice of your profession, of the effects of light on plants? A. Well, for 14 years at the Ontario Research Foundation I worked entirely on environmental plant growth in relation to environmental coincidences, including light, of course, it being the most important factor, perhaps, of all.

Q. Did you describe to us the quantity of light as you found it when you made the examination of the greenhouses? A. As I said, it was quite dark and dismal, but it was —

Q. Did that condition continue throughout your examination over the period of three years? A. Yes. It was washed occasionally, but practically all the time it was dark.

20 Q. I am showing you what has been marked as Exhibit 19 in this trial, Mr. Jarvis, which shows a part of the roof washed and part unwashed. Did you see that condition at Mr. Walker's place? A. Yes. The one that was not washed was the one that was most common.

Q. And what do you say as to whether that is a favourable condition, or otherwise? A. Very unfavourable.

30 Q. Unfavourable? A. Yes. Some plants get along with less light than others, it is true, and there is a tremendous variety of plants in the greenhouse. Some plants get along, for instance, shade-loving plants, with quite a lot less light than some plants — intermediate plants, but they all require light in abundance, especially in the winter time when the days are so short, why, none of them get enough.

HIS LORDSHIP: I take it the purpose of a greenhouse is to get light? A. Absolutely, my lord. In the first place, you have about 20% cut off in the glass alone.

MR. FERGUSON: Q. Did you examine the surface of the glass yourself, at any time? A. Well, not closely. You could see it all. I mean, you could not improve it.

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HIS LORDSHIP: Excuse me. Just a question, Mr. Jarvis, in reference to light before we get away from it. There is a natural development of plant life in spring and summer and fall. Take chrysanthemums, for instance, they bloom only in the comparatively late fall. Is that because they do not require the same quality of light as, for instance, the June flowering plants? A. It is because they prefer a short day. The length of day is the factor that determines the fruiting and blooming, too, of some plants. I was thinking of a sunflower, I think it is, — a rose is a good example. It will bloom in almost any length of day, but practically all plants require a certain length of day and greenhouse men take advantage of that and they lengthen the day with artificial light and they shorten the day with black, satin cloth.

20

Q. Take the gladioli, for instance. I don't know whether I am right or not, but I always thought that they bloom with very much more brilliance the further north you went where you had a longer day. Is that correct? A. That might be the intensity of light. The intensity of light has a lot to do with the brilliance and the length of day controls — practically controls the blooming and fruiting of plants.

MR. FERGUSON: Just before I go any further into the light question, I neglected to ask this. You told us about taking those specimens of gladioli leaves from in front of No. 1 greenhouse. I am showing you Exhibit No. 26 in this trial. Do you recognize that location? A. Yes.

Q. And you see a good many markings on the tips of the gladioli leaves? A. Yes.

Q. Is that the condition which you saw? A. Yes.

30

Q. And what are those light marks on the leaves? A. Those are sulphur dioxide markings.

Q. And is it from that bed that you took your specimens. A. Yes.

Q. Then, did you see what is described in this trial as the McKinnon test plot? A. Yes. I went over there on several occasions.

Q. Did you go over there, for instance, on July 7th, 1948? A. Yes.

Q. And again, did you go over in July of 1947, July 26th, I think it is? A. Yes.

40

Q. Anything to distinguish the McKinnon plant from the Walker's plant, so far as markings were concerned? A. No, they were practically the same.

Q. That is to say, when there were markings on Walker's gladioli, were there also markings on McKinnon's gladioli. A. Yes.

Q. That is shown also, the markings on the McKinnon gladioli, is that shown on Exhibit No. 27? A. This is the McKinnon's, yes.

Q. And then, were you present when Mr. Walker took some moving pictures? A. Yes.

10 Q. And you are photographed in those pictures? A. Yes, I believe so.

Q. Well, then, coming to the question of light in respect of these plants, what are the variations of light which affect the growth of plants? A. Well, there is the duration or the length of day, as I said, which has to do with the fruiting to a very large extent, — the fruiting and the flowering of plants.

Q. Would that be in the quantity of light? A. No, not the quantity, but the day length.

20 Q. Is there any other variation that affects the light? A. And the intensity of light and the quality. You might speak of the three different types.

30 Q. Now, have you made any study of the spectrum, or the different parts of the light which most readily affect the growth of the plant? A. Well, they all have — all light has an effect on plant growth, and the idea is to get all of them. There has been a lot of very contradictory evidence or research findings on the effects of the quality of light. Some of them thought for a long time that the red end of the spectrum was the most important because you get a tall growth. They did not realize that you get a sappy growth and an unhealthy, dilated type of growth on that end, and only very recently they thought the red end was the important end of the spectrum and recently the blue violet and the ultraviolet are the most important as giving structure to the plant and to give it health; it has got to need them all; they all have their special function. But you need all the light you can get.

Q. But what is the special function of the blue violet light? A. Well, to get more structure and strength and health, I would say, perhaps, from the blue violet end.

40 Q. And what effect would the black glass, for instance, as we saw in the exhibit I have just recently shown to you, what effect has that on the light? A. Well, it would reduce the intensity of the light tremendously.

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Q. And are you qualified to say whether it changes the quality of the light at all? You have not made any experiments along that line? A. No, I have not made any experiments.

Q. But you do say there is an important difference in the function of the red light and the blue or purple light? A. Yes. But I will say you need all of the rays. As has been generally said, you cannot improve on the daylight for any growth.

Q. Now, in connection with the light and the growth of the plant, did you examine the leaves of plants in Mr. Walker's greenhouses? A. Yes. From time to time I noted the collection of dirt and dust, or material, I might say, on the leaves.

Q. Now, have you got some leaves with you? A. I have got a sample.

Q. Now, my lord, I will have to undertake to prove that these came from the greenhouse, which I will do. You did not take these from the greenhouse yourself? A. No. I asked Mr. Walker to bring up a sample of leaf from his orchid house.

Q. To-day? A. Yes.

HIS LORDSHIP: Then you will undertake to prove that these came from the Walker greenhouse, picked to-day?

MR. FERGUSON: Yes, picked to-day.

—EXHIBIT No. 96A and 96B: Two orchid leaves picked from the Walker greenhouse.

HIS LORDSHIP: Let me see them.

A. The lower part of the leaf, I rubbed it off to show the difference between the upper and lower part.

Q. Then, was the leaf substantially the same all over as the upper part? A. Yes, it was, my lord, but I just wanted to show the difference.

Q. What are these leaves? A. Those are orchid leaves.

MR. FERGUSON: Q. You have observed the orchid leaves in Mr. Walker's greenhouse many times? A. Yes, many times.

Q. Are they all as dirty as that would indicate these two are? A. I think that is a pretty fair sample. It might be a little quite a fair sample of the orchid leaves in the greenhouse.

Q. It might be a little worse than some? A. It might be a little worse than some but I think it is quite an average.

Q. I see. Now, the orchid leaves that his lordship is holding, they have — half of them look to be clean, and one half of the leaf appears to be dirty? A. I rubbed it off with a handkerchief, off one end of it, to show the difference.

Q. And that shows the shiny texture of the normal orchid leaf? A. Yes.

Q. Now, speaking as a biologist and plant pathologist, Mr. Jarvis, what effect has that dust on the growth of the plant? A. Well, it cuts out your light and reduces —

Q. What does that dust appear to be? A. The dust appears to be the residue of smoke. I couldn't say what is in it, I mean, except that I have seen Mr. McAlpine's tests and I know there is a tremendous amount of iron in it and iron particles.

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10 Q. Yes, but you say it looks like the residue of what I might call soot, would it be? A. Yes, soot.

Q. Now, will you tell us what the effect of that soot has on the life and growth of the plant? A. It has the effect of reducing the intensity of light getting at the plant, and the plant requires light and carbon dioxide which comes through the stomata.

20 Q. What are the stomata, by the way? Those are the worse than some and not as bad as some others, but I think it is breathing —? A. The breathing and water regulating organs, which are located on both sides of the leaf, but generally on the under side.

30 Q. I see. A. And then in the presence of the chlorophyll and light, we get formed the food, the starches and sugars, enough for growth and repair and storage, and storage is an extremely important part because, in a greenhouse your plants may all look quite healthy and still there may be no starch and starch is for blooming, fruiting and other things and, first of all, your plant produces enough just for growth and repair, and it may not even produce enough for that, but still it may look quite healthy-looking.

Q. Can be quite healthy-looking and still be damaged by the soot? A. Yes. The important thing is to get the storage of starches and sugars every year, for your translocation and storage of your bulbs, and so on.

Q. Now, do you know whether that soot that appears on these leaves, Exhibit 96, could be readily washed off with a spray? A. No, not if they contain iron, and there is no question about it that they do contain iron.

40 Q. What difficulty do you have in getting this off? A. Well, I rubbed it off with a handkerchief, but you may rub it in, as well as rub it off, into your stomata, but I had to do a lot of rubbing to get it off.

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Q. Would these leaves require individual cleaning? A. Yes, individual cleaning. You could not get it off with a spray. When you water the plants, as I say, you may get some of it off, but you certainly wouldn't get it all off.

Q. And how does it affect the plant from an ornamental point of view? A. Well, it does affect it, but I wouldn't say that was very serious.

Q. From an ornamental point of view? A. From an ornamental point of view.

Q. Providing there was an orchid flower on it? A. Yes.

Q. Now, have you anything else you can tell us about the effect of the soot on the plant? A. Well, the soot also collects, clutters up the stomata, your water regulating organs.

Q. Yes, I think you have already told us that. Now, Mr. Jarvis, I think you have told us everything you have to tell us about light and the variation of light in these greenhouses? A. Yes, I have covered that, yes.

Q. You heard Mr. McAlpine's evidence in this case, did you? A. Yes.

20

Q. And did you hear Mr. Beaumont's evidence? A. Yes.

Q. Having in mind the evidence that has been given in this case, and your own investigation that you have made, and the tests that you have made and specimens you have produced, what in your opinion is the cause of the damage being suffered by Mr. Walker's plants? A. Well, I think the —

MR. KEOGH: Is that a question for your lordship to decide? It is pretty close to it.

HIS LORDSHIP: I think it is pretty close to the question I have to decide.

30

MR. FERGUSON: I am speaking particularly of Mr. McAlpine's evidence and Mr. Beaumont's evidence and your own investigation.

HIS LORDSHIP: Well, I will hear what Mr. Jarvis's opinion is, but I think I have really got to make a finding of fact on that phase of the matter.

MR. FERGUSON: Yes, my lord, I quite appreciate that.

40

Q. What is your opinion? I am confining your opinion on the evidence of your own investigation. A. On my own investigation, I would say that the two outstanding factors that cause damage to Mr. Walker's greenhouses are, first, the reduction of light getting into the greenhouses and, second, the chronic injury

that must cause a tremendous amount of damage to these plants in the greenhouses. That is, by a lack of sunlight, or, at least, the poison getting into the plants and preventing the photo-synthesis and the umbilic changes. These two things largely cause a tremendous amount of damage.

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10 Q. And then, what about the outside? A. Well, the outside injury, it is true it does do a lot of damage to his gladioli and carnations and all kinds of garden stuff he grows out in the garden, but I would say that was small compared with the greenhouse troubles. He had one little peach tree die. I mean, it was only about three or four years old when I went there in 1946. It was quite badly bleached and marked at that time, I should say.

Q. Where was that peach tree? A. In Mr. Walker's place; on his plant. He just had one peach tree and had it in 1947. He cut it down. It was so severely bleached that it died.

Q. You mean the extent of the damage outside in comparison to the damage inside? A. I would say is very small.

Q. That is outside? A. Yes.

Q. In extent? A. Yes.

20 Q. It is, in your view, the inside damage that is the important damage? A. Yes; just the cutting out of the light alone is almost — well, it would be very difficult to say how much, but you certainly cutting out all your light, which goes to form your storage of food in the plant, and that storage of food, as I have said, is for fruiting and flowering, and other important functions like that, and I think that those are the two most important things causing damage; — the lack of light and the chronic injury due to the plants inside breathing in or taking in sulphur dioxide may be in extremely minute quantities. That is all you have to
30 have, — just the merest traces to get your chronic or invisible injury.

Q. Have you had such experience as to be able to tell us what would be the merest trace? A. Well, I would say — may I be allowed to quote investigators? — I would say .1 parts per million would cause, or even less than .1, damage or chronic injury and invisible injury.

HIS LORDSHIP: Just let us start all over again. What figure do you want to give us? A. Well, with regard to the leaf, say.

40 Q. Well, what figure do you want to give us? A. .1.

Q. .1 parts per million would cause invisible injury? A. Yes, invisible or even chronic injury.

MR. FERGUSON: I think that is all I have to ask you, Mr. Jarvis.

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Q. Then, on the question of what would cause invisible injury, can you tell us what would be the minimum sulphur dioxide concentration that they would have to have on the outside? A. It would depend on the susceptibility of your plant, but if you asked the question, even with the most susceptible plants —

Q. Take, for instance, the gladioli; we have heard a lot about that. A. About 1. — about .15 parts per million.

10 Q. .15 parts per million would cause injury to gladioli outside? A. Yes.

Q. That is 15/100 of one part per million; .15 parts per million? A. Yes.

Q. And for what length of time would you have to have that concentration of sulphur dioxide to cause that injury to gladioli? A. Well, that would entirely depend on your duration. You might have to have it for eight or ten hours with a low concentration, to get an acute burn.

20 Q. Eight or ten hours with a concentration of .15 parts per million? A. Yes.

HIS LORDSHIP: I take it it would depend on your atmospheric conditions? A. It would depend absolutely on your atmospheric conditions.

Q. And the velocity of the wind and all that sort of thing? A. Yes. You must have a very slow wind, — very little wind and high temperature.

30 MR. KEOGH: Q. How high would you have to have the temperature? A. Well, when you get up in the nineties, why, it is more favourable, but even when you get below, into the seventies or even less, it would be considered fairly high; but when you get up into very high, into the nineties, that becomes more favourable and you require less length of duration.

Q. But if you had a concentration of .15 parts per million of sulphur dioxide for seven or eight hours on a quiet day with very little wind, you would say you would get injury to gladioli outside under those conditions, with a temperature of 65, say? A. Well, probably 65 to 70.

Q. And would you get great injury if it was up in the nineties? A. Yes.

40 Q. And, you mentioned earlier that you would also have to have growing temperatures? A. Yes.

Q. What do you mean by "growing" temperatures? A. The temperature varies with the plant, but around 40 degrees. Of course, that is very unfavourable. You very seldom get a bleaching except you have a high concentration with a low temperature like that. You want to get a high temperature to get a favourable condition for bleaching.

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10 Q. Yes, but take for instance, gladioli, what would be the temperature you would have for that to get injury to the outside, with this .15 parts per million? A. A temperature up in the seventies.

Q. In the seventies? A. Yes, or thereabouts.

Q. I am talking now about gladioli growing outside. A. Yes, Mr. Keogh.

Q. And I am talking about — I thought at least we were talking about a bleach from sulphur dioxide? A. Yes, Mr. Keogh.

20 Q. That is what I am talking about and I am talking about something you can see. I am not talking about invisible injury inside a greenhouse that you were explaining to my friend. A. You are speaking of acute injury.

Q. There is no misunderstanding between us? A. No.

Q. Then, you told my friend — you said that you knew the prevailing winds at the Walker premises were from the southwest. You made that statement, didn't you? A. Yes.

30 Q. I was wondering how you knew that, or if you were taking Mr. Walker's word for it? A. No. Mr. Walker — at the Research one day we made special studies of different regions, noting the prevailing winds and so on, and that was not — I did not leave that to Mr. Walker. That is definitely through the district.

Q. And when did you make that study at the Ontario Research Foundation for the St. Catharines district? A. Well, I cannot say just when, but we used it in our studies of plants in relation to environment or environmental conditions.

Q. But that was quite a few years ago, was it not? A. Yes. I have been retired for four years, Mr. Keogh, and then back, — I was with the Research Foundation for 14 years.

40 Q. I know you were with them for 14 years, but what I am trying to get at is how old was the wind data that you were using in your investigation of the Walker case, — that is, the wind direction for the St. Catharines area? A. Well, I did look up

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the winds in the St. Catharines area, but I don't think it has changed any since and, anyway that may be, I know the winds were in that direction when these bleaches took place.

Q. Oh, you looked up some data on the files of the Ontario Research Foundation about the prevailing winds in the St. Catharines area, or, at least, that is what I understand you are saying? Is that right? A. And living in the Grimsby district for so long, practically the same district, I know for a fact that our prevailing winds come from the southwest.

10 Q. Well, let us deal with one thing at a time. First of all, can you tell me how old the data was that you looked up at the Research Foundation? A. No, I cannot tell you.

Q. Then, Grimsby is how far from St. Catharines? A. About 14 or 15 miles.

Q. And are you suggesting that the wind conditions at Grimsby would be the same as at St. Catharines? A. Yes, I think so.

Q. Did you make any attempt to check the winds at Vineland, in between? A. No.

20 Q. There is a wind station at Vineland, is there not? A. I think so.

Q. An Ontario Government station? A. I think so.

Q. But you didn't make any inquiry there? A. No, I did not.

30 Q. Is there not an Ontario Government wind station at Port Colborne? A. I don't know where, but I know our Ontario Research Foundation was working along that end when I left, and we started and they were putting in stations in various parts of the province, but I have forgotten whether that one was put in before or since.

Q. Now, I believe you made this statement to my friend, — you correct me if I am wrong, because I cannot write as fast as the Reporter. In the greenhouse it is much more difficult to identify a sulphur dioxide bleach than outside, so little scientific work has been done on it. Did you make that statement or a similar statement to Mr. Ferguson, during your evidence? A. Yes.

Q. And have you ever heard of the Boyce Counsel Institute at Yonkers, New York? A. Yes.

40 Q. And do you know Drs. Crocker and Zimmerman, who are in charge there? A. Yes.

Q. You know them personally, do you? A. Yes.

Q. I see. And I believe Dr. Crocker, at any rate, has done a lot of scientific work in fumigating gladioli plants with sulphur dioxide in his own greenhouse? Is that right? A. I am not familiar with that.

Q. You don't know that part of their work? A. No, sir.

Q. I see. Then, I believe that you told my friend that this sudden appearance, the fact that this bleach appeared so suddenly was one of the distinguishing features between a sulphur dioxide bleach and physiological changes of the plant? A. Yes, or disease.

Q. As far as the sudden appearance is concerned, you are dependent on the information you got from Mr. Walker in that connection? Is that right? I mean, he phoned you and then told you that something had happened, and then you came? A. Yes. I asked him definitely to phone me when he saw any markings appear.

Q. But what I am pointing out is that you were not on his premises but, taking your information from the phone, you only came when you were asked to come? A. Well, I made examinations more often than that.

Q. And when you say this appeared suddenly you are making that statement based on information you got from Mr. Walker? A. Well, I know that sulphur smoke bleachings occur suddenly and when I visited the place, well, I knew definitely with all the characteristics, the pattern of the markings especially, and the appearing suddenly, — I had not seen them before, and appearing on so many varieties of plants at the same time.

Q. Now, I was not going into the other points, but it was just the feature about the sudden appearance which you seem to stress as one of the distinguishing features. I know the phone call for you may have been sudden but, as far as exactly when they first appeared on Walker's plants, whether that was sudden or whether it was a gradual appearance up to the time you got there, you don't know that of your own knowledge, do you? A. No. I know the markings definitely, but I mean, anybody who has studied sulphur dioxide markings knows that.

Q. And you got these several phone calls as a result of which you came to see these markings, and I think you said the one in July, 1947, was the most severe, or, I beg pardon, July, 1948. A. July 7th, 1948.

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HIS LORDSHIP: Just a moment — oh, I beg your pardon.
Proceed

MR. KEOGH: Q. And before you got the first of these phone calls, which I believe was in the early part of June, I think it was about June 17th, 1947 — correct me if I am wrong — I suppose you had told Walker to let you know if any sudden bleach appeared on any of his plants? A. Yes, Mr. Keogh.

Q. So that he was aware of the importance of the sudden appearance feature of the matter? A. Yes. I told him that that was one of the characteristics, that it appeared suddenly and killed instantly.

HIS LORDSHIP: Q. Mr. Jarvis, you had been visiting the plant from time to time, or hereabouts, when you found no bleach? A. Yes.

Q. And you visited the plant on June 26, 1948, and again on July 7th, 1948, and I think at both times you found a bleach? A. Yes.

Q. Would the bleach that you found on July 7th, 1948 — you are speaking of sudden changes? A. Yes.

20 Q. Could it, in your opinion, have developed from or been caused by disease that had manifested themselves between June 26th and July 7th? A. No, my lord. These appeared on so many different kinds. When you get a bleach it appears on so many different kinds of plants twice with typical SO₂ markings.

Q. Yes, but leaving out the typical type of the bleach, but if it had been a disease. We are using the word "sudden". I want to get what "sudden" means in your vocabulary. You had been there 11 days before? A. Yes.

30 Q. And you had seen the condition 11 days before? A. Yes.

Q. Then you saw the condition on July 7th? A. Yes.

Q. Could that condition have been produced by the disease that had developed during those ten days? A. No. Disease — you can identify disease usually by the — if it is a case of fungus, by the spores; in the case of bacteria, by the organs, and so on.

Q. Well, if it had been disease that had developed in those ten days, what have you to say whether a pathologist could have identified it as disease? A. Yes, my lord.

40 MR. KEOGH: Q. Then, that takes up to the 7th July, 1948?

HIS LORDSHIP: I think that will take us up to the luncheon adjournment, Mr. Keogh.

—Whereupon Court adjourned until 2.15 p.m.

Tuesday, April 26, 1949, 2.15 p.m.

CROSS-EXAMINATION OF MR. JARVIS CONTINUED BY
MR. KEOGH:

Q. Mr. Jarvis, you told me — oh, by the way, I understand Mr. Jarvis is not very well, my lord. May he sit down?

HIS LORDSHIP: Oh, yes.

THE WITNESS: Thank you, Mr. Keogh.

MR. KEOGH: Q. You spoke of visiting the smelters at Trail, British Columbia? A. Yes, Mr. Keogh.

10 Q. And you are aware, are you not, that in the Trail International Arbitration claims were made that sulphur dioxide had been carried as far as 40 miles by the wind? A. Yes.

Q. And down into the States? A. Yes.

Q. And how far do you say that sulphur dioxide can be carried by the wind? A. In sufficient quantities, do you mean?

Q. ——— to cause damage? A. To cause damage?

20 Q. Yes. A. Well, it would depend a lot on your concentration and your wind, I suppose, but that is about as far as I have known it, although it may go much farther.

Q. Then, up at Sudbury where you said that you were the consultant and also had to do with the settling of claims, I suppose you paid some claims for sulphur dioxide at a considerable distance from Copper Cliff, did you? A. 25 to 30 miles away.

Q. From 25 to 30 miles away? A. Yes, Mr. Keogh.

Q. And I suppose you are familiar with the decision of the International Tribunal in the Trail case, are you? A. Fairly.

Q. Do you agree with that decision?

30 HIS LORDSHIP: That is a very broad question to put. I suppose that decision covered a lot of different things.

MR. KEOGH: Perhaps I should say there was one part of the decision which held that the concentrations of sulphur dioxide apparently in the Field claim, were not sufficient to cause the damage claimed. That was part of the decision of the International Tribunal, wasn't it?

HIS LORDSHIP: I don't think we can go into other cases. I will have quite enough if I try this case without giving any amount of re-hearing on the Trail case.

40 MR. KEOGH: I didn't want to do that, my lord, and I will ask nothing more about it.

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- Q. Then, you spoke of Mr. Walker's greenhouses being washed occasionally when you were there? A. Yes.
- Q. Did you see them washing them? A. Yes, I think on one occasion, I remember, maybe twice — I just forget now how many, but I would say about twice I have seen them.
- Q. That would be once in 1946 and once in 1947? A. In 1947 and 1948.
- Q. And when they were washing the greenhouses in 1947, did you notice how they were washing them? A. I noticed they had brushes and they were scrubbing them, and they told me they were using muriatic acid; that is hydrochloric.
- Q. And did you see them washing them in 1948? A. I saw them washing them on two occasions. I am not sure what time it was in 1948.
- Q. Did they have brushes and scrubbing them then, too? A. Yes.
- Q. What were they using then in 1948? A. The same material.
- Q. And when you saw them washing on those two occasions, take first the year 1947, was that in the summer season or the fall, or the spring? A. I would not be too sure, but I think it was early in the spring, but, now, I have not my notes on that, so I can only guess at it.
- Q. Did you notice whether or not there was any lime on the roofs and sides of the greenhouses when they started washing in 1947? A. I wouldn't be sure.
- Q. And can you tell us anything as to whether or not there was lime when you saw them washing in 1948? A. No, I could not.
- Q. You don't remember that? A. No, I don't remember.
- Q. Then, your first visit, I believe, to Mr. Walker's greenhouses was on August 22nd, 1946? A. Yes.
- Q. And do you remember whether or not there was any lime or shading on his greenhouses at that time? A. As I remember it was just — all I gathered is the black stuff. I don't remember seeing any shading at that time.
- Q. If you are going to use lime or any shading at all in the greenhouse business, you usually use it mostly in the summer months? Is that right? A. Yes.
- Q. Then, the orchid leaves which you filed as Exhibits 96A and B, I draw your attention to the lower parts of those leaves which you brushed off with a handkerchief, you said? A. Yes.

Q. The lower parts of these leaves, I suggest to you, look bright and healthy looking? A. Not as dark as they should be, but they are fairly healthy looking.

Q. And is there or is there not any evidence on these two leaves, Exhibits 96A and B, of the sticky, tarry, oily substance that you mentioned earlier? A. Yes. I think you will find, if you rub the upper part of the leaf, you will find it sticky.

Q. You say there is on the upper parts? A. I think so. I found it that way.

10 Q. At any rate, you had no difficulty rubbing it off with a handkerchief, had you? A. No. It took a lot of rubbing, but I got it off.

Q. And they are a fair sample, are they, Exhibit No. 96 — I think you told my friend — of the other leaves in the greenhouse out there to-day? A. I found the orchid leaf — I found the soot to adhere more closely, or at least more abundantly on the orchid leaf than on any of the other plants, but there was not much difference. As I say, there were some of the refuse leaves, or some of the hairs seemed to taint up a little more than others
20 did there to some extent.

Q. Well, you would not say there had been any serious damage done to any of those leaves by the deposit on them, by the appearance of their base, would you? A. Oh, yes. The damage, as I said before, you might have a plant appearing healthy but not be able to store any food. I expect you will find a very low starch content in those leaves, which is used for the formation of reproduction and other vital processes of those plants.

30 Q. That is this invisible damage you mentioned? A. Very likely chronic and invisible.

Q. And which is invisible? The chronic? A. No. There are two kinds; the chronic may become visible, as it does in one form or another by checking the growth and affects reproduction — that may become visible.

Q. I understand in the final stages you say it becomes visible, but in the early stages it is invisible? A. With chronic damage, yes.

40 Q. Then, is it or is it not a fact that lime and sulphur sprays are used on plants and fruit trees? A. Lime-sulphur, yes.

Q. And very frequently several sprayings in the one season? A. Yes.

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Q. To such an extent that often the leaves become coated with the residue of the spray? A. No.

Q. You don't agree with that? A. No.

Q. Then, are oil sprays also used on fruit and vegetables and plants for certain diseases? A. Yes; we sometimes have to use them in dormant sprays.

HIS LORDSHIP: Have you any comment to make as to the effect of a lime-sulphur spray, for instance, as compared with the effect of the deposit of SO₂? A. Oh, no, we do not get any — I have never seen any bleaching by the sprays of lime-sulphur.

10

Q. I want to know. Mr. Keogh will bring out the question that it is a well-known fact that lime sulphur is used in sprays to kill insects, but has that any relation to the trouble that you suggest is caused by this deposit? A. We use the lime-sulphur in the dormant sprays, that is in the winter time for spraying, before the buds and leaves are formed.

Q. You use that before the buds burst and you use that after the petals fall? A. I do not use that. I use the Bordeaux mixture.

20

Q. The Bordeaux should be used afterwards? A. That is my practice.

Q. Well, at any rate, has the lime-sulphur the same effect as the deposit we have here? A. No.

Q. Well, why? A. I don't know, but we do not get any bleaching there or burning there. We do if we have too much on, it is true, whenever it gets on in the summer time.

Q. If it is put on in the summer, you may get burns? A. We may get injury.

30

Q. Well, would you advise spraying gladioli with lime-sulphur? A. No.

Q. Or orchids? A. No, not anything that is perennial. An orchid is green the year around, and a glad. —

MR. KEOGH: You rather suggested in some of your evidence that one of the serious items of damage was the cutting down of the light? A. Yes.

Q. In the greenhouses? A. Yes.

Q. And you also mentioned about damage to the orchids and you say that that applies to the orchids, to the cutting down of the light? A. Yes, very much so.

40

Q. More at one particular season of the year than the other? A. Yes, it would be more in the winter time.

Q. More in the winter time? A. Yes.

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10 Q. And did you make any sort of thorough examination of Mr. Walker's orchid plants, or was it more of a casual or cursory inspection? A. Casual, but I did examine the leaves to note the elongated leaf, which seemed to be very different from the orchids that he had recently imported, which showed a more rounded leaf. Now, I am not a specialist in orchids, and I do not want to say too much about its behaviour, except as I am telling you exactly what I saw; these elongated leaves which seemed to
10 be very different from the leaves that were on plants that he had imported recently, which were more rounded and shorter and smaller.

20 Q. And in addition to that, did you also see some pretty fine looking orchid plants out there, that were not all elongated or damaged? A. Well, they did not show the elongated leaves. You asked me if they looked fine, — I don't know, not being a specialist, that I could say, but they did look fairly well; but, as I said before, they might look well and not grow if they did not have the storage of food. That is one of the chief injurious effects
20 of the lack of intensity of light.

Q. Did you see this article that Mr. Walker wrote in the Canadian Florist, that he produces some of the finest orchids in Canada? It has already been filed as Exhibit 41, February, 1949, is the date of the issue. A. They may be, I don't know. That is his opinion. I am just giving you my observations of the orchids.

30 Q. Does that have any effect on your opinion about the damage done by this deposit on the orchid leaves? A. No, it does not affect it. I mean, I would rather not believe the article that they were fine, because they did look all right, but they would be, with that lack of light, and knowing the home of the orchid and knowing the orchid grows in the jungles, but in the tops of the trees with very intense light, — if one had the light they can get the variety — they can get a whole lot more light there than they ever did here even under our best conditions.

40 Q. Isn't it a fact that you find orchids in some very dense jungles where the light is pretty dim? A. Not the varieties that they use, that I know of that they use for commercial purposes. They are nearly all grown, the Cattlaia especially which is the commonest one, is grown in South America and away up in

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the mountains, about 5,000 feet high, where they get a very intense, clear, pure light. That is an ideal home, and when you want to get the best out of any plant you want to try and put it in a place as near its natural habitat as possible. May I enlighten you a little more on that line — if I may.

HIS LORDSHIP: Q. Well, Mr. Jarvis, have you ever known greenhouse keepers to coat their glass with a black substance of this sort? A. With a whitewash.

10 Q. No, but I mean permanently coat it? A. Well, they would permanently coat it if they wanted to produce short grown plants, such as chrysanthemums.

Q. I mean for general purposes, has it ever been known? A. Sometimes they shade to stop — from the heat standpoint.

Q. I see; at certain seasons, but I mean to put on a permanent coating for the year round? Have you ever heard of that being done? A. I have not, my lord. It may have been done. I don't know. I have never heard of that.

20 MR. KEOGH: Q. Then, I believe you did mention earlier about at certain seasons they used this dark or black satin curtain? A. Yes, if they want to bring a short date plant.

30 HIS LORDSHIP: Mr. Keogh, it may very well be that there are certain seasons of the year when they have shading, when the sun is very intense, and it may be for special plants, but it does not seem to me that that enters into the question of liability. It might enter the question of damage. It does not seem to enter into the question of liability. If my neighbour produces a coating that coats my windows, it may be beneficial for me to have my shades down at certain times, but it is surely no answer to claim for nuisance that he has coated my windows for 365 days a year or less, when I can get that off with water. I mean, I don't want you to get too far on the question of damage.

MR. KEOGH: Well, I will bring it out from another witness. I will just ask one question and then leave it. Is it or not good growing practice to keep the greenhouses shaded for about ten months in the year? A. It would depend, I suppose to some extent, on the variety of orchids grown.

Q. Cattlais and Cattlaia hybrids? A. I have never heard of that.

Q. Then, you have said this morning, I believe, that while there was a lot of injury outside, that the outside injury was very small compared with the greenhouse troubles, and that it was the inside damage that was the important one. I believe you made that statement or a statement along those lines? A. I did.

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10 Q. Wouldn't it be a fact that any sulphur dioxide which would get inside the greenhouse, which is closed up, except when the ventilators were open, would be an awful lot less than any sulphur dioxide that would be outside in the open air? A. No, I don't think so. When it comes in it is really trapped. It is held there and, as I said, it is cumulative. The next day or a few days afterwards you may get an attack in some more quantities and clutter it up.

Q. It isn't any more trapped getting in than getting out; if there is an opening for it to get in, whatever is in there has some chance to get out, has it not, through the ventilators? A. I suppose it has, more or less.

20 Q. And all of these specimens, or dried leaves and plants which you filed this morning, they were all taken outside in the open air, were they? A. Yes, Mr. Keogh.

Q. Then, you spoke this morning of plants inside, in the greenhouse, breathing in sulphur dioxide in extremely minute quantities? A. Yes.

Q. I suppose the same thing could happen to the plants in the open air? A. Yes.

Q. And would that cause any damage to plants in the open air? A. Yes, it might cause damage a long distance away.

30 Q. A long distance — do you mean from 25 to 40 miles? A. Well, depending on your concentration. In your Trail Smelter, yes, you said 40 miles, I think.

Q. And these extremely minute quantities that you referred to in that evidence should have the .15 parts per million that you spoke of this morning? A. Yes.

Q. Now, how do you know that .15 parts per million will cause injury to plants in the open air from sulphur dioxide? A. Well, just from my general knowledge of recent investigations and investigations going back over many, many years.

40 Q. In other words, that is your opinion from your experience at Sudbury and in connection with these and other cases, is it? A. Well, yes.

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Q. Have you made any experiments which substantiate that a minute concentration will cause damage? A. No.

Q. Have you any authority in the sulphur dioxide field which supports the proposition that .15 parts per million of sulphur dioxide, with all these other available conditions that you mentioned, will cause damage to plants? A. Excuse me, you did not mean 15 parts per million, did you?

Q. I didn't mean what? A. 15 parts per million.

Q. No, I said .15 parts per million. A. Yes.

10 Q. You have authorities to support that? A. Yes.

Q. Where are they and who are they? A. Dr. Katz.

Q. Dr. Morris Katz, of the National Research Council?

A. Yes.

Q. You say he is one authority that supports that? A. Yes.

20 Q. What other authority? A. There is Rosten Cohen, of England, and they were at Manchester, Leeds, and in that district they have done a lot of work on the same line, and then Mr. C. Stoklase of the Germans, he has done a lot of work. They all claim there was damage from that concentration.

Q. And where is he? A. He is a German.

Q. In Germany? A. Yes.

Q. And are you familiar with the work and experiments of Thomas and Hill, in the United States, with the American Smelting and Refining Company, on low concentrations of sulphur dioxide? A. No. I worked with the man before that — I have forgotten his name for the minute, but I am not familiar with their work.

30 Q. And are you familiar with the work and experiments of Professor Swain, in the United States, on low concentrations of sulphur dioxide? A. No, I don't think I am.

Q. What observations, if any, for sulphur dioxide damage, did you make in this case between the 15th of July and the 15th of August, 1948? A. I visited the plant every week in 1948 during the summer months.

Q. And that continued on throughout the late summer and early fall, did it? A. During the close-down I did not go quite so often then; maybe a couple of weeks or so; almost two or three weeks.

Q. And did you make any examination of the vegetation in the vicinity of Walker's greenhouse and the McKinnon plant in the last half of July and in the months of August and September, 1948? A. No. I mean I examined it. I didn't find any more bleaching after July 7th; the plant was closed from the 15th.

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Q. I know the plant was closed, but I want to find out what observations you made during those months? A. I didn't find any markings at all.

10 Q. First of all, I am not asking you that. I want to know what you did, where you went, and then I will ask you what the results were. I think we are both trying to get to the same thing, but maybe we misunderstand each other. What did you do in the way of making observations during the last half of July and through the months of August and September, 1948? A. Well, I looked around at the vegetation to see if there was anything more, but I didn't expect to find anything more, and I didn't find anything more.

20 Q. Where did you look at the vegetation? A. In an area about a quarter of a mile — more, went out about five-eighths of a mile, is the limit of my distance travelled from the McKinnon plant in a northeasterly direction.

Q. Did you, during that period, make any observations or examinations of the vegetation in the vicinity of the paper mills at Merritton and Thorold? A. No.

Q. Did you make any observations of that vegetation at any time during your investigations in this case? A. No.

HIS LORDSHIP:

30 Q. Did you make any observations as to the difference in the vegetation in the vicinity of Mr. Walker's plant during the time that the McKinnon plant was closed? A. There was not much — it was the same markings around the plant, and it was a severe bleach on July 7th. Those markings remained on. I couldn't say that there was very much more growth outside than before, but it was not affected any more. That was all.

MR. KEOGH: May I ask a question on that last point?

HIS LORDSHIP: Yes.

40 MR. KEOGH: Q. Did I understand you to tell his lordship that the markings which you had seen on the 7th of July, remained throughout a large part of the period when the plant was closed down? A. A large part, yes, though it was dead.

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Q. Isn't it one of the characteristics of a sulphur dioxide burning that, as soon as the sulphur dioxide is removed or taken away, while those spots remain dead, the rest of the plant recovers and carries on and improves? A. Oh, yes, very much so; yes, it is, but it is checked just to the amount of bleach we had. It certainly does go on living.

Q. And doesn't the plant have a tendency to heal the burns and—what shall I say—contract them or grow them out, if you can use not a very apt expression? A. Oh, it goes on developing, but it does not—you still see those markings, or the results of those markings, and you have cut off that much tissue which goes to form the plant food, to manufacture the plant food, but the plant still grows on.

Q. And you would expect the markings to diminish with the source after the burning was over, wouldn't you? Diminish in size, I mean? A. Oh, yes, they do not increase in size after the bleach is done.

Q. And what was your observation in that regard during the last half of July and the months of August and September, 1948? A. Well, you could still see the markings; some of them that were badly marked, would fall off to some extent; not the leafy kind; on the area bleached, you might find a few holes here and there, you might find a ragged edge, which we did, but the plant went on growing just the same. But that is different from an ornamental plant. Mind you, those ferns that were bleached, that is very different. You have spoiled the commercial value of those ferns. Well, they are almost ruined just from the small bleaching at the tips.

Q. I was referring more particularly to the gladioli. Did you take specimens from the gladioli during the strike period and compare their markings with the extent of the markings on the specimens which you took earlier, to see whether they had diminished or increased? A. Oh, no, they never increase. It is killed—the part that is affected is killed. The tissue is dead. It cannot grow. The chlora plasma in all tissue is burned and destroyed and that does not function from there on.

Q. I did not intend to be so long, my lord. And that is on the assumption that it is a sulphur dioxide burn. If it was a disease—apply your disease burn—by the way, you can have a tip burn from disease, can't you? A. Oh, no, you do not get anything—if you had a fire near some vegetation you might show something nearer the effects of a bleach than anything else I know of.

Q. And if it were a diseased condition, you would expect it to progress, wouldn't you? A. Yes.

Q. And what I am asking you is, did you take specimens, during the strike period, from the same plants, to see whether or not the markings had progressed or increased, or otherwise?
 A. No, but the plant will go on growing just the same. It would be more or less affected just to the extent of the bleached part, but the rest of the plant would go on growing just the same.

Q. Thank you.

HIS LORDSHIP: Any re-examination?

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10 RE-EXAMINATION BY MR. FERGUSON:

Q. You told Mr. Keogh, Mr. Jarvis, that the plant would keep on growing after it had been bleached. Would that be true, I suppose of oats and barley the same as anything else? A. Yes.

Q. But would the bleached part of the plant disappear?
 A. It might fall off or become ragged, but it wouldn't disappear, no.

Q. It would not turn green again? A. Oh, no, never. It is dead. I mean, it does not function after it is bleached.

Q. So that in flowering plants, plants sold for ornamental purposes, would that have a detrimental effect on them?
 20 A. Anything ornamental would be a very serious effect to have, like a fern, or especially a living plant.

Q. I am showing you these pictures that were taken on September 5th, 1947, of the McKinnon test plot, and some of Walker's test plot; they are Exhibits Nos. 28 and 27. You did not tell us of any bleach between the end of July, 1947, and the date of the taking of that picture. Are those marks that we see in those photographs the result of the damage done in July?
 A. Yes.

30 Q. So that it remained all that time? A. It remained all that time.

Q. Do you know, by the way, the relative weights of air and sulphur dioxide? My friend was asking you. A. Sulphur dioxide is 2.2 times heavier than air.

Q. So when my friend said sulphur dioxide, or suggested to you that sulphur dioxide had found its way into greenhouses it could easily as well find its way out, has the relative weight between sulphur dioxide and air got anything to do with that problem? A. Well, it certainly has. It would not find its way
 40 out. It would be diffused very readily and go downwards.

Q. When sulphur dioxide is issuing from the cupolas, the tendency would be to fall, would it not? A. Yes.

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Q. And if it got into the greenhouses, the tendency would be to settle to the bottom of the greenhouses? A. Yes.

Q. Do you know what kind of sulphur is in the sulphur spray—is it a sulphur element, or is it a sulphur gas, or are you chemist enough to know? A. I am not chemist enough to know.

Q. Would it make a difference whether it was a sulphur element or a gas? A. I don't know. It might make a whole lot of difference. I couldn't just tell you the answer, but I know we have to be careful when we are spraying with it.

10 Q. Now, my friend was also asking you, before lunch, about whether the regularity with which you visited Mr. Walker's greenhouse—or rather, with what regularity you visited there in the year 1948. A. I visited him weekly in 1948. As I say, when the plant was closed down, I think almost two or three weeks.

Q. So that when you came to his plant and observed the damage in the beginning and the 7th of July of 1948, were there evidences of that damage present when you were there the previous week? A. No.

20 Q. And similarly with the damage that you found in the middle of June, of 1948, was there damage there the previous week to that? A. No, there was no difficulty at all. In identifying the bleach when it does come, to any one who has made any study at all of sulphur dioxide on plant life—I mean you have to wait until you get your pattern and your characteristic markings and appearing suddenly and all those things put together, and you cannot go wrong.

Q. That is all, thank you.

30 HIS LORDSHIP: Just a moment, please. There is a question I want to ask you. On your visits to the plant from time to time, you happened to visit it very frequently? A. Yes.

Q. What do you say as to whether Exhibit No. 58 is a fair sample of the glass as you saw it there from time to time—that is, the glass generally? A. Yes. I would say that is quite characteristic as I saw it, keeping in mind the twice after it was washed. For a short time it would be better, but speaking generally, that was the condition.

40 Q. When it was washed, were they able to, with the washing, get it back to the clear state that one normally sees glass in in a greenhouse? A. I would say not. One always saw a yellowish discolouration; maybe an iron colouration. They did not seem to be able to get that part of it off. I never saw it like ordinary greenhouse glass.

Q. All right, Mr. Jarvis. A. Thank you.
—Witness excused.

JOSEPH WATSON, sworn

EXAMINED BY MR. SLAGHT:

Q. Mr. Watson, you have lived in St. Catharines for some years? A. I have.

Q. And I believe you are representative here of the Bureau that records the wind and the direction from which the wind is wont to come? A. True.

Q. Is that right? A. Yes.

10 Q. You were asked to get for us the general trend or the prevailing winds for the years 1945, 1946, 1947 and 1948 from your records, and I believe you have done so but you do not have your record for 1945. Is that right? A. Yes.

HIS LORDSHIP: Excuse me. By whom are you employed, Mr. Watson? A. By the Meteorological Service.

Q. Of Ontario? A. Dominion.

Q. The Dominion Meteorological Service? A. Yes.

Q. Yes.

20 MR. SLAGHT: Q. Then, will you give me with regard to the southwest wind, that is the wind coming from the southwest —by that expression we know we have to take in a certain arc of the compass, for 1946. Put it in number of days out of 365. A. My record shows 173 days in 1946 southwest wind.

Q. Now, a similar figure for 1947? A. 1947, 196.

Q. A little higher? A. Yes.

Q. Then, for 1948? A. 182.

Q. And, were you here in 1945? Were you residing here? A. Yes.

30 Q. Can you say in 1945—or, let me ask you—I don't know whether your records are lost or not; you cannot give us the result in 1945? Were you keeping tab in 1945, or lost the record, or what is it? A. I think that is right.

Q. Then, having kept tab in 1945 and this for three years, and I understand you cannot be precise in this, but can you give us your best recollection, leaving yourself on the safe side, as to what you think the figures for that type of wind in 1945 were as comparable to the other three years? A. Well, no, but I would take those three years as being the average for a number of years. The wind is pretty well southwest, that is, the prevailing wind is pretty well southwest.

40 Q. I see. So that is the best you can do in 1945? A. Yes.

Q. Having kept records, as you tell us, but they not being available, I am wondering if you can say whether 1945 stood in any way as being different from the general prevailing winds that you have been recording, or would you say it ran somewhat along those lines? A. Well, I would say that it ran pretty well along these lines, yes.

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Q. Well, that is as far as you can go. And I suppose this is merely arithmetic, taking the middle one of these, 1948, 182 days; that would be just exactly 50% of 365 days, or, in other words, for every other day, putting it that way, or half the time, the wind was from the southwest? A. Yes.

Q. Leaving the other points of the compass to divide amongst this other half of the year? Is that the situation?
A. That would be right.

Q. Your witness.

10 CROSS-EXAMINED BY MR. KEOGH:

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Q. Did you take these tests by your own observation, or with a machine? A. I take them by my own observation.

Q. And how do you tell what direction the wind is coming from? Do you wet your finger or stick it up in the air, or do you have a flag, or one sock, or what? A. No, I pass a flag a couple of times a day, or smoke from a factory chimney.

Q. Smoke from a factory chimney? A. Yes.

Q. Where did you take these observations? What part of the city? A. The east part of the city.

20 Q. Where you live? A. Pretty well there, or on the street between there and the centre of the city.

Q. And what street do you live on? A. I live on Queenston Street.

Q. Do you live down near the railway tracks? A. No, I live—

Q. Or towards the Queen Elizabeth? A. No, down beyond the hospital, on Queenston Street.

Q. That would be generally in the vicinity of Vine and Queenston, not very far from there? A. Yes.

30 Q. Then, the factory you take it at—what factory did you go by? A. Well, there the factory is north of Queenston Street, and there is a flag on the flag pole on the corner of Queenston and Church Street.

Q. And you go by that flag? A. Pretty much, yes.

Q. Did you ever hear of an anemo vane? An anemo vane is an automatic wind recorder. A. Well, they have been used, but we didn't have one.

Q. No, I know you didn't. A. No.

Q. And did you ever hear of an anemograph? A. No.

40 Q. Which is connected electrically with the anemo vane and records the direction and the velocity of the wind on a chart, with a needle, automatically? A. No.

Q. You have never heard of it? A. No, never used it.

Q. Would you be surprised to know that these instruments are used at the Dominion Meteorological Bureau in Toronto?

A. Oh, yes, they are. My work is only partial time. I am only an observer.

Q. They have different observers throughout the Province?

A. Yes, they do, but they have full-time observers. You see, they keep full records of the velocity of the wind and the direction, and all details, which I don't have to take.

10 Q. You don't have to do that, because you are only a part-time observer and, accordingly, they don't supply you with these machines? A. No.

Q. What do you include in the category of a southwest wind? Does that mean the wind from the southwest exactly, or how far to the east, or how far to the west, or south, would you include the category of a southwest wind? A. Well, I only take the four cardinal points, you see, so that a wind that is west of south or north, or south of north would be a northwest wind, or a southwest wind.

20 Q. I don't understand you by "south of north"; you mean south of east, do you? A. Well, a wind that is west or south, or south of west, would be a southwest wind.

Q. So that approximately halfway between south and east on the one hand, and half way between south and west on the other hand—

HIS LORDSHIP: Now, you are confusing it, Mr. Keogh. He says a wind that is west of east and south of west.

MR. FERGUSON: West of south, my lord, or south of west.

MR. KEOGH: Maybe my friend is getting a bit confused.

30 HIS LORDSHIP: Probably all confused.

THE WITNESS: Well, a southwest wind would take in quite a radius. You see, it is west of south and it is north of west would be a southwest wind.

MR. KEOGH: Q. So that we take in—just tell me if I am wrong—maybe I am mixed up again—anything that is to the west of the south point of the compass and to the west of the due north would be taken in along with what was due south? Is that what you mean? A. Well, that would take in—west of the due north would be west.

40 Q. I am sorry; I am making it worse.

HIS LORDSHIP: I think we will just go back to our common understanding of what a southwest wind is.

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MR. KEOGH: Are you indicating it is a wind between west and south? A. Would be a southwest wind.

HIS LORDSHIP: In the arc of 90 degrees, between west and south? A. Yes, somewhere about that.

MR. SLAGHT: He said he started by quartering the compass. If you draw a compass and quarter it, it would be perfectly true.

HIS LORDSHIP: I don't think this case is going to turn on the precise number of days the wind may blow from certain degrees, if you get them down to that.

MR. SLAGHT: Nor do I offer that, but my friend has cast some doubt on the witness's evidence.

HIS LORDSHIP: I do not think we need spend all afternoon on it, Mr. Slaght. Let us get on to something else.

MR. SLAGHT: I just want to ask one further question. My friend asked the place where you take these observations. As you record them, by the way, do you send them daily into the Department? A. No, monthly, sir.

20

Q. How far is that from the McKinnon's plant, roughly?
A. Between two and two and a half miles, I would say, roughly.

Q. It is that close. That is all, thanks. A. Thank you.

—Witness excused.

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JOHN CAMPBELL, sworn,

EXAMINED BY MR. SLAGHT:

Q. Mr. Campbell, you are employed by Mr. Walker in his greenhouse plant? A. Yes, sir.

Q. And you worked for him for a while prior to the war and then you went away to the war, in the last war. For how long? When did you go away and when did you come back? A. I left in November, 1942, sir, and returned in November, 1945.

Q. Then, have you been there since November, 1945?
A. Yes, sir.

Q. And you are there now? A. Yes, sir.

Q. I want to ask you, then, some of your observations since November, 1945. What can you tell me as to whether or not since that time you have observed the vibrations in the Walker greenhouses? A. I observed it, sir, yes.

40

Q. How frequently, or is it every hour of every day, or every day, or just when do you observe these vibrations? A. Whenever the plant is operating.

Q. You mean by that the McKinnon plant? A. The forge shop, sir.

Q. Whenever the forge shop of the McKinnon plant is operating, you feel the vibration. And tell us, in your own way or describe that as best you can, the evidence they make over in your place—inside? A. It comes, sir, as a tremor and there is vibration in the plants; the leaves are vibrating.

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Q. It comes as a tremor and the vibration of the plants and the leaves vibrate? Did you have some potted plants—do you have some pots sitting on shelves in places there? A. Yes; the orchids are all on long shelves.

10 Q. And they are in pots? A. Yes, sir.

Q. And have you or not noticed any results from the vibration that might affect the pots of the orchid plants, as well as the leaves of the plants? A. I noticed movement, sir, of the plants, very slightly, but for all the time when the vibration is on, the plants are in a constant movement, pots and all.

Q. In constant movement, pots and all. I don't want to get a wrong impression of that. To what extent? Can you tell us in any way, or to what extent can you observe any movement in the pot? A. I cannot observe any movement in the pot, but it carries up to the leaves and they vibrate.

20 Q. Do you notice any movement in the pots or any evidence of the pots having slipped, or not? A. Well, it moves on the shelf, sir.

Q. That is what I want to get at; there is some, very little, in the small space? A. Yes.

Q. Now then, with regard to smoke and fumes, or both, is the plant troubled, or not, from smoke or fumes which come from the McKinnon plant? A. Yes, sir.

Q. You know where the cupolas are? A. Yes, sir.

30 Q. And you know where the forge shop is? A. Yes, sir.

Q. Do you have smoke or fumes come over from the plant, from the McKinnon plant? A. It comes from both places, sir.

Q. I suppose with the wind southwest? A. That is right, sir.

Q. And how would you describe the fumes, as best you can? A. I would describe it as a disagreeable—

Q. What do you mean by "disagreeable"? A. Well, it is an irritating odour, sir, to the throat.

40 Q. That is one description; and what else can you tell me about the type of it? What do you see when you watch it coming? A. See a blue haze that comes over quite a lot.

Q. And I suppose its passage again is dependent somewhat on the wind? A. Yes, sir.

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Q. Take it when there is a very slight wind or a humid, hot day, have you observed any such days as that, as to what occurs with these fumes and smoke? A. Yes, sir; I have observed that it hangs over our place constantly when there is no movement of air.

Q. Then, have you noticed what, if any, effect does it have, so far as your observation goes, and I am going away on back to when you started in November, 1945, down to the present time, with regard to the roof or otherwise, to the glass in the greenhouses. A. Yes, sir, it leaves a coating on the roof, which we have to take off.

Q. Have you tried to help take it off? A. Yes, sir.

Q. And is it easy to get off? A. No, it is very hard.

Q. What kind of coating does it seem to be? I know you are not a chemist and I cannot ask you technically. A. It is more like a film, sir.

Q. We have a glass as an exhibit here. This is said to be a piece of glass removed from the greenhouse out there. I don't know when, but what would you say as to whether or not Exhibit No. 58 which I show you is a fair sample of the condition that these fumes leave your greenhouse roofs in? A. I would say so, sir, yes.

Q. Then, have you noticed, since 1945, any effect on the outside plants that are grown in places adjacent to the greenhouses? A. I notice they don't appear to be growing at all; not too well.

Q. And do you notice whether or not there is any deposits on them at times? A. Yes, sir, there is.

Q. Can you describe the nature of the deposit? If you cannot, don't guess at it but, if you recall it, are you able to tell me what you think the deposit looks like that lodges on the plants and the leaves? Just do your best with that. A. I would say it was a film on the foliage.

Q. Well, what about inside the greenhouses? Does any film get inside? A. Yes, it does.

Q. And the fumes you have spoken of, at times do those fumes get inside the greenhouses as well? You spoke of humid days, where they come down, a haze over you. Do they, on those days, get inside the greenhouses as well as out? A. Yes, sir, they are in every house.

Q. Every greenhouse? A. Yes.

Q. Now, in the summer time, is it or not your practice there, in operating them, to have the vents of the greenhouse open so that the plants can breathe fresh air? A. Yes.

Q. You say "yes"? A. Yes.

Q. So that that affords, at least, an opportunity for the fumes, and you say fumes do get in there? A. Yes, sir.

Q. Well, I won't ask you about the density of it. Then, another point. You were asked by Mr. Walker, I believe, to make a survey or a count of the houses in an area or locality which I define from this Exhibit No. 3. Did you make a survey of that kind? A. Yes, sir.

Q. And recorded in your own writing. You had some one help you with it? A. Yes.

Q. Who helped you? A. George Thomas.

10 Q. George Thomas. And you made the survey and wrote down and recorded what you found? A. Yes.

Q. And is this piece of brown paper your record? A. Yes, sir.

—EXHIBIT NO. 97: Record taken by Mr. Campbell and George Thomas.

Q. Now, as I understand it, you were asked to take a particular locality or area which had Welland Avenue as its north boundary. Is that right? A. The south boundary, sir.

20 Q. Oh, yes. The north side of Welland Avenue was the south boundary. Which way is the Courtroom here? Which is north? A. Down there.

Q. Well, then, Welland Avenue—we will turn this around and then your northern boundary apparently was Carlton Street? A. Yes.

Q. Don't hesitate to help me with this. And then your eastern boundary was York Street? A. Yes, sir.

Q. And your western boundary was Ontario Street? A. Woodruff.

Q. And you took in the Woodruff subdivision, which lies a little bit west of Ontario Street? A. Yes, sir.

30 Q. We have heard the Woodruff subdivision and along Ontario Street there, is very close to the McKinnon plant? A. Yes, sir.

Q. Now then, these streets are all set out here. I am not going over them with you, and you have put on each street—we will take the top one, eight houses on Welland Avenue North, on the north side; then 44 houses on Louisa Street and so on, a number of houses on each street and those houses are houses that are occupied by people who are living in them? A. Yes.

Q. And you did this ten days or so ago? A. Yes, sir.

40 Q. With the help of George Thomas, and you have got the details for my friend here, and I see you find 966 homes being lived in in that area and locality the other day, when you made this? A. Yes, sir.

MR. SLAGHT: Mr. Keogh, this is on a branch of my case I developed much earlier, but I had to call this witness on other matters, and I put this in now.

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CROSS-EXAMINED BY MR. POND:

Q. Mr. Campbell, how long do you say you were employed by Mr. Walker before 1942? A. 16 years, sir.

Q. And during all those years there were outside plants grown on Mr. Walker's property, weren't there? A. Yes, sir.

Q. And just to the north of those outside plots, there were unpaved roads, were there not? A. Yes, sir.

Q. And during that sixteen years, or for a large part of it, Carlton Street was unpaved, was it not? A. Yes, sir.

10 Q. And during some months of the spring and the fall you got coatings on those outside plants, didn't you, on the leaves?
A. What from?

Q. There was a visible coating of dust on the leaves of those outside plants, wasn't there? A. Yes, sir.

Q. During all the time you have been working with Mr. Walker? A. That is a very little travelled road.

Q. Beg pardon? A. Those roads are very little travelled.

20 Q. No, but there was visible dust on the leaves and on the bloom of the outside flowers while you have been working for Mr. Walker, hasn't there been? A. Yes, sir.

Q. Now, while you have been working in the greenhouses, since 1945, have you noticed vibrations from railway trains?
A. Very little.

Q. Have you noticed any? A. Faintly.

Q. Have you noticed vibrations? A. Yes.

Q. And how are you able to identify them as coming from the train? A. By the sound.

Q. And do you notice any shaking of the leaves of the plants when you get such vibrations? A. No, sir.

30 Q. You told Mr. Slight that there was a tremor that seemed to shake the leaves of the plants and it was conducted up to the leaves through the pot? A. Yes, sir.

Q. The pots themselves actually don't move, do they?
A. Well, they move slightly possibly.

Q. I don't want to know "possibly". A. Yes.

Q. Do you actually see it move? A. It must be very slight.

Q. No, do you actually see the pot move with your own eyes?
A. Yes.

40 Q. When? A. You see it when it leaves its position, after a period of time.

Q. Well, when were you last in the greenhouse? A. The other day.

Q. Well, were you there yesterday? A. Yes, sir.

Q. Did you actually see the pot move in the greenhouse yesterday? A. Oh, it doesn't move very far at one time; it is a very slight movement, but it is constant. You would set the pot back maybe after a period of four or five days or so. It would be edging forwards, or edging backwards.

Q. You cannot actually see any movement with your eye?

A. No, sir.

Q. Now, you said that you assisted in cleaning the greenhouse glass. Do you mean when you were cleaning the lime off in the fall? A. No, sir, of the acid on the glass.

Q. Don't you clean the lime off with acid? A. No, sir.

Q. You mean to say you have not used acid in the fall to clean off the lime, in 1948? A. Yes, sir, but we used wire brushes on the lime and acid on the clear glass.

Q. Let us take the fall of 1948. Did you clean off the lime on the greenhouses—what date? A. October.

Q. October of 1948? A. Yes, sir.

Q. And what did you use to take the lime off on that date? A. Just a wire brush.

Q. And did you get the glass clean? A. Fairly.

Q. And when, in 1948, did you use muriatic acid?— A. Perhaps in June, May.

Q. I don't want to know "perhaps". A. Well, early summer.

Q. Is it customary to clean your greenhouses off in the spring of each year? A. Yes.

Q. I mean all greenhouse growers do it, don't they? A. Yes, sir.

Q. Are you any relation to Mr. Walker? A. Yes, sir. He is my uncle.

Q. I see. That is all. Thank you.

HIS LORDSHIP: Just a moment. I want to understand the relation of this area covered by your chart Exhibit No. 97 to Mr. Walker's plant. I notice you have pencilled in McKinnon's on one place on the right side, that is on the west side of Ontario Street. Mr. Walker's plant, is it between Carlton and Manchester, is it not? A. Yes, sir. It is marked in red here, your lordship.

Q. Oh, yes, I see. You have it marked in red and a circle around it. What area would this chart cover? A. Approximately a quarter of a mile square.

Q. That is all.

—Witness excused.

HIS LORDSHIP: This is probably a convenient time to have a ten minutes adjournment.

—Intermission.

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JOHN BURGNER, sworn,

EXAMINED BY MR. FERGUSON:

Q. What is your occupation, Mr. Burgener? A. I am a physicist.

Q. And you practise your profession where? A. I practise my profession in Toronto as a spectromagraphist, in a branch of physics called spectrophotometry.

Q. And you are a graduate of what university? A. I am a graduate of Toronto in 1947.

10 Q. In what? A. In physics and chemistry.

Q. And where have you been engaged since you graduated?
A. On graduating, I accepted a position with the Aluminum Company of Canada as a research spectroelectrophotometrist, and was later transferred to the aluminium laboratories, a subsidiary of the same company and, since then, within the last year and a half I have opened my own office as a consultant.

Q. In Toronto? A. In Toronto.

Q. Were you furnished with some samples—

20 HIS LORDSHIP: Before you go to that, I would like you to describe just the nature of your profession. A. Do you mean the branch of physics in which I am interested?

Q. Yes. A. Well, spectrophotometry is the science of light especially as applied to the spectrum, and I am working particularly in the application of the spectrum to analytical problems. It is frequently called spectrographic analysis.

MR. FERGUSON: Q. Were you asked, from time to time, to make a spectrographic analysis of some samples of glass furnished to you? A. Yes, I was.

30 Q. And did you make that analysis? A. Yes, I did.

Q. Now, again, my lord, we are in the trouble of having to prove by Mr. Walker and other people where this glass came from.

MR. SLAGHT: We can undertake to prove by Mr. Walker four samples.

HIS LORDSHIP: Have you any sample of the glass submitted to Mr. Burgener?

MR. FERGUSON: Yes, we have.

HIS LORDSHIP: Well, you can identify the sample that Mr. Burgener examined and undertake to prove that it came from the greenhouses.

40 MR. SLAGHT: Yes, my lord. Those three of them came from the Walker greenhouses. One came from another greenhouse taken by Walker, so he could prove the four of them, the source for them, and he, Walker, conveyed the four and handed them to the witness.

HIS LORDSHIP: I wonder if it would not be more satisfactory just to put Mr. Walker in now to tell us where he took the glass from, because, after all, you get a rather long piece away from the matter when Mr. Walker is called back again, and if we know exactly where the glass came from when we listen to Mr. Burgener's evidence, I think it gives us a clearer understanding and if there is anything Mr. Keogh wishes to cross-examine on, then, we can have the benefit of that.

MR. SLAGHT: Well, will you then step down?

10 HIS LORDSHIP: Just on this matter. There are other matters maybe to recall Mr. Walker on, in any case.

MR. SLAGHT: You mean other matters as well?

HIS LORDSHIP: No, just deal with this matter now.

MR. SLAGHT: I have all the others noted for later.

WILLIAM W. WALKER, recalled,

EXAMINED BY MR. FERGUSON:

20 Q. Mr. Walker, did you remove some glass from your greenhouses and deliver it to Mr. Burgener? A. Yes. This clean pane I took from the Taylor greenhouse on the Lakeshore Road, about a mile and a quarter—

—EXHIBIT No. 98: Pane of glass taken from the Taylor greenhouse.

Q. You took it from the Taylor greenhouse on the Lakeshore Road? What Lakeshore Road are you talking about?

A. I would say down Ontario Street.

Q. You mean the Lakeshore Road—how far from St. Catharines? A. About a mile and a quarter as the crow flies.

30 Q. And when did you take it from Taylor's greenhouses? A. Well, I took it the day or the night before I delivered it to this gentleman. I can tell you by just referring to my notes, because I had another one. I can tell you just in a moment, the day I took that one.

Q. Well, let us get the exact date. Was it within the last few days? A. Yes, I can give it to you right there, sir—April 22nd.

Q. 1949? A. 1949, yes, sir.

Q. Now then, there are some other pieces of glass. Did you deliver these to Mr. Burgener? A. I did.

40 Q. Now, where did they come from? A. This one came from what we call the cloth house on the east side of No. 7 greenhouse.

—EXHIBIT No. 99: Pane of glass from cloth house on east side of No. 7 greenhouse.

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Q. When did you take it off the cloth house? A. The day before, the 21st. This one came from the east side of No. 7 greenhouse.

—EXHIBIT No. 100: Pane of glass taken from east side of No. 7 greenhouse.

Q. The east side of No. 7 greenhouse, on what date? A. The 21st or the 22nd.

Q. The 21st? A. The 21st, and the 22nd I delivered it. And this one came from the west side of No. 7 greenhouse, taken out on April 21st.

—EXHIBIT No. 101: Pane of glass taken from west side of No. 7 greenhouse on April 21st.

Q. In each one of these exhibits, Mr. Walker, I notice that there is a corner of each one of them has a clean spot on it? Was that on it when you delivered it to Mr. Burgener? A. No, sir.

Q. Is the glass otherwise in the same condition as when you delivered it to Mr. Burgener? A. I would say exactly.

HIS LORDSHIP: Any questions?

MR. KEOGH: No questions.

20

HIS LORDSHIP: Can you tell me how long it is since these glass panes that you have taken out on the 21st of April have been washed? A. They were washed, your lordship, about July of last year. We generally wash our houses just before the hot months.

Q. Which ones are you speaking about? A. The two larger ones, and the smaller one—they are all washed practically.

MR. FERGUSON: There is one other pane that did not come from him. Mr. McAlpine delivered the other one, my lord.

HIS LORDSHIP: Well, you had better put him in.

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—Witness excused.

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KENNETH McALPINE, recalled,

EXAMINED BY MR. FERGUSON:

THE REGISTRAR: Mr. McAlpine, you have already been sworn in this case? A. I have, sir.

MR. FERGUSON: Q. Mr. McAlpine, I am showing you a pane of glass. Did you deliver that to Mr. Burgener? A. I did, Mr. Ferguson.

—EXHIBIT No. 102: Pane of glass from Miller's greenhouses on Dufferin Street, Toronto, delivered to Mr. Burgener.

40

Q. I see there is an envelope attached to the corner of this Exhibit 102 with some handwriting on it. Is that your handwriting, Mr. McAlpine? A. It is, sir.

Q. Now, there is one corner of Exhibit 102 that is clean. Was that clean corner on it when you delivered it to Mr. Burgener? A. It was not, Mr. Ferguson.

Q. Is the glass otherwise in the same condition as when you delivered it to him? A. It appears to be so.

Q. Where did that glass come from? A. I witnessed that glass removed from Miller's greenhouses on Dufferin Street in the city of Toronto.

10 Q. How far north on Dufferin Street is Miller's greenhouse? A. It is north of St. Clair and south of Rogers Road.

Q. So that is some more than two miles and a half north of the lake? A. It would be in that order.

Q. Because St. Clair Avenue is two and a half miles from the lake, I think; and you witnessed it being taken out of Miller's greenhouse, and was it given to you right then and there? A. It was given to me then, and it was in my possession until I delivered it to Mr. Burgener the following morning.

Q. All right, thank you. That is all.

20 MR. KEOGH: No questions, thank you.
—Witness excused.

JOHN BURGNER, recalled,

EXAMINED BY MR. FERGUSON:

Q. Mr. Burgener, did you put any identification on these sheets of glass when you received them? A. Yes. I put identification on the four sheets received by Mr. Walker.

Q. And then, were you asked to make a spectrograph in reference to these glasses with the light passing through them?

30 A. Yes. I was asked to attempt to determine the transmission of the light with the different colours of the spectrum through the dirty glass, as compared with the clean glass, and I did that.

Q. In connection with each sample? A. In connection with each sample.

Q. Have you a report which corresponds with the numbering of these glasses? A. Yes, I have.

Q. Take No. 1 first, which is No. 1 on your list. A. No. 1 is the sample—is this sample here.

40 Q. That is Exhibit No. 99, my lord, and it is the one that is said to have been taken off the cloth house at the south end. Now, just what did you do to make this spectrographic analysis? A. I took the plate and cleaned one corner of it as clean as I could get it, and then placed it in front of a slit of the spectrograph and allowed the light from a Tungsten filament lamp to pass through the glass into the spectrograph and be photographed on a photographic plate. That was through the clear portion. Then I re-

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peated the same process through the dirty portion of the glass while I moved the glass in random fashion so as to get the average value.

Q. And did you do that with each of the samples? A. I did that with each of the samples.

Q. And have you got your result in writing? A. Yes, I have (produces).

—EXHIBIT No. 103: Mr. Burgener's report.

HIS LORDSHIP: Now, I wonder if we can do this by Mr. Burgener putting in the exhibit number, our exhibit number, just underneath the word "Sample 1". For instance, you say Sample 1 is our Exhibit No. 99. Can you work that out with Mr. Burgener and have him do that, then we will have it related to the proper exhibits.

MR. FERGUSON: If I may, my lord, write the word—

HIS LORDSHIP: Well, there is a column there. "Sample 1" and, under the word "Sample 1", make sure that we write in the proper exhibit number. Now, check it. Is that Exhibit 99?

THE WITNESS: Exhibit 99, my lord.

MR. FERGUSON: Will you please write "Exhibit 99" under the word "sample"?

HIS LORDSHIP: Just put in "Ex. 99". A. Yes, sir.

Q. And then sample 2 in the same way.

MR. FERGUSON: Q. Sample 2 is what exhibit number?
A. Sample 2 is Exhibit No. 100.

Q. Would you write that in, please, at the top of the column? And sample 3? A. Sample 3 is Exhibit No. 101.

Q. Write that in, please. A. And Sample 4 is Exhibit No. 98, and sample 5 is Exhibit 102.

HIS LORDSHIP: Now, that is clear.

MR. FERGUSON: Q. Now then, what does your report show, Mr. Burgener? A. Well, my report shows that there is a change in quality, in the light transmitted by glass taken from Mr. Walker's greenhouses as compared with the—or, I should say, instead of glass, the dirt on the glass as compared with glasses taken from other greenhouses.

Q. We will take Sample 1 first, which is from the cloth house, Exhibit No. 99; and is that the dirtiest one of all the samples? A. Well, yes, that is the dirtiest one.

Q. And I see you have analyzed it in accordance with the colours of the spectrum? A. Yes, that is right.

Q. Now, opposite your red you have the figure 6500A. What does that stand for? A. That stands for the wave of the light—the representative wave length on which I measured it.

Q. Is that a standard figure? A. Those are angrstrum units.

Q. And opposite the word red there is the figure 16%. What does that represent? A. That represents the 16% of the light gets through the glass of that colour; 16% of the light of that colour gets through the glass, gets through the dirt. In other words, that would be 84% of the light is absorbed by the dirt at that particular wave length.

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10 HIS LORDSHIP: What do you mean by that "wave length"?
A. That colour might be a better way of putting it. The red wave length at 6500; that wave length is a red colour.

MR. FERGUSON: That is, only 16% of the light gets through the dirty glass? A. That is right.

Q. And then, with orange, in this Exhibit No. 99, you have opposite it the number 24%? A. Yes, that is the same; meaning 24% of the light that gets through the clean glass—or gets through the dirt deposit.

20 HIS LORDSHIP: Would I be correct in putting it this way, that 76% is absorbed—is "absorbed" the proper word? A. No, I think absorbed would be quite correct.

Q. By the film on the glass? A. Yes, that is right.

MR. FERGUSON: Q. And you have 22% opposite the word "yellow"? A. Yes, and 20 opposite green.

HIS LORDSHIP: Yellow 78% absorbed. Is that correct? A. Yes.

Q. Green? A. 80% absorbed, or 20% transmitted.

MR. FERGUSON: Q. And the blue? A. And the blue would be 83% absorbed, or 17 transmitted, and the violet would be 92 absorbed or 8% transmitted.

30 MR. FERGUSON: Now, that completes Sample 1, Exhibit 99. Now, Sample 2 is the glass taken from the south end of the roof of No. 7 greenhouse? A. Yes, that is right.

Q. How much of the red is transmitted? A. 70% of the red is transmitted, or 30% absorbed.

40 Q. Just go through those, will you? A. Red 70% transmitted or 30% absorbed, orange there is the same, 70% transmitted or 30% absorbed; in the yellow there is 45% absorbed or 55% transmitted. In the green there is 52% absorbed, or 48% transmitted. In the blue there is 52% absorbed, or 48% transmitted. In the violet there is 63% absorbed, or 37% transmitted.

HIS LORDSHIP: Now, as I understand it, this is as compared with the clear portion of the same glass? A. That is right.

MR. FERGUSON: That is true of all these samples, is it?
A. That is true of all these samples.

Q. Now, that completes the spectrum in Sample 2. Now Sample 3, I should like to compare these with Sample No. 4, Mr. James Taylor's greenhouse out on the Lakeshore Road out of St. Catharines.

10 HIS LORDSHIP: Just a moment. Are you going to something else now, or are you going to have Sample 3.

MR. FERGUSON: Well, if your lordship pleases, yes.

HIS LORDSHIP: I think we had better stay with one thing at a time so that we get the results of the investigation and the samples you have filed as Exhibit No. 3, they have not yet been dealt with. That is Exhibit No. 101.

MR. FERGUSON: Well, we will take Sample No. 3, Exhibit
20 101, which is glass taken from the south end of the roof of No. 7 greenhouse. Now, will you give us the figures, starting with the red? A. The red, there is 25% absorbed, or 75% transmitted; orange, 35% absorbed, or 65% transmitted; yellow 35% absorbed, or 65% transmitted; green, 33% absorbed, or 67% transmitted; blue, 50% absorbed, or 50% transmitted; violet, 57% absorbed, or 43% transmitted.

Q. That is Sample No. 3. Now, Sample No. 4, Exhibit 98,
is from Mr. Taylor's greenhouse. Will you give us the result of
your analysis there? A. In the red, 10% absorbed or 90%
transmitted; in the orange, 5% absorbed or 95% transmitted; in
the yellow, 5% absorbed or 95% transmitted; in the green, 10%
30 absorbed, 90% transmitted; in the blue, 10% absorbed or 90%
transmitted; in the violet, 5% absorbed or 95% transmitted.

Q. And the last sample?

HIS LORDSHIP: Now, just a moment. I just want to see
that I understand the effect of that. In this sample you are com-
paring the light passing through the glass with what would pass
through the atmosphere if the glass was not there? I want to make
sure we are not making comparisons of things that are different.
As I understood your analysis of Exhibits 99, 100 and 101, when
you said, for instance, first 81% was absorbed, you are making
40 a comparison between the light passing through the part covered
by the film and the clear part? A. Yes, that is right, sir.

Q. Now, on this one, what are you comparing it with?
A. The same thing. I am comparing it with the light passing
through the film, as compared with the clear portion.

Q. Well, is there any film on this one? A. There is a little.

Q. Oh, I see. You cleared a spot and made a comparison in the same way? A. Yes, sir.

Q. Oh, yes, I see. Well, then, I understand.

MR. FERGUSON: Yes. It is just the corner opposite the brown paper that was cleared? A. Yes.

Q. So it is a comparison in the same manner? A. Yes.

HIS LORDSHIP: Now, I am afraid I will have to ask you to go over those figures. You were going very fast. You said red 10% absorbed? A. Yes, sir.

Q. Orange 5% absorbed? A. Do you wish the transmission figure also?

Q. No, I can do that arithmetical calculation myself. A. Orange 5% absorbed; yellow 5% absorbed; green 10% absorbed; blue 10% absorbed; violet 5% absorbed.

HIS LORDSHIP: Yes.

MR. FERGUSON: Q. Now, will you take the last one, which is Mr. Miller's greenhouse, in Toronto? A. This is Exhibit 102. The red was 5% absorbed, the orange 5% absorbed, the yellow 5% absorbed, the blue 20% absorbed.

HIS LORDSHIP: Green becomes before blue, doesn't it? A. Oh, I am sorry. Green 20% absorbed; blue 20% absorbed; violet 25% absorbed.

Q. Now, those figures in the analyses that you have made would have no relation to the different qualities of the glass?

A. No, because the glass was used as a standard in each case. The glass in which the deposit is so used, is a standard.

MR. FERGUSON: Now then, did you compile the result in graphic form in colours, Mr. Burgener? A. Yes.

Q. You were assisted in this by Mr. McAlpine, I understand? A. Yes, that is right. Mr. McAlpine assisted me in compiling this and I have carefully checked it.

Q. Have you got it here? A. Yes, I have. These are—the different classes are underneath.

Q. Let us start with Exhibit 99, Sample 1? A. I will mark that on here. This is Exhibit 99.

Q. Have you each one of these samples compiled in this fashion? A. I have—no, there is one that is not compiled in that fashion. That was Sample No. 3.

Q. But you have No. 1, No. 2, No. 4 and No. 5? A. Yes.

Q. And these are designed to show what? A. They are designed to show the transmission of the light, or the absorption, whichever way you wish to look at it.

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Q. The black part of this diagram means what? A. The amount of light absorbed in that particular colour.

Q. And then, the actual colours that are there, is that the proportion of the light transmitted? A. Yes, that is right.

HIS LORDSHIP: Now, let us get them in their order.

MR. FERGUSON: The first one will be Sample No. 1, Exhibit 99.

HIS LORDSHIP: We will have to make that Exhibit 99A. I think if we do that it would make it very easy for us in dealing with it hereafter, to follow it.

—EXHIBIT No. 99A: Light graph re Exhibit 99.

Q. Then, will you mark on 99A—now, you say the black part represents the light that is absorbed and the colours and the proportion of that light which is transmitted? A. Yes, that is right.

Q. Will you take Sample No. 2 and mark it Exhibit 100A.

—EXHIBIT No. 100A: Light graph re Exhibit No. 100.

MR. FERGUSON: And that Sample No. 2 is off the south end of No. 7 greenhouse and again that is designed to show the proportion in the same manner? A. Yes.

20

Q. And Sample No. 4, marked Exhibit 98A.

—EXHIBIT No. 98A: Light graph re Exhibit 98.

Q. Sample No. 4 was taken from Mr. James Taylor's greenhouse, and there the amount of light absorbed, as shown by the black, is very small indeed? A. Yes.

Q. And the last one is Sample No. 5. Will you mark that Exhibit 102A.

—EXHIBIT No. 102A: Light graph re Exhibit No. 102.

Q. These are off Miller's greenhouses in Toronto, which again illustrates the amount of light absorbed and the amount transmitted. Now, Mr. Burgener, that is all I want to ask you about the light. What is the effect, if any, of a dark coating, such as you see on this glass, particularly on Exhibits 98 and 99, as regards the transmission of heat? A. Well, this dark coating, as we see, does absorb the light and although these results were not measured in the infra-red, they do probably on the infra-red, where the heat radiation is, and we see a definite increase in the absorption as we approach the infra-red. I would say that, as a result of this, the sun shining on these panes of glass would be absorbing the light, would be absorbing the energy of the sun—the energy of the sun would be absorbed, causing an increase in the temperature of the glass and a consequent increase in the temperature of the structure.

40

Q. And I suppose consequently an increase of the heat inside the structure? A. Yes, I would expect that.

CROSS-EXAMINATION BY MR. KEOGH:

Q. I suppose, even a clear view, if you go into a greenhouse with a clear view it feels warm if the ventilators are closed, with the heat of the sun on the glass? A. I am sorry, sir, I don't understand.

Q. I say, if you go into a greenhouse with a clear glass, the atmosphere feels warm in there if the ventilators are closed, due to the absorption of heat by the clear glass? A. Yes, that would be so.

10 Q. And then, you mentioned about the photographs of the dirty panes that you moved the glass at a random fashion, to get a fair average, I think you said? A. Yes, sir.

Q. Was that before you took the plate or while you were taking it, or during the processing of it? A. That was during the processing of the exposure, while the light was passing through the plate to the photographic plate, through the glass to the photographic plate.

Q. And that same procedure was followed on each of the Exhibits 99, 100, 101 and 102? A. Yes.

20 Q. Thank you.
—Witness excused.

JOHN C. ARMOUR, sworn,

EXAMINED BY MR. SLAGHT:

Q. Mr. Armour, you live in Montreal? A. I do, sir.

Q. And you are a florist and grower? A. Yes, sir.

—GAL. FIFTY-THREE

Q. With how many years' experience? A. Oh, approximately 24, sir.

30 Q. And you are with the firm of Wiltshire Brothers in Montreal? A. Yes.

Q. You are interested in that firm as a principal? A. I am.

Q. Then, I believe in August, or September, 1945, you paid a visit to the Walker greenhouse property here? A. Yes, sir, I did.

40 Q. And when you were there on that visit, did you observe any conditions of smoke or fumes which were coming in the direction or over his greenhouses? A. Yes, sir. On that day I noticed dust in the greenhouse and fumes and smoke coming in that direction.

Q. And where were they coming from, as far as your observation was concerned? A. I was not aware of from where they were coming at the time, until I was told.

Q. Never mind what you were told. A. I finally saw where they were coming from, from the McKinnon Industries.

Q. Did you check that with your own observation? A. Yes.

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Q. And we have heard there were cupolas there, a forge shop there. Did they both appear to be operating? A. Yes, at that time they were in full operation.

Q. And what do you say as to whether these fumes and smoke that came into the Walker place appeared to come from that plant? A. Yes, sir.

Q. What can you tell me about what you saw inside—was Walker there? A. Yes, sir, he was.

Q. Did he show you through? A. Yes.

Q. And what were the conditions there then? A. Well, his whole stock—

Q. Keep away from telling me anything Walker told you; it is not admissible. A. No, just my observations?

Q. Yes, your observations? A. I saw his plants were not healthy looking. There appeared to be a film of dust, or soot, on practically everything.

20

Q. And can you tell us anything more about the nature of the dust or soot? A. I noticed damage, particularly to orchids and Boston ferns. We noted also on the begonias and many other small plants that he had this film of dust; seemed to be over everything, the work benches, the boiler room plants; seemed to permeate the whole building.

Q. Now, prior to that date had your firm bought from Mr. Walker, he being a wholesaler, had you bought and had you taken plants from him to Montreal? A. We have been buying from Mr. Walker for nearly 20 years until 1914 (*sic*) when his stock started to get bad.

HIS LORDSHIP: 1914? A. 1944.

30

MR. SLAGHT: Q. And you have not been buying from him since 1944? A. No, sir.

Q. Then, when you say "started to get bad" what, in any orders you would have got in which you made that observation, what type do you mean by "bad"? They were not up to what you had been getting before? A. No, they were not, sir.

Q. And you ceased buying from him? A. Yes, sir.

Q. Then, you just arrived from Montreal today, here? A. Yes.

Q. And you made a visit to the Walker greenhouse plant today? A. I did.

40

Q. In company with whom? A. There were three other gentlemen with me.

Q. Mr. McAlpine, perhaps? A. Yes.

Q. That was one, yes, and the others? A. And another gentleman here in the witness stand before me, and a gentleman from Calvert's, Brampton.

Q. What is the man from Calvert's name, Mr. Goutby? A. Yes.

Q. He is from Calvert's florist industry in Brampton?

A. Yes, sir.

Q. And you gentlemen were out there. Now, tell us what you observed and what you did. I think you took some samples to bring in to show the Court. First, tell us what you did about touring the premises? A. Yes. We went through all the greenhouses, the boiler room and the packing shed and outside I looked at the glass and noticed it was quite dirty; the film, whatever it is on it. I noticed several of the orchids were like that, brown tips

10

here. Q. Now, did you take that? A. This—I cut this off one plant, but there were several like that.

Q. We have not got that yet. A. Well, you will find lots more over there. There is another one. You will get many leaves—

HIS LORDSHIP: You must remember that all this is part of the record, and to have things like “this” and “that” in the record, does not mean anything.

MR. SLAGHT: Well, I will come more closely, but I was wondering, my lord, if I will ask him what they are and put them in as one exhibit.

HIS LORDSHIP: Oh, no, we would be all confused.

MR. SLAGHT: Well, then, I will make separate ones.

HIS LORDSHIP: I think probably you would have to have these things mounted in some way.

THE WITNESS: Put them in a book.

MR. SLAGHT: Could you put them in a scrap book?

THE WITNESS: yes.

Q. Could you do that for us? A. Yes.

30

HIS LORDSHIP: Well, let us keep them separate, now, at any rate, for identification.

MR. SLAGHT: If we could send out and get a school exercise book, I think we could put them right in.

HIS LORDSHIP: We have not any more of those sheets that we used this morning.

MR. SLAGHT: Do you grow orchids? A. No, sir, grow all the rest.

HIS LORDSHIP: Unless these things are mounted in some way they will just dry off and break up probably in the next three or four years before this case is finally wound up. Is there another matter you can go on with, of general character?

40

MR. SLAGHT: Yes. Just leave those by in the meantime.

Q. Then, let me ask you — I should have earlier — what experience have you had in visiting other greenhouses? You have your own, of course, and have visited other greenhouses in the trade, and over what period and to what extent? A. During 1944 I was appointed field man for our National Organization of Florists.

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Q. What is that? A. The Allied Florists and Growers of Canada.

Q. And you were appointed field man by your organization? A. Yes, sir.

Q. In what year? A. 1944 and part of 1945.

Q. And what duties did that involve? What duties did you perform as such? A. Well, the territory was from Halifax to Sarnia and Windsor, and in that district we interviewed the florists, growers, retailers and endeavoured to put them right on the troubles that they would have in the production and marketing of flowers; endeavour to produce a better grading. At that time we were under rationing, under gasoline and tires; we didn't know where to get tires and gasoline from, and we settled quarrels with the Government on taxation, over-taxation, and the evasion of taxes.

Q. That is, if I may add, your visiting the florists was somewhat educational, I gather? A. It was, very.

Q. Did you travel a lot in going to these places? A. Yes, all the greenhouses from Ottawa right across Ontario and then back the other way and down to the Maritimes.

Q. Approximately — I don't want the names of all of them, but approximately how many greenhouses did you visit? A. Oh, I should say four or five hundred.

Q. And would you stop in, visit? A. Yes; go over to his greenhouse and ask him what troubles he was having and what we could do to help him.

Q. You said "we". Did anybody go with you? A. No, I speak for the organization, sir.

Q. Well, you did the job for the organization. Then, from your observation to-day of the plants there, leaving aside the samples, meantime, let me hear you describe what you saw. Just tell us what the conditions were. You have given me some description of it. You were outside and in? A. Yes, sir.

Q. I think you have told me about finding dust and particles — A. At Walker's plant, you are referring to?

Q. Yes, your inspection today. A. When I came to Walker's plant, I noticed his glass was dirty and I asked him when he had washed his glass and he said, "When did you wash your glass?" I said, "We never wash our glass."

Q. Is that true? A. That is true.

Q. You don't have to wash your glass? A. We don't have to wash our glass at all in our district, and I wanted to know if there was a railroad track around there that was throwing smoke, or what was causing that dust there, because we had conditions in Montreal, in Point St. Charles, similar to that.

Q. Did you get any observation of anything — I am afraid of these conversations again — you said, “Is there a railroad track around?” Did you get any observation which would account for the dirt on the glass? A. Exactly. I saw where the smoke was coming from.

Q. Where was it coming from? A. McKinnon’s, and then, too, —

Q. When? A. At the time I was there before.

Q. But, to-day, it was also coming from McKinnon’s? A. Yes, sir.

Q. Then, let me ask you, was any vibration coming to-day, or were not the big hammers — A. Yes, there was. We noticed for half a minute or two-thirds of a minute, or one minute, the plant would vibrate like that.

Q. When you say “plant”, do you mean the flowers? A. No, the whole pot and the benches in the greenhouse. You would feel them vibrate there, which would cause the creeping of pots. The pots would creep. They are not visible, but it is like the hands of a watch, you don’t notice it, but they are moving.

Q. And what about the foliage itself? A. Oh, that was —

Q. Any vibration to it? A. Yes, there was vibration on the orchid flowers, and the taller plants I noticed also where the root of an orchid, a big root about the shape of that and where it comes over the edge of the pot, there was a sort of a brown mark, which is not natural.

Q. Where the orchid root comes over the edge of the pot and rubs it there, there was a brown mark, which is unnatural? A. Yes.

Q. Then, what do you say as to — a florist of your great experience — I will first leave out the orchids because you don’t grow orchids — but with all other varieties you found at Walker’s; we have heard about a good many — do you grow or handle the varieties Walker handles? A. Yes, and many other lines.

Q. Then, leaving out the orchids for a moment, what do you say as to whether or not the conditions you saw are conditions that are proper to grow normal flowers as a florist, or whether they would be deleterious or injurious? A. The plants did not look healthy.

Q. And what would you expect, if anything, as a result of what you found — the smoke coming over and dust and particles on the plants? Would that or not be consistent with injury sustained to the plants by smoke that was coming over? A. Definitely injurious; dust of any kind.

Q. What does it do? I don’t want a long dissertation. We have had it pretty well dealt with, but just what the dust and stuff, what does it do to a plant other than orchids? Keep away

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from those. A. Well, my observation, sir, is, with that dust coming there in dry form and there is great humidity in a greenhouse, it causes that dust to dissolve, if there is such a thing taking place, or moisture collecting there and a spot occurs many places. There is a fair sample here, sir. That is the trouble.

Q. Wait, now, we cannot get those in yet. Did you observe a leaf as a sample of what you are telling us about? A. Many of them.

Q. Then, describe what you saw there. We are going to leave these out for a minute. Describe what you saw. A. The same dust that settles on the greenhouse goes through the vents in the roof, or through the vents in the glass, if the glass is not tightly puttied, and that settles all over and then what it may be — I am not a chemist whatever — that dust is, if a moisture occurs there, it will cause injury, bound to cause injury. Even dirt will cause injury.

Q. You spoke of vents in the greenhouse. Were they open to-day. A. I just noticed one open about two inches.

20 Q. And what do you say as to whether or not in the operation of a greenhouse it is or is not desirable to open the vents frequently, except in severe winter weather, in order to give the plants air to breathe? Is that a factor in running a greenhouse? A. Some plants even require ventilation in winter time. It is desirable.

Q. So that proper greenhousing means you have vents which are open, certainly more or less? A. Yes.

Q. You tell me some plants you observed today? A. Yes.

Q. Did you observe any Boston ferns? A. Yes.

30 Q. What about them? A. They were looking fair to-day. They had cleaned them up, but there was no particular damage.

Q. And begonias? A. The begonias were not good. The begonias they have there, I have samples here.

HIS LORDSHIP: I think you can just leave those to the Registrar now. He can deal with them as you put them in and give them numbers.

MR. SLAGHT: Oh, that is splendid.

40 Q. Now, you brought a sample away to-day from one of the orchid plants. Show me that, and you have already commented upon the discolouration which you say, means — A. Some chemical reaction.

HIS LORDSHIP: Now, these samples will be Exhibit 104 and we will deal with A, B and C, and so on.

—EXHIBIT No. 104A, B, C, D and E: Samples taken by Armour from Walker's greenhouse, as of April 26th, 1949.

MR. SLAGHT: Then, 104A, I call this, and it is an orchid sample. What do you say having regard to this and the other samples we are going to put in, as to whether or not, in your view,

the deterioration that is visible to the eye is the result of disease or not? A. No, that is not disease, sir.

Q. It is outside influence? A. Yes, sir.

Q. Well, that speaks for itself. Now, 104B? A. This one goes with that.

Q. You indicate that small green leaf with some black blotches on it should go with the other orchid sample?

HIS LORDSHIP: That is an orchid leaf, is it? A. Yes.

Q. Taken off this stem? A. Yes, sir.

10 MR. SLAGHT: Q. Your small green leaf is an orchid leaf and the kind of leaves that are in the larger bunch? A. That is correct.

Q. So that that is added to 104A. And you have handed me another single leaf which you say is an orchid leaf. And what do you say? What did you find, if any, substances on that leaf — don't rub it off. A. It is just spotting.

20 Q. But what is it — what kind of spotting? You may not know exactly what it is, but is it particles of a foreign substance that does not grow with the leaf? A. Definitely caused by moisture on the leaf, and an orchid is a moist growing plant.

Q. Is that beneficial for the growing of those — A. Detrimental to the growth.

Q. Now, next; what kind of fern is this? A. The common name is the maidenhair fern; the addiendum.

Q. Have you got more than one addiendum? Anyway, put them together. A. I have another one here, sir.

Q. You have two samples of that. Have you any comment to make upon the condition of the two samples of addiendum fern? A. The same trouble applies, either from dust or gas.

30 HIS LORDSHIP: Don't discuss things in that way, a definite relation to each item, referring to the same trouble. We have then to cast our minds back, or go back, some one reading the record, to see what you are talking about.

MR. SLAGHT: Yes. Now, Mr. Armour, I think you will help us most if you will take a look at this and tell us what that trouble is. Put it into words for the record first, and tell us if they are in their natural healthy state that you would expect to find them? A. No. It is the spots there; a foreign substance.

40 Q. And they are pretty well visible through these. (104C). All right, now, what is next? A. The Mexican hop, or Bel-prone.

Q. Is there more than one of these? A. No, I have two. There is another one; same plant.

Q. Now, looking at them. Are they in a healthy condition? A. No, sir.

Q. What is the matter with them? A. They are burnt.

Q. And is there any change in colour which indicates they are burnt? A. Yes.

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Q. Tell us about it, in words? A. The colour should be uniform on the flower.

Q. And I see the tip of one of these is a different colour?
A. Yes.

Q. And the discolouration indicates to you a burn? A. Started to grow out from the injury.

Q. And you say that is injurious and not normal? A. Non-salable.

Q. Now, what is the next? A. The next is the astible, that is a spirea.

Q. We know it best as spirea? A. Spirea. That is burned.

Q. Now, is this a sample? There are really two of them together. A. Yes, that is all off the one plant.

Q. And is this in a healthy state when you plucked it to-day?
A. No, sir.

Q. What is the matter with it? A. Burnt.

Q. How does it evince itself? A. The soft tips always burn first; the tips of the leaf as a rule.

20

Q. And what do you say as to whether or not that is a pretty general situation so far as these two pieces are concerned?

A. It is general.

Q. These may deteriorate in the next few months or so. I don't know — but that is your description of them?

HIS LORDSHIP: Well, for the purposes of the record, what the witness refers to as burnt is — A. That is the —

Q. Will you please not interrupt me. A. Pardon me, sir.

Is the brown tinge to the outside margin of the leaves where they are shrivelled up.

30

MR. SLAGHT: Q. Is that a correct interpretation of what you say there? A. Yes, it is; correct.

Q. These two, then, become 104E.

HIS LORDSHIP: These samples, are these just occasional ones, or did you find the plants generally affected like this? A. Generally, sir.

Q. Is there any other observation that we have not had?

MR. SLAGHT: I have not had an opportunity of interviewing Mr. Armour. Are there any other observations that you saw to-day which might assist the Court in the matter of whether the conditions were healthy or injurious there? A. No.

40

Q. You have already covered it pretty well? A. I have covered it pretty well, the plants and the health.

Q. What would you say, with the Walker greenhouse plant in its present location, and if the operation or the smoke and material that you saw today comes over there at intervals of even once a week, let us say, what would you say as to whether

the plants that you have examined and that you have brought to us, are a type that a grower would look forward to continuing with, to raise and market at a profit, under those conditions?

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MR KEOGH: I think there are at least two hypotheses in that, and, furthermore, it is outside of this witness's field. I mean, he is assuming if this gas comes over every week, then, can he look forward to something.

HIS LORDSHIP: I think that is true. What I would like to hear this witness's view on, I think, would be more important and it is, outside of the McKinnon plant, did he observe anything that would in the ordinary course interfere with running a greenhouse in an area of that sort. Whether there is any objection to having a greenhouse as close in the city as that, I don't know. I would like to know something about it.

MR. SLAGHT: Well, perhaps put it this way. Mr. Armour, in view of his lordship's indication, and aside from what you saw coming from the McKinnon plant which you have described and then, bearing in mind the conditions you found, and some samples of which you have brought to the Court, did you observe anything in the neighbourhood or locality there, outside of the McKinnon trouble, which would make it undesirable for a greenhouse to be operated there? A. Under present conditions?

Q. Yes. A. Under present conditions I would not operate a greenhouse there and it would not be desirable to operate a greenhouse there with that condition existing, as our various witnesses have described.

HIS LORDSHIP: No. Mr. Slaght's question was having regard to the district. Is there any objection to operating a greenhouse there, if the McKinnon plant were, — well, say, were removed altogether? A. An ideal location for a greenhouse if there is no detrimental gas there.

Q. As far as the general location is concerned, there is nothing detrimental? A. No. They can operate any greenhouse in that district. That district is all right to operate a greenhouse in, if there is no gas or dust.

MR. SLAGHT: Well, I think that perhaps covers what we had in mind. Thank you. Just a moment. Now, when this dirt or dust, whatever you call it, and the markings we find on the samples you have brought to Court, would that or not affect, in your opinion, the salability of the plants? A. The pot plants, sir?

Q. Yes? A. Definitely.

Q. Well, you have told us you quit buying from him? A. I did.

Q. Your witness.

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CROSS-EXAMINED BY MR. KEOGH:

Q. Have you been in the greenhouse of Dunn Brothers, Limited, on Queenston Street, St. Catharines? A. I have, sir.

Q. And are they members of your Association, too? A. Yes, sir.

Q. Mr. Walker, I take it, is a member? A. Yes, sir.

Q. And that was the cause of your first visit? A. Yes.

Q. Did you notice that they are located almost directly under a large smoke stack from the St. Catharines General Hospital, to which they are adjacent? A. No, I did not, sir.

Q. Have you been in St. Catharines enough to know that Queenston Street, in front of Dunn Brothers greenhouse, is a very heavily travelled street? A. No.

Q. When you were inside of Dunn's greenhouse, were you there when the ventilators were opened from time to time. A. I would say they would be open on that day. It was a warm day; they would be open.

Q. When were you last at Dunn's? A. The last time the Niagara Convention; that would be in May of — I am not sure of the date, sir.

Q. May of 1947? A. Yes, it would be 1947, or 1946.

Q. So that that would be the time—was it in the early part of May or the latter part of May? A. The earlier part, during the bedding season; as we call it; the 15th or 21st; around that date.

Q. Did you see the dust and soot on some of the plants in that greenhouse? A. No, his plants were very clean.

Q. Were the fires on in his heating system at the time? A. I don't remember. I wouldn't think so.

Q. You wouldn't think so on May 15th? A. No.

Q. Were you ever in Dunn's when the fires were on, in the winter time? A. No.

Q. Then, I believe you told my friend that you had a somewhat similar condition in Point St. Charles. You made a statement of that kind? A. That is correct.

Q. Is that a suburb of Montreal? A. It is Montreal; just a nickname for one section.

Q. And it is a railway and industrial section? A. Very much so; roundhouses down there.

Q. Roundhouses, and so on. And when you say you have a similar condition in Point St. Charles, are you referring to greenhouses there of your Association? A. Yes, sir. The Canadian National Railway had a greenhouse and they were continually washing their glass. Shunting engines, but it washed off easy.

Q. And do they still have that greenhouse there? A. No, sir; they demolished that.

Q. Have you any member greenhouses in Point St. Charles?
A. No, sir.

Q. Then, you referred to one of the orchid roots over the edge of the pot with brown markings on it, which was unnatural, you said? A. Yes, sir.

Q. How do you know that if you don't grow any orchids yourself? A. I study all plants, sir.

10 Q. Oh! A. Yes.

Q. And do you study orchids as well as other plants?
A. I do, sir.

Q. Orchids are a little different, a little unusual, compared to some of the other greenhouse plants, are they not? A. That is true.

Q. Then, I believe you told my friend that dust of any kind is definitely injurious? A. Yes, I agree with that.

Q. That is a pretty broad statement. A. No.

20 Q. Do you want that to be taken literally? A. No; that is, definite road dust will spoil a grain field.

Q. And there are also lots of grain fields that are pretty dusty and get along all right? A. They don't get No. 1 grade for the grain.

Q. By gravelled roads? A. Yes, sir; they don't get No. 1.

Q. You don't believe the rain does come along and washes it off and they get a good crop? A. They do, but dust is not good for any crop of any kind.

30 Q. I suppose too much of anything would not be good for anything? A. That is very true.

Q. But you are not serious in contending that you can operate a greenhouse in a city with its ventilators open in the winter time without getting a certain amount of dust and soot in on the flowers? A. Sure. We ventilate our carnation houses, even in February, when a warm day comes.

Q. Don't you get dust and soot in there from street traffic?
A. There is no dust in the winter time.

Q. And the heating of furnaces and so forth? A. There is lots of snow where I come from.

40 Q. You apparently can operate a greenhouse without getting any dust or soot in on your plants at all, even with the ventilators open and the heating? A. Not in our district.

Q. What kind of heating system do you operate? A. Hot water and steam.

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Q. What coal do you burn? A. We burn stoker coal.

Q. That is finely pulverized soft coal? A. Yes, soft coal; various sizes.

Q. And little smoke comes from it? A. No, sir; very little smoke from a stoker.

Q. Then, I believe you told my friend, if I took you down correctly, that dust, whatever it is, if a mixture occurs with it will cause injury? A. As a rule.

Q. That is another very broad statement. A. Well, I say it causes injury.

Q. Are you suggesting dust off the road of any paved street, if it was spread and if water would wash it off, that that would cause injury? A. If dust off the street will blow into your greenhouse, there are all kinds of wonder chemicals off that street and if that street has not been well flushed, you will get the chemicals in that dust that will injure foliage on several plants.

20

HIS LORDSHIP: Are you going to get very far with these generalities, Mr. Keogh? We have to deal with the problem we have got here and it is a deposit of a certain character that is alleged.

MR. KEOGH: I am just trying to see, your lordship, what sort of broad and general statement this witness is prepared to make.

HIS LORDSHIP: Well, he says that dust generally is injurious. I am not stopping you at all.

30

MR. KEOGH: Q. Then, you produced a specimen of an orchid branch Exhibit 104A, which had some yellow markings on it, and which I now hold up to you, and the Registrar says I have to be very careful of it. I don't want to interfere with his art work in sticking it on, but you told my friend very definitely that those markings were not due to disease? A. Yes, not due to disease.

Q. Are you a plant pathologist or an orchid grower? A. I do quite a lot of pathology, sir.

Q. And you just picked that this morning? A. Yes.

Q. And how can you tell in the short time that you have had that in your possession, that that is not a disease marking? A. By the general appearance of the other stock.

40

Q. And the other stock— A. The orchid stock, I mean, yes.

Q. Exactly what do you mean by that? A. Well, you can tell a sick animal in a herd, or a diseased animal.

Q. We are not talking about bulls now. A. All right, we will turn to orchids and that was distinctly a burn; that is distinctly a burn.

Q. You say it is a burn. A. Yes.

Q. Have you made any microscopic examination of these leaves? A. It is not necessary.

Q. Have you made any examination of them through a magnifying glass? A. No, I didn't have it with me, sir.

Q. Are you aware that certain types of plant disease produce markings that are very similar to burn markings, as you call them, or gas markings? A. I am not aware of that, sir, unless it is a burn.

10 Q. I see. Then you produced another exhibit, 104B, of an orchid leaf, which you told my friend was spotted by some foreign substance caused by moisture on the leaf? A. That is correct.

Q. It is the point about moisture I am interested in. Orchids are one plant that have to be sprayed frequently with water, aren't they? A. Yes.

Q. They have to be, generally speaking, kept moist, don't they? A. Yes.

HIS LORDSHIP: Will you be a little while yet, Mr. Keogh?

20 MR. KEOGH: No, I won't be more than five minutes, my lord.

HIS LORDSHIP: Well, it is all right.

MR. KEOGH: Seeing the witness lives in Montreal, I would like to let him go as soon as possible.

HIS LORDSHIP: Yes.

MR. KEOGH: Q. Then, if you were establishing a greenhouse for the first time, would you establish it just on the city limits facing an industrial and manufacturing centre of the city?

MR. SLAGHT: I object to that. There is no evidence this is an industrial or manufacturing section of the city.

30 HIS LORDSHIP: Oh, well, I do not think I can restrict Mr. Keogh. He is cross-examining. He may produce evidence to that effect. He can only cross-examine the witness when he is in the witness box.

MR. KEOGH: My friend brought out, or somebody brought out, that this is an ideal location for a greenhouse from this witness, and I am just following that up.

MR. SLAGHT: He said in the absence of McKinnon's.

THE WITNESS: In a non-industrial area.

MR. KEOGH: Q. Pardon?

40 THE WITNESS: Any place where you get no gas or smoke is all right for a greenhouse.

Q. Did you ever hear of any industrial area where there was no gas or smoke in it? A. I would have to think that over, sir.

Q. I would think you would. All right.

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HIS LORDSHIP: Any re-examination?

MR. SLAGHT: Thank you, Mr. Armour. You may go back to Montreal now.

HIS LORDSHIP: We will adjourn until ten o'clock to-morrow morning.

—Whereupon Court adjourned until 10.00 a.m. Wednesday, April 27th, 1949.

Wednesday, April 27, 1949, 10.00 a.m.

CECIL B. GAUTBY, sworn,

10 EXAMINED BY MR. SLAGHT:

Q. Mr. Gautby, you are a florist, I believe? A. Yes, sir.

Q. And you have been in the florist business for 35 years?

A. That is correct, sir.

Q. You had a two years general course at the Ontario Agricultural College at Guelph, I understand, in the early days?

A. Right.

Q. And then you were 15 years with the Dale Estate people at Brampton? A. That is right, sir.

Q. For the last three years you have been with Calvert's, well-known florists, who are also at Brampton? A. That is right.

Q. I believe at Dale's they grow orchids, so during your 15 years there, you had to do with orchids? A. No, sir.

Q. Oh, I am wrong? A. The pot plant department, the potted plants, cyclamen, and so on.

Q. Oh, that was your department? A. Yes.

Q. Am I wrong about Dale's growing orchids? A. No, but that was not my department.

30 Q. Oh, then, I am wrong. Then you handled the potted plants, begonia, cyclamen, at Dale's, hydrangeas, carnations, sweetpeas, snapdragons, roses, violets, and so on, at Calvert's now? A. Yes.

Q. And did you handle those at Dale's, I take it? A. Yes, most of those.

Q. Then you have been in Mr. Walker's greenhouse and seen his plants? A. Yes, sir.

Q. Does he handle most of those things, too? A. The general run of things, too.

40 Q. Have you ever had to wash your windows at Calvert's? A. No.

Q. And your glass is clear? A. Yes.

Q. And at Dale's, do they wash the windows? A. Not very often. I think probably once or twice, just to get the lime off, that is all.

Q. Oh, yes, which can be put on artificially at certain seasons of the year? A. Yes.

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Q. And is that good practice in florist business, putting lime on at certain seasons when you are growing, when you get too much heat inside, or too much sun? A. That is right. It is done usually during July and August.

Q. Then, I believe you have known Mr. Walker a good many years? A. Yes, I have.

Q. And been over at his place a good many times. I am not going back through the earlier years, but from time to time prior to 1940 you did visit there? A. Yes, sir.

10 Q. And, generally speaking, let me say you knew him I think since 1921? A. About 1921.

Q. So that would be 19 years up to 1940, and you had made visits there intermittently. We won't deal with those, and on those visits up to and prior to 1940 you visited his place, and did you have occasion to observe his stock? A. Yes, we did, and we bought stock from him for the Dale Estate.

Q. And what do you say, prior to 1940, and your visits, as to the quality and normalcy and healthiness of the stock that Walker was growing? A. The stock in general was very good.

20 Q. And was it suitable for the trade that was carried on by Dale's at Brampton? A. Yes.

Q. Because from time to time you bought it. Then, in 1946, let us come along to 1946; did you visit there in February, 1946? A. February or March, I forget. I think it is about that time.

Q. And did you see his carnations on that occasion? A. Yes, I did. That was really the first time I had been there since about 1940.

Q. There was a gap in there, when you were not over? A. Yes.

30 Q. Then, in 1946, were you away, perhaps? A. No.

Q. Oh, it just happened. What about his carnations? Were they inside the greenhouse at that time? A. Yes, they were inside the big house. They looked very sickly. The stems didn't have enough strength to stand up straight and they looked as if they were ready to throw out.

Q. Was that condition similar to your observation throughout the years you have told us, or were they different? A. Well, last summer, they were much different, I will say.

40 HIS LORDSHIP: Q. What did you say? A. Last summer, they were much different.

MR. SLAGHT: Q. Then, what about the plants you saw at that time, as to whether they would be accepted by retail florists, say, such as Dunlop's or Tidy's, or others. A. No, they would not handle them. They were too dirty.

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HIS LORDSHIP: Q. Why? A. They would not buy them.

Q. Why? A. On account of the dirt and the quality.

MR. SLAGHT: Q. You are speaking now of the carnations? A. Yes, and the general run of stock.

Q. Then what, in your view, would be consistent with causing the condition the carnations were in? A. Well, I would say an outside influence of some sort, either a gas, or a burn of some sort.

10 Q. And then, you were there I believe in 1947 again, the next year? A. Yes.

Q. Were you there in March, 1947, or fall? A. Both.

Q. And what was the condition as regards his products in 1947? If they were practically similar, give them to me; if not, you can perhaps distinguish? A. They were practically the same, but in 1947, in the fall, in November or December, the begonias,—for instance, the begonias they were actually burned, and the leaves had an incurved appearance, which denoted some sickness of some type from outside influences, I would say.

20 Q. Did you happen to see the "Detroit News" at that time? A. Yes, saw they turned a pale yellow.

Q. Yes; someone else spoke of that. Then, we come along to your visit in 1948, last year. That was in December, I understand? A. December 12th.

Q. And what did you observe last year, December 12th, as to conditions? A. Well, a great improvement, I would say, on most of the stock last year. I was asked to go down to see that change, which I had quite confidently—I could see a big change in that stuff from the previous December.

30 Q. We have heard about the strike, and so on, but that is your personal observation. Then, you were there yesterday, with Mr. Armour, who testified? A. Yes.

Q. Were you here and heard his testimony yesterday. A. Yes.

Q. Well, I can shorten it up perhaps pretty much with you. First on vibrations? A. Yes.

Q. Did you and Mr. Armour stay together in looking through the outsides of the greenhouse yesterday? A. Pretty much. Once in a while we wandered away from each other.

40 Q. Walker was not there with you? A. No.

Q. And will you give your observation regarding vibration, if any? A. Well, the vibration I saw chiefly was on the wire structures; the wire tied to the iron steel frame of the greenhouse; they were all shaking; definitely shaking.

Q. And did you make any observations as to the plants?

A. The Boston fern foliage was actually waving; moving up and down.

Q. Then, did you listen to hear whether the steam hammers we have heard of were operating? A. Yes, you could feel the tremor under your feet.

Q. And could you hear with the ears? A. Yes.

Q. You could hear the hammers, although they were off some distance? A. Yes.

10 Q. Then, what about your observation yesterday as to the condition of the plants and leaves? A. They were very dirty and dusty and grimy looking.

Q. And, by the way, did you see any smoke or fumes coming from any source, on your visit yesterday? A. Well, particularly this morning.

Q. Oh, you were out again this morning? A. Out this morning. I would say a dense smoke drifting towards the ground from those cupolas this morning and directly blowing down Carlton Street.

20 Q. From the cupolas of the McKinnon people, do I understand? A. That is right.

Q. And that was a dense smoke, you say, coming over this morning. Then, would the foreign matter or substances that you observed yesterday and to-day on the leaves and plants, would that or not, in your opinion, be consistent with the fumes or smoke that was coming over from McKinnon's? A. Yes, I think so.

Q. As regards this morning, were the fumes and smoke going rapidly over the place? A. Oh, yes, you could see the fog or smoke moving.

30 Q. But I want to get whether it was rapidity in the motion, or whether it was a settling sort of motion? A. No, it was rapid. It was a driving sort of smoke going through the whole ground, right from the ground up; right along Carlton Street particularly, too.

Q. But as I gather from you, you want us to understand it passed over the plant? A. Oh, yes, right through the garden there, on the east side of the greenhouses.

40 Q. Then, you saw Walker's flowers there yesterday and this morning. Did you see these orchids—some of the orchids that he was trying to grow? A. Well, I saw two or three white blooms that definitely were spotted with some foreign substance; looked like soot, or grime, or dirt.

Q. Were the blooms on the plant? A. White blooms were absolutely destroyed. They were no use for sale.

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10

Q. Because of the foreign substance? A. That is right.

Q. And can orchid flowers, when they get spotted that way, can they be cleaned and sold satisfactorily. A. No, they cannot be cleaned.

Q. I understand you are not an orchid man essentially, but, anyway, those flowers could not be cleaned for sale? A. No. A flower cannot be cleaned if the grime is ground into the flower, without damage to the flower.

Q. Then, what about the cleanliness or otherwise of Walker's houses from a good florist's standpoint and if dirty or clean, in your observation? A. I would say very little bit better than average.

Q. In the matter of— A. Cleanliness.

Q. Did you see any evidence of insect pests or disease of that kind, when you visited there? A. No, I did not.

Q. I mean, at any of these visits? A. No, none at all.

20

Q. A word about greenhouse plants as to whether they should be moved about a good deal or not? What do you say to that practice? A. Well, the less you can move any leafy object the better it is, whether it is a plant, or a person, or anything. I mean, the less you put with it and make a mess of it and move it around, the better it will do for you.

Q. Yes. All right; Mr. Keogh.

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CROSS-EXAMINED BY MR. KEOGH:

Q. The carnations that you saw, as you say, the stems did not stand up. Is that a condition that you get with carnations sometimes? Don't you have to stake them sometimes? A. Yes, but more or less to keep the flowers erect, not to keep the stems from falling over. They were too weak to stand up alone. The idea of tying carnations up, or stringing them, as we call it, is to keep the head erect so you won't get a sloppy stem and a straight flower, you see.

Q. It is a comparatively heavy flower for the size of the stem, isn't it? A. Yes, but the stem should be strong enough to hold it up.

Q. Then, the "Detroit News" chrysanthemum, that is a bronze variety, isn't it? A. A bronze variety, yes, sir.

40

Q. And are the bronze and pink varieties of carnations very uncertain flowers in the trade, as far as keeping them to their true colour is concerned? A. Carnations, you say?

Q. I beg pardon, 'mums, I think I said. Are they a difficult flower to keep their true colour? Bronze 'mums and pink 'mums? A. Yes. Outside conditions, such as gases, will change them. I mean, the sulphur in the air will change any flower we have. We have that trouble with roses.

Q. And too much flowering will change the colour, will it not? A. Well, it will make it very slight.

Q. And over-fertilization will change the colour? A. No, I don't think so. You will kill the plant before you will change the colour.

Q. Too much moisture will change it? A. No, definitely not.

10 Q. And a salty condition of the soil in the growing benches or boxes, is that apt to change it? A. Well, depends what salt you mean.

Q. Well, excess salts? A. Well, salts are actually beneficial for the general growth.

Q. Isn't it good greenhouse practice to leach your greenhouse soil every once in a while to remove the excess salts? A. Yes, I believe it is, but I don't think they know very much about it yet.

Q. You do that up at Calvert's, don't you—leach your soil every once in a while? A. Yes.

20 Q. And do you steam your soil once or twice a year as well? A. Yes, we do.

Q. You steam it to kill the insect pests or any virus that might be in it? A. Well, we use it for that and we sometimes get caught the other way and sometimes get caught that way.

Q. I know you sometimes get caught, but that is one of the purposes, to kill insect pests, such as using sulphuric acid and nitrates, don't you? A. Yes.

Q. That is about the only way to kill them, isn't it? A. Yes.

30 Q. Do you know whether Walker does any steaming or leaching of his soil? A. No, I don't. You can grow just as good a crop without leaching or without sterilization, I can tell you that.

Q. Oh, yes. A. That cow manure from the pasture field is the best yet.

Q. Then I suppose there are just as good farmers who have never taken any course in the Agricultural College, too? A. Yes.

40 Q. The same thing applies. Then, you talk about the ferns waving up and down. When you grow ferns out in the open air they wave up and down in the breeze, don't they? A. We don't grow greenhouse ferns in the open air.

Q. No, but I mean, ferns in their natural state? A. Yes, and you always see that damage, too.

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Q. Well, that may be through all kinds of things? A. No, they want the movement of air.

Q. Are you serious that the banks of ferns waved up and down? A. They were not waving, they were trembling; just shaking, just like that (indicating).

Q. You are indicating a sort of trembling movement?
A. Vibration, trembling.

Q. And you say that hurts them? A. Definitely. One pressing against the other bruises every petal of every prong.

10 Q. You told my friend you were out around the McKinnon plant this morning. What time were you there? A. About nine o'clock.

Q. You spoke about fog and smoke. I think you used those words to my friend? A. Yes.

Q. Was there still some fog there then? I understand there was no fog early this morning. A. It was not fog; it was moving smoke coming directly from that cupola, right down the middle of Carlton Street.

20 Q. And then did I understand you correctly to tell my friend that orchids and other flowers cannot be cleaned off if they are spotted, by some foreign substance? A. Not without detriment to the flower. The flower is young and, after it is cleaned with water—I mean, you can clean them in water or take a fine paint brush or cotton batting, but you will leave a mark similar to a spot off wall paper. The more you hurt it the better (sic) the spot can be.

Q. Well, I am not speaking of that, but don't you spray and syringe orchids from time to time? A. With clear water, yes.

30 Q. That is part of the procedure, and wouldn't that take off some of the spots that you saw? A. It does to a certain extent, but once your soot or grime is ground into the petal—those orchid blooms, they are very fine and have little hairy stems coming out of them, and it is impossible to get that out of the plant sometimes.

Q. I suppose even in your greenhouse you get a certain amount of dust and soot in through the ventilators, don't you, at times? A. Not very much; a little occasionally from the chimney, I guess.

40 Q. Then you go along and take the pots and take them out and put them down and shake off the leaves? A. No, we spray sometimes with water; sometimes with insecticides to clean them.

Q. You spray with water? A. A certain amount, but you cannot remove it all. The Easter lilies, you cannot remove it all. It gets into the trumpets and you are done.

Q. Cannot you blow off some of that? A. Some of the fly ash from chimneys, you can but, if it is an oily substance, you cannot.

Q. There isn't any doubt that fly ash and soot, you can blow off the Easter lilies, can't you? A. Yes, some of it, yes, but some of it sticks on quite tight, though.

10 Q. You made a statement near the start of your evidence that the outside gas or burn caused the carnation damage, I think, if I have you down correctly, did you not? A. Yes.

Q. Did you see any burn markings on the carnations or is that imagination? A. No, the general condition denoted to me there had been some outside influence.

Q. That is your opinion from the stems being weak, as you say? A. From the stems weak and the foliage weak, and the foliage very thin and sort of burned towards the tip. It was brown towards the end.

20 HIS LORDSHIP: Q. What do you mean by "brown towards the end"? A. The end of each fan leaf of the carnation plant.

Q. Out on the tips? A. The tips of the carnation plant.

MR. KEOGH: Q. What were the colour of those markings? A. I would say a very light brown.

Q. Was that an occasional plant, or was that general? A. No, that was pretty general through the bench.

30 Q. I suppose you can go through any greenhouse at almost any time of the year, in any batch of plants, and you can pick out the odd one here and there that has some sort of light brown or yellow markings on the leaves, can't you? A. Well, yes I suppose I can always find a plant, the same as you do a sick person in town. In town you can find sick persons; in a batch of plants you get a sick plant.

Q. Did you notice the flower beds coming into the Court-house this morning? A. No.

MR. SLAGHT: Better look out, or the city might sue you.

MR. KEOGH: Well, I am not worrying about that.

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RE-EXAMINATION BY MR. SLAGHT:

Q. Just one point. My friend asked you about salt and care in keeping your soil up to standard. Did you ever have occasion to send samples of soil to the O.A.C.? A. Yes, occasionally we do and we have run tests at the plant as well.

Q. And you send soil to the O.A.C. in order to get their report upon it and they make reports back to you? A. That is right, sir.

10 Q. We heard that Mr. Walker did that. Is that, or not, recognized as a good practice to do that? A. It has been the past ten years more so than any other time.

Q. That is all, thank you.

—Witness excused.

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MR. SLAGHT: Now, I undertook for the Court and my friend that I would get extracts from Mr. Duncan's letters for Exhibits Nos. 72 and 73, and I have submitted them and will give my friend a chance to look at them, and we can supplement those exhibits by attaching it to them.

MR. KEOGH: As long as there are no comments.

20 MR. SLAGHT: Then, I will, according to the understanding with the Court and counsel, I will file Exhibit No. 72, and it can either be attached or the letter taken out.

HIS LORDSHIP: No, withdraw the letter.

MR. SLAGHT: Yes. I will withdraw the letter and I file in place thereof, by consent, a new Exhibit No. 72, which contains the result of the analysis.

30 HIS LORDSHIP: You have not an extra copy of that letter, have you? A. Yes, I have an extra copy, my lord. I file as Exhibit 73 a new document, approved by both counsel, and I withdraw the original document, the letter, which was 73.

I will now recall Mr. Walker.

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WILLIAM W. WALKER, recalled

THE CLERK OF THE COURT: You are still under oath, Mr. Walker. A. Yes.

EXAMINED BY MR. SLAGHT:

Q. Your lordship will recall that during the course of the trial, evidence was given by some witnesses as to samples they received from Mr. Walker, and I undertook to show that he had taken them and passed them on to the witnesses in question.

40 Then, Mr. Walker, you have been already sworn? A. Yes, sir.

Q. And first, with regard to Mr. McAlpine, did you take samples for him on more than one occasion, from your greenhouses? A. I did, sir.

Q. In 1948 did you take samples from the roof of the greenhouse? A. I did.

Q. Using cotton batting and distilled water? A. As he suggested.

Q. And did you send those on to him? A. I did.

Q. Then, recently—

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10 HIS LORDSHIP: Just a moment. The only samples that you handed to Mr. McAlpine were taken from the roof of your greenhouses? A. That is right, your lordship, except the soil samples.

Q. I mean those samples for analysis that Mr. McAlpine dealt with, as coming from the roof? A. Yes.

Q. But, what Mr. McAlpine testified to as purporting to come from your roof were all taken from the roof of your greenhouses and handed to Mr. McAlpine? A. That is right, my lord.

Q. I wanted to exclude any other sample.

20 MR. SLAGHT: Quite right, my lord.

Q. Then, three or four years ago I believe you again took samples of glass and removed the glass? A. That is right, to scrape it off.

Q. And you passed that over to Mr. McAlpine? A. Yes.

Q. George Thomas assisted you on that occasion, three or four weeks ago? A. Yes.

Q. And were those that you sent to Mr. McAlpine all from your greenhouse roofs? A. Yes, sir.

30 Q. Then, two days later and a short time ago did Thomas and you, at McAlpine's request, or, at all events, did you take another and a third lot of samples again, using the glass pressure in scraping them off the roof? A. Yes, sir.

Q. Did those samples come off readily, or was there some—
A. It took a considerable time to get a very small amount, because it adhered so heavy to the glass and it was very hard to get off.

40 Q. And, of course, you had to be careful not to break the glass. Then, in the fall of 1948, assisted by Thomas, did you take some soil samples from outdoor beds and surrounding gardens and send them in sealed envelopes to Mr. McAlpine? A. I did, sir.

Q. Well, those did not all come from your place? Some came from your place? A. Those were from surrounding—in a circle right around.

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Q. And did you take any of those samples as far away as a quarter of a mile, or were they pretty well around your place?

A. I would say within a quarter of a mile.

Q. Then, with regard to Mr. Duncan, you had a sample for him, we heard for him? A. I took it off the roof, our own roof, and sent it forward to him.

Q. That would be in 1947? A. Yes, the first lot.

Q. And then you didn't get a report on that until 1948. Did you send those to Duncan? A. Yes, sir.

Q. And, like other samples, did they or not come from your greenhouse roof? A. All of them from our greenhouses.

Q. Then, in the late summer of 1948, assisted by Thomas, I understand you took samples again from the greenhouse roofs and sent them to Duncan at Syracuse, for analysis? A. Correct.

Q. Did they all come from you? A. They did.

Q. Then on a later occasion, Mr. Duncan said he came over himself and took samples in your company. Were you there when he came over and took them, himself? A. Yes.

Q. And were you with him when he took those samples?
20 A. Yes, sir.

Q. Now then, with regard to your diaries. I didn't ask a question I should have. If your lordship will permit, they are in and have been filed as Exhibits 65 to 70, four diaries for 1946, 1947, 1948 and 1949, in which certain entries are made by you in your handwriting. I ask you whether or not the facts recorded in the entries made by you in all those exhibits are in your handwriting or are not a correct record of the conditions you observed on the dates in question? A. They are 100% correct at that time.

Q. And I show you a folder. The exhibit contains little
30 fabrics of dirt collected through a suction machine. What do you call that? A. That is a suction machine.

Q. A vacuum cleaner? A. That is correct.

Q. And on this one, which was not taken by Thomas, apparently taken by you, I show you the exhibit which we have preserved, and on a card is that your handwriting, pinned to this exhibit? A. That is correct.

Q. November 25th, 1948, "four and a half hours after factory shut down."

40 HIS LORDSHIP: What is the exhibit number of the other one?

THE CLERK OF THE COURT: Nos. 59 and 60.

MR. SLAGHT: No, 64, isn't it?

MR. KEOGH: There was a folder with cotton batting webbing pinned on it, the cleanings, 64, 65 and 66; three folders.

HIS LORDSHIP: Let me see Exhibits 64, 65 and 66. What is the date of that, Mr. Slaght?

MR. SLAGHT: The date is November 25th. George Thomas took a lot of them on November 25th and it ought to go back. If we go into what he took, because it was incumbent, as I recall it—

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HIS LORDSHIP: Yes, it may be attached to Exhibit No. 66.
10 I think that is where the exhibit is that it was detached from.

MR. SLAGHT: Then, before we attach it to Exhibit 66, you took that? A. I did.

Q. I will ask you about it in a minute now. That writing you put on there—we heard Thomas tell us that he took exhibits pretty well all day on the 25th of November? A. Correct, sir.

Q. And as regards Thomas taking them, when did you take this one comparable to his, finishing up with his? A. My men down there, the employees, and Mr. Thomas quit at five o'clock, so Mr. McAlpine had requested this to be run for 24 hours
20 and, as he would not be there, why, he went up with me and took the machine up and we attached this here as you have it there, and I came back at nine o'clock to be sure to be within the four hours and a half, and that is what we removed from it at 9.30,—well, really, 20 minutes to ten.

Q. Well, you were there when it was taken off? A. I took it off myself.

Q. So you put it on the legend on here, "Four and a half hours after the factory shut down." A. It might have been five minutes after five. That is the reason I let it run to 20 minutes
30 to ten.

Q. Your legend means, as I gather from you, that while you put it there around five o'clock, it remained there, and the four and a half hours is the period of time it lay there.
A. Correct.

Q. Were you able to see in the four and a half hours—did you examine or peek and go there? A. I never went back to it.

Q. Then, you are unable to say, then, or are you, as to what period of the four and a half hours the dirt got there?
A. I believe confidently that dirt accumulated in the first half
40 hour, because there was not the same atmosphere.

Q. I think my friend got the impression we were trying to have the Court understand that you were saying it was four and a half hours after the factory stopped. By that you mean the foundry, I suppose? A. The foundry and the forge shop.

10

Q. But what you mean is it laid there for that time and you don't know of your own knowledge at what time of the four and a half hours the dirt got on the cloth? A. No, but going up to take that off, I am confident in my own mind that it was accumulated in the first half hour because there was not the same atmosphere.

Q. All right. That is your opinion of it. You kept the dirt you had to give to us, the 1949 dirt, and were asked to get another dirt sample a couple of weeks ago and continued to keep it during the time since the trial started? A. I was.

Q. And you got another, and is this your dirt, which appears to start in—my friend may cross-examine on this if he wishes, but I want to bring it up-to-date, if I am permitted to.

MR. KEOGH: I am not so sure about any further evidence being put in at this stage.

HIS LORDSHIP: Why?

MR. KEOGH: Because we had a chance to look into the others, but I won't have any chance to look into this.

20

HIS LORDSHIP: But Mr. Walker is in the witness box now and he can give evidence of any conditions that existed up until the time the case is closed and, if there have been conditions while this case is going on—

MR. KEOGH: I have no objection to that, if he was giving evidence in chief.

HIS LORDSHIP: Well, he is giving evidence in chief.

MR. KEOGH: I thought he was giving, generally speaking, reply evidence, subject to one or two exhibits.

30

HIS LORDSHIP: Oh, no. We won't reach reply yet for a week or so. He is giving evidence in chief, and you may cross-examine and answer it in your defence.

MR. SLAGHT: That is why I say this is part of my case, and it begins Tuesday the 18th, your entries do, and then you A. That is correct, sir.

went up to yesterday, April 27th? A. This morning, sir.

Q. This morning, oh, yes. You have this morning in here: Wednesday is to-day, so your entry today at 8.30—were you out and made up these observations? A. I was, sir.

Q. Well, I will just ask you about this one and about the others which are all in your handwriting? A. Yes, sir.

40

Q. Now, are they like the other four years, accurate regarding the data at the observations you actually made? A. 100% correct.

Q. Then, 8.30 you say, "Gas, oily smoke and vibration coming over. Mr. McAlpine and Mr. Gautby also down, saw same, also damage to county wall Courthouse, from vibration of same." Then, I am not going over this in detail now, my lord.

HIS LORDSHIP: This will be Exhibit No. 105.

—EXHIBIT No. 105: Section 1949 Diary kept by Walker's.

MR. SLAGHT: We can make it "A" to this other 1949 diary.

HIS LORDSHIP: Oh, I think we can always find it. Put it in as Exhibit No. 105.

MR. SLAGHT: All right.

Q. Then, this becomes Exhibit 105. Now, going back to your sampling for your own friends, the experts, we got through with Duncan and Mr. Jarvis told us that, back on May 5th, 1947, he suggested that you plant some plants in a plot there?

10 Q. Did you plant those along the lines of these suggested?

A. Yes, in the east side of the greenhouses.

Q. Then on June 17th, 1947, Jarvis said, pursuant to a request to go over, he went over. Do you recall whether you or your people made the request to Jarvis. A. I made the request. I called him.

Q. And then July 9th, 16th and 31st, in 1947, he said he was sent for and came again on those days? A. I called him on each occasion.

20 Q. Then, I think the last one I have with you is that Armour yesterday produced two green orchid leaves which became Exhibit 96A and 96B. Did you hand those leaves to him? A. No, I had nothing to do with them leaves. I brought you two leaves to be separate from them.

Q. Oh, I misunderstood, then. Oh, that is right. I am sorry. A. If I may say, I gave them to Mr. Jarvis and you.

Q. Armour collected those leaves? A. Collected his own stuff. I wasn't there.

Q. Then, did you bring two leaves and give them to Mr. Jarvis? A. I did, sir.

30 Q. And they have been put in. Yes, these are the ones that were half rotted off. You were here. Quite correct? A. That is correct, sir. I believe Mr. Campbell stated he was there when I took them to him.

Q. Then, that is correct. These were the leaves you took and handed to Mr. Jarvis? A. Yes.

HIS LORDSHIP: Mr. Walker, what do you say as to whether the condition of the upper part of these leaves is a fair sample of the condition of the leaves of the orchids generally? A. Your lordship, do you mean in my greenhouse or other greenhouses?

40 Q. No, in your own greenhouse? A. They are not a fair sample; they are not over 60% as bad as they are sometimes. We have occasion in the winter time, when we use a little more water than usual—now we have got into the period of warm weather and you cannot spray an orchid.

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Q. No, no, not dealing with other times or other days but on the day you took them, would that be a fair sample? A. That would be a fair sample.

Q. Of the general condition of the leaves on that day?
A. That would be so, your lordship.

Q. That is, the part that is not rubbed off? A. Yes, that would be so.

MR. SLAGHT: I believe, Mr. Walker, you personally took some moving pictures? I am submitting this evidence, my lord, and then your lordship will deal with the matter, but I thought it was my duty to put it in. You took some moving pictures some time ago, three films in tin boxes have been filed and Mr. Cooper, we were told, took one of those? A. The one of the 1948 roll.

Q. Are there two rolls for 1948? A. There is, sir.

Q. And did you take one of them? A. I took one.

Q. And did Cooper take the other? A. Yes. I was in company with him.

Q. You were in company with him when he handled the machine? A. He did the taking.

20 Q. Then there is one in for 1947, I believe? A. I took that entirely.

Q. Now, without describing the conditions, what do you say as to whether or not you have seen those rolls projected on the screen? A. I have seen them many times.

Q. What—are they coloured? A. They are techni-coloured and 16 millimetre and show very good.

Q. And that brings out the pictures that appeared to the eye to be in colour? A. The picture to the eye and also in action.

30 Q. And what type of objects were photographed in the moving pictures that were taken? In the first place, were the pictures taken of your beds outside the greenhouses? A. They were, sir.

Q. And were pictures taken in movie of the McKinnon test plot? A. They were, sir.

Q. And all the flowers that were growing in both yours and the McKinnon test plot? A. They were, sir.

Q. Were pictures taken of the smoke coming from the McKinnon chimneys? A. Many, many times.

40 Q. And those you say have been reproduced in the movies?
A. Yes, sir.

Q. Then, what do you say as to whether or not the reproductions you saw are a fair reproduction of the actual conditions that you saw with your eyes, yourself, at the time you took the pictures? A. They have to be; they have never been touched or anything at all, the films that were taken.

Q. Whether they have to be or not, you can testify. I am asking you if those things you photographed with the moving picture camera—I am asking you whether the pictures you saw in the films, you projected later, coincide with the actual conditions you saw with your own eyes when you were taking the picture?

A. Yes, sir. Some days—on a very dark day, not quite so pronounced in colour; otherwise 100%.

10 Q. The films to which I have been referring, Mr. Walker, are Exhibit 36. They were put in some time ago. A. You have them here, sir.

Q. Now, Mr. Keogh, your witness.

HIS LORDSHIP: The films, I think, were marked "A", "B" and "C" for identification.

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CROSS-EXAMINED BY MR. KEOGH:

Q. Yes, that is right, my lord. It is my understanding that your lordship did reject them.

HIS LORDSHIP: Well, I had them marked for identification. They may be—

20 MR. KEOGH: The note I had was that your lordship, of course, said you were not disposed to see them and you gave Mr. Slaght leave to renew his application, and I understood later on your lordship did reject them.

HIS LORDSHIP: No, I left the matter in that way, that Mr. Slaght can renew his application. It might be that another Court might decide that they should be looked at. They are available. I have not seen them yet.

30 MR. KEOGH: Depending upon whether they are going to be shown or not, then I would like to keep my cross-examination of this witness open, because the only case in which I was in which the question of films came up, was refused by Mr. Justice Hogg unless both counsel consented. That was the case of Lamport and Thompson, in which I appeared with Mr. Hughes, and Roy Kellock (Honourable Mr. Justice Kellock) was in it and someone else. Mr. Justice Hogg refused to accept them unless both counsel consented and they did finally on the question of credibility. It was a question as to whether Mrs. Lamport was at the opening of the new Dominion Automobile Building, and they had a picture showing her standing in the banquet at the opening and, on both counsel consenting and on the suggestion of
40 Mr. Justice Hogg that both counsel might consent on the question of credibility and, when the appeal came up in the Court of

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Appeal, the Court of Appeal would not even look at them, and I know of no reported decision either in Canada or in England, outside of one case in England which involved copyright permission of the picture film itself as having been a plagiarism from the author. I made a very exhaustive search at the time of that Lamport case, and I could not find any other reported case.

HIS LORDSHIP: I am not sure on what principle they can be rejected.

MR. KEOGH: Well, I don't know what the principle is.

10 HIS LORDSHIP: After all, we deal with principles.

MR. KEOGH: One that occurs to me is that different people can look at a picture just the same as they can look at a motor car accident out on this corner, and get three or four different versions of what they saw, or what it means.

HIS LORDSHIP: If you were applying the principle, then, you would not hear any evidence of how the accident happened, because different people would look at it in a different way and therefore there might be a variety of views of it. I do not think that goes to the principle of it.

20 MR. KEOGH: I do not want to get into any philosophical discussion.

HIS LORDSHIP: We are dealing in philosophical conclusions.

MR. KEOGH: It is well known in the movies it depends on which angle the camera is placed; whether it is up or down and the light, and so on.

HIS LORDSHIP: Isn't that true of any photograph?

30 MR. KEOGH: It is more particularly true as to moving pictures, where they can making a seer from one angle, who is not good looking at all, but, by the time they get through with her, they can make her a real beauty by softening the cheek bones and showing the nose sideways, and so on.

40 HIS LORDSHIP: That goes to the weight to be given it. What is puzzling me is—personally, I entirely agree, especially if there is a jury, that it is very undesirable that they should be used, but I am not sure on what principle they can be rejected. After all, there are certain principles that govern the admission of evidence. For instance, you have the hearsay rule. Well, we know what that is, but where you go and take a photograph of something and say, "That is a correct photograph of the object that I was looking at," and you tender that photograph, well, that is accepted.

Then, there is a precise object; a series of photographs are taken and thrown on a screen in rapid succession and although the film is moving, it is really just a series of single photographs and of a stationary object, or an object that, for the moment, is stationary, because the reel moves so fast it gets it in its different poses. Now, what is the legal difference? That is the thing that puzzles me. Personally I am against making use of photographs at any time for the very reason that you suggest, that photographs can be so deceiving and after all there are only two dimensions, and one sees things in three dimensions. But what is the real legal difference?

10

MR. KEOGH: I don't know what it is, my lord.

HIS LORDSHIP: Neither do I.

MR. KEOGH: I only point out that I suppose it might be said one thing is because it has never been done in the past and another thing is that Courtrooms are not equipped to show motion pictures; a third thing is that the other side in advance, at any rate, or at some other time, cannot see anything about what the film shows unless it is being shown on the screen all the time. You cannot carry the whole thing in your head and you cannot point out to the Court that what looks like a spot of carbon, may be a spot of dust unless that is going all the time. It may be a question of inconvenience. I don't know what the reason, but whatever it is I am asking if your lordship should decide to admit them, then I want to reserve my right that my cross-examination will be kept open for the purpose of that film only.

20

HIS LORDSHIP: I am going to take the same position as I took at the start, and that is that they will be filed and if any other Court thinks that they should be admitted, they can have a look at them. I suggest that you cross-examine, if you wish, as to the conditions under which they were taken and so on, but I am going to rely on the evidence that is given in the witness box, independently of what is shown in the pictures.

30

MR. KEOGH: Thank you, my lord. I just wanted to have that point clear.

Q. Now, Mr. Walker, when you told my friend that you were confident that this carbon that was added to Exhibit 66 and that you were of the opinion that the dirt on that day accumulated in the first half hour, that was just a wild guess, wasn't it?

40

A. No, sir, it was not. You can get a large accumulation of dirt over possibly two hours afterwards from the forge shops, and the top of your foundry is covered with that black soot and very often, even when they are—there isn't a day down there when one of them is not working. You can get an accumulation of that stuff, and it is easy because the stuff is accumulating for the preceding half hour.

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Q. I can understand a man saying you can get a thing, or that a thing is possible, but to say that he is confident that that happened, I suggest the "confident" part of it is making a sort of a guess, isn't it? A. No, sir.

Q. Isn't it a guess when you use those words? A. Absolutely not. I have been going up there time after time and I could go up there four hours afterwards and find your air, and you can tell the difference; very much changed from what it was when the four and a half hours expired. There is only one conclusion to come to, that that was in the first half hour.

HIS LORDSHIP: I understood you to say on this occasion the air cleared after the first half hour? A. Your lordship, I wouldn't say all after the first half hour; gradually cleared. I didn't go down there until four and a half hours after. It was considerably clearer then.

MR. KEOGH: Q. Now, I show you a photograph which I am instructed was taken at 9.10 this morning of your No. 7 greenhouse. Does that appear to be a photograph of it? A. What is it?

20 Q. Of your No. 7 greenhouse? A. That is the one, yes, the north end.

Q. The glass on the roof in No. 7 looked pretty clear in that photograph? A. Much clearer than any we have been able to take, sir.

HIS LORDSHIP: Depends on how the photograph is taken.

THE WITNESS: You have your sun coming from the east and going on the glass.

MR. KEOGH: Your lordship uses those words against me, but I had to put it in.

30 Q. At any rate, we had a very heavy rain last night, had we not? A. Yes. I have never been able to take a photograph as good as that yet.

—EXHIBIT No. 106: Photograph of No. 7 greenhouse.

MR. SLAGHT: And the hour?

MR. KEOGH: 9.10 a.m., this morning.

Q. Then, you were to give me your figures for your total sales, wholesale and retail, for the years 1943 and 1944. Have you those?

40 MR. SLAGHT: I am sorry. I was to get those from his son. He doesn't handle the figures. His son was in the box, I think, and I will get those at noon for my friend, if I may.

MR. KEOGH: It was my understanding Mr. Walker, the plaintiff, who is the proprietor of that firm, was to give them to me, he having given me similar figures.

HIS LORDSHIP: Well, they will have to be forthcoming.

MR. SLAGHT: I will get them and have the son go over them with Mr. Walker, and have Mr. Walker present them after lunch.

MR. KEOGH: Then you were also to get me—

MR. SLAGHT: Those two things are what?

MR. KEOGH: The total sales, retail and wholesale, for the years 1943 and 1944. Then you were also to get me the total of the sales from production at your growing property, that is, as distinct from the store, for the months of July and August, first
 10 of all in the year 1947, and secondly in the year 1948. A. Mr. Examiner, those have been made up for the entire year. That is the best way to balance that and if Mr. Slaght hasn't got them, they will be presented to you right after dinner.

Q. I see. Then you were also to produce your notes or what records you had from which your counsel furnished us with a statement of dates on which you allege that the gas lasted for more than seven hours? A. They have already been filed, Mr. Examiner.

Q. If they have been filed, I did not see them. A. Well,
 20 they are in the records. You have the records.

Q. No, I have not got the records. Oh, they are in your diary? A. In the diaries, yes, sir.

Q. Oh, I see. That was made up, then, you say, in a statement your counsel gave us, on completion of the discovery, was made up in the records of these five diaries that have been filed?

MR. SLAGHT: Well, not five.

MR. KEOGH: I beg pardon, four of them that have been filed up to the end of 1948.

MR. SLAGHT: No; we might as well have that correct.
 30 Three of them have only been filed, 1946, 1947 and 1948, and were the base on which those statements were made by counsel and given to you; three only.

MR. KEOGH: And it is in the evidence already, I think, but just to connect it up, that the last exhibit pinned, Exhibit 99, which I believe the witness Burgener said was the dirtiest of all, that is taken from the side of your No. 7 greenhouse, isn't it? A. No, sir. That was taken from what we call the cloth house. We have a cloth house and a small projection six feet for protecting the stuff on that side. That is taken adjacent to No. 7.

Q. Well, do you remember which one was taken from your
 40 No. 7? There is 100 and 101. A. I think you will find one marked "East" and one "West".

Q. Oh, yes, here it is, "South end roof of No. 7 greenhouse," Exhibit 100. A. Doesn't it show which side on top there?

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Q. The south end. A. Roof of No. 7. I don't think I can tell you which one came from which side, but they are practically on the same one. That is on this side and that on that side, the south end.

Q. Well, this Exhibit 100 has a slip on top of it, "South end roof of No. 7 greenhouse." Is that correct? A. Yes. There is two of them taken there; one on each side of the greenhouse.

Q. Oh, I see. And the other one appears to be 101, south end roof of No. 7 greenhouse? A. It doesn't say which side, no.

Q. The other one from No. 7 is Exhibit 101? A. They are both the same greenhouse, south end.

Q. That is all, thanks.

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RE-EXAMINATION BY MR. SLAGHT:

Q. Just a question, Mr. Walker, arising out of this last picture. You have already said to my friend that you have not been able to get any that looked as good as that, and his suggestion to you was that it rained last night. Do you sometimes have a drought—assuming that it did rain and that helped, do you sometimes have a drought in this part of the world for a length of time? A. I would like to answer first that the amount of rain we had last night wouldn't make any difference on that house and stuff that is on it over there. Yes, we have many days when the stuff bakes on there.

Q. I mean, do you have droughts where it does not rain for a week or two? A. Yes, we do.

Q. All right.

HIS LORDSHIP: Mr. Walker—you have finished your re-examination, Mr. Slaght? I have a question or two.

30 MR. SLAGHT: Yes—something I have in mind. This picture—Mr. Keogh will tell us, is at the northeast corner of your greenhouse?

MR. KEOGH: No. 7.

MR. SLAGHT: And what corner of that is that purporting to be taken from?

MR. KEOGH: Well, I think it is taken from the northwest corner.

MR. SLAGHT: Can we determine that?

MR. KEOGH: Well, the picture I think says it is generally facing south.

40

THE WITNESS: If we could just catch part of the McKinnon Industries, we could tell it from the background, Mr. Slaght. May I see that again for just a moment, as to direction?

MR. SLAGHT: We are told now by my friend that on this Exhibit 106, that this purports to be the north end of your big greenhouse No. 7, and that, running along in front of that north end, is Manchester Avenue. Is that right? A. That is correct, sir, and this would be on the west side, on the north end.

Q. And the surface showing would be on the west side, towards the north end? A. Correct, sir.

Q. Well, that is what I wanted to get.

HIS LORDSHIP: Let me see it. That is, the camera would be
10 northwest of the greenhouse looking toward the east? A. Your
lordship, the camera would be in taking that—

Q. The person holding the camera? A. Well, he would stand directly west, unless he wanted some slant of the glass.

Q. Well, he has got a person at the north wall? A. Yes.

Q. So that he must have been slightly to the north and west of the greenhouse? A. Correct, your lordship.

Q. That is the north wall to the west and looking east?
A. Correct, sir.

Q. And Exhibit No. 58 and Exhibit 100, I think are said
20 to have come from the cloth house? A. Yes, your lordship.

MR. KEOGH: I am sorry, my lord, I believe it was Exhibit 99. I may be wrong, but the witness told me that just a moment ago.

HIS LORDSHIP: Well, let me have Exhibit 99.

THE WITNESS: If you would like to know, your lordship—

HIS LORDSHIP: Just a moment please. Can you describe the cloth house to me so that I might know what you mean by the cloth house? A. The cloth house is this little section marked
here.

30 Q. You are pointing to Exhibit 1? A. And No. 7 greenhouse, and the north house is that section marked with these here lines. Now, the last 60 feet, about 27 feet wide, is covered with one side of the shed and over that we put the cloth that breaks the wind when you put your stuff out early.

Q. Is there any explanation as to why these panes of glass seem to have a much thicker film on them than ones taken from other sections of the greenhouse? A. Yes, your lordship, I would say there would be; possibly that might be in the glass and then, another thing, it is lower to the ground and when this here
40 deposit comes over it seems to be as it gets down behind the shelter of the big house. It isn't blown up. There is no air coming up over the top.

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Q. There would be a sort of sheltered place that it settled on the roof of the cloth house, which was lower than the other?

A. It would be about six feet to the top of the cloth house and it would be about 19 feet to the top of the big greenhouse.

Q. It may be they were both washed at the same time?

A. Yes, your lordship.

Q. Now, you say, when you wash them, you use muriatic acid? A. That, sir, is only done on the big greenhouse.

10 Q. The others, what do you use? A. Just sand some-
times, to remove hard particles of lime, along with a steel brush.

Q. Well, does that take off the film that we see on that?

A. Your lordship, I misunderstood you. The lime is not on this section here. We only use that—

Q. Witness, will you please stand over in the witness box and speak to counsel and every one. There is no confidential discussion between you and me. I am only asking you some questions. Now, go ahead, please. A. We are speaking now in regards to how we remove the substance from the big greenhouse.

20 Q. I am not talking about the lime. I am talking about
cleaning off the black film that we have heard so much about.

A. I am speaking of what you are asking, your lordship, and we are going to clean off the black film. We first put a small lot of water on to soften it up. Then we take and put on some water with 40 to 50% of muriatic acid, depending on whether it is hard to remove. This here film, it usually requires about—oh, I would like to correct myself there. We are working on a pail, because muriatic acid will eat anything else. I would say we would use possibly a quart to a quart and a half into approximately eight quarts of water. We take a brush or a swab and we put over this
30 here, over the top of where the film is. Just as soon as we can ascertain by taking a brush if it is going to be removed, we go back over the top of that there and we brush it as much as we can immediately, using water to wash that off so there will be no stuff coming down over the sides of the greenhouses. In the meantime any connections that we have, except to the sewer, are disconnected so that this stuff runs directly into the sewer, or in pipes of stuff there.

40 Q. Now, what do you say as to whether the night's rain
would have any effect on it? A. Your lordship, it would not
have any effect whatever.

Q. Well, that is all, Mr. Walker. A. Thank you.
—Witness excused.

JACK COOPER, sworn,

EXAMINED BY MR. SLAGHT:

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Q. Mr. Cooper, you are a photographer here? A. Yes, sir.

Q. And you have taken photographs for Mr. Walker? A. Yes, sir.

Q. And did you take some during the strike and some before the strike? A. Yes.

10 Q. The strike being from July along to the 2nd of November in 1948? A. Yes.

Q. And these have been already put in as taken by you. Then, you have taken pictures of the flowers outside on the McKinnon test plot? A. Yes.

Q. And the McKinnon cupolas and smoke pictures, the forge shop? A. Yes.

Q. And then some pictures of trees and pictures of men taking specimens and samples? A. Yes.

20 Q. They have all been put in here in detail. Then I want to ask you whether you also took a film of moving pictures? A. Yes, sir.

Q. Which has been filed as part of Exhibit 36?

HIS LORDSHIP: No, I don't think it was filed as Exhibit 36. It was marked "A" "B" and "C" for identification.

MR. SLAGHT: Well, was the film taken in 1948? A. Yes, in 1948.

30 Q. And then, we have heard the objects that you were photographing, such as plots planted with flowers outside on the Walker property. Then, did you include any photos in your moving pictures of the test plot on the McKinnon property? A. Yes, sir, that is included in it.

Q. And then the chimneys, cupolas and smoke pictures? A. Yes, sir.

Q. Now, I will ask you, as I did Mr. Walker, in the first place, you had to decide what objects had a view you were going to take pictures of? A. Yes, certainly.

Q. And in your observation of those objects, prior to photographing them and in your taking of the pictures, what do you say? You have seen the films afterwards? A. Yes.

Q. Through the projector? A. Yes.

40 Q. —as to whether or not in your view the films which were shown on the projector are a fair representation of the views you had and the observation you had of the objects photographed? A. I believe they are very good.

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Q. Now then, just let me see that last photograph. I show you Exhibit 106 which was put in this morning and is said to be a part of greenhouse No. 7 and taken at 9.10 a.m. this morning. Do you recall whether the sun was shining brightly at 9.10 this morning, or don't you? A. It was shining pretty brightly, yes.

Q. I want to know whether, as a photographer, the sun shining brightly on the top of the glass that way could or could not be made in the taking of the picture to magnify the apparent clarity of the glass? A. Yes.

Q. Describe that from a photographer's standpoint. A. Well, if it is showing down and reflecting back into the camera, it will look like clear glass.

Q. And would it look clearer than it really is to the naked eye? To what extent could that be? A. Yes, it would be pretty bright there, and there would not be any detail in it. It would wash all the detail out.

Q. What would wash all the detail out? A. The reflection of the light.

Q. The reflection of the light back into the camera? A. Yes.

20

Q. Then is there any way in the finishing of films such as this this morning, where the appearance of a greater clarity of light could be created in the way it is finished? A. Oh, it is possible yes.

Q. And how? A. A hard grade of paper will wash out detail and give it a white look; a white look, yes.

Q. What kind of paper? A. A hard grade of paper.

Q. We are exposing the tricks of the trade here, but a hard grade of paper, you say, would wash out the detail and give a picture, when finished, like this, a whiter look? A. Yes, it could.

30

Q. All right.

HIS LORDSHIP: Is this the witness that took the photographs that have been filed earlier?

MR. SLAGHT: Yes, my lord. Perhaps I should identify these more in detail.

HIS LORDSHIP: I think they should be.

MR. SLAGHT: Will you let me have Exhibits 31, 34 and 35.

MR. KEOGH: A short statement, my lord, that might shorten it. I am not questioning any photographs that have been put in that have been identified by witnesses from time to time, such as Mr. Walker saying his is a photograph of my greenhouse, and so on.

40

HIS LORDSHIP: Well, I would like to know if they are clear representations—if the photograph itself indicates fairly the condition as the photographer saw them at that time.

MR. SLAGHT: Yes, my lord. Now, I show you photograph Exhibit No. 31, which appears to have been taken—Exhibit 48 of the cupolas and the forge shop look west and southwest over the large greenhouse; that was done to identify them, I thought, but you took that, did you? A. Yes, sir.

Q. And is that or not a fair representation of the objects which were photographed and appear in the picture? A. Yes, that is.

Q. Then, I show you—

10 HIS LORDSHIP: I am more concerned with the photographs—Mr. Keogh is admitting those photographs but I am more concerned with the photographs of the glass.

MR. SLAGHT: What are they, Mr. Ferguson? We have a typed list here. Those were taken by the Healy people, so I would like to rely on my friend's admissions with regard to those, and I will try to find the Healy representative.

HIS LORDSHIP: Well, it is not so important.

20 MR. SLAGHT: I may say, for my friend's benefit, that your lordship, after Walker's evidence and hearing my friend's objection to your lordship giving heed to these, or admitting them, or giving weight to them, and I only called Mr. Cooper in a perfunctory way to cover the point that I covered with Mr. Walker that, as far as he recalls it, the objects he photographed were reproduced on the film. I did not have any view of trying to change your lordship's ruling in that regard, and it may shorten my friend's need to cross-examine Cooper about that earlier part of his evidence. Your witness.

MR. KEOGH: In view of that statement of my friend, there will be no cross-examination.

30 MR. SLAGHT: Very well, that is all.
—Witness excused.

MR. SLAGHT: That concludes my case, my lord.

HIS LORDSHIP: Then, we will have ten minutes intermission.

—Intermission.

HIS LORDSHIP: Mr. Keogh, defence?

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DEFENCE

LESLIE ERICKSON, sworn,

EXAMINED BY MR. KEOGH:

Q. Where do you live? A. I live in Boundbrook, New Jersey, 30 miles south of New York City.

Q. And what is your occupation and place of employment?
A. I am employed by Thomas Young Orchids, Incorporated, of Boundbrook, New Jersey, and I am Assistant General Manager at the Boundbrook plant.

10 Q. And how many years experience have you had there?
A. I have been with Thomas Young Orchids since 1935—14 years.

Q. And your father, I believe, is head grower? A. My father has been head grower for Thomas Young Orchids for 30 years and, prior to that, he was with the A. N. Pearson, Cromwell, Connecticut.

Q. And you were brought up on the property down at Boundbrook since you were how old? A. Since two years of age.

20 Q. Now, are Thomas Young Orchids, Incorporated, large growers of orchids? A. We are the world's largest producers of the Cattlaia orchid; that is the standard type orchid that is sold commercially. It is the most popular, known as the Cattpia type orchid.

Q. There were some people here calling it Cattlaia. I guess I was one. Was that the same thing? A. That is it.

MR. SLAGHT: Cattlaia.

MR. KEOGH: Q. And how many orchid plants has Thomas Young, Incorporated, growing at Boundbrook at the present time?
A. We have 200,000 mature orchid plants producing commercially; approximately 400,000 seedling plants.

30 Q. And how many orchid blooms does your company expect to cut for this Mother's Day? A. In the neighbourhood of 30,000 flowers.

Q. Did you take a course in agricultural science? A. Yes, sir. I have a Nursery Practice Certificate from Ruttgers University.

Q. And where is Ruttgers located? A. It is located in New Brunswick, New Jersey.

Q. And how many years was that course? A. That was rated as a short course, two full semesters.

40 HIS LORDSHIP: What do you mean by a "semester"?
A. Just one complete calendar year.

Q. One complete calendar year or two calendar years?
A. One college year. It is a specialized short course. I don't know if it is common practice in Canada.

MR. KEOGH: Q. Then, in addition to that, did you take another course in some university? A. I was doing Co-operative Research with Ruttgers University. In other words, we are taking a particular theory and trying to put that theory into common practice in nursery research.

Q. You are co-operating with them in plant research? A. We have just completed a three year D.D.T. experimental programme.

10 Q. How many greenhouses has your company at Boundbrook? A. We have 44 greenhouses.

Q. And they cover an area of approximately what? A. That would be equal to 342,000 square feet of glass.

Q. And when you say square feet of glass, do you mean the space under glass? Is that what you call it? A. No. That is the amount of glass that the greenhouses contain themselves.

Q. And what sort of community is Boundbrook? A. Boundbrook is a highly industrial community.

20 Q. Can you give us any more details of that? A. Through the town of Boundbrook four railroads pass; the Lehigh Valley; the Baltimore & Ohio; the Reading Railroad; and the Central Railroad of New Jersey; they are approximately nine-tenths of a mile from our greenhouses.

Q. And are those electrified roads or coal-burning roads? A. Up until the post-war period they were entirely coal-burning roads. They have a few Diesels now.

Q. And the rest coal-burning? A. Yes, sir.

30 Q. Then, what factories are located in Boundbrook within, say, one to two miles of your greenhouses? A. The Calco Chemical Company, which is a division of the American Cynamide Company.

Q. And what do they make? A. They manufacture a complete industrial line of chemicals for the basic rubber industry for thermostatical purposes. It is a miscellaneous chemical plant.

40 Q. And how close is the Calco factory to the closest one of your greenhouses? A. About one and seven-tenths miles. That is directly adjacent to the Sherwin-Williams Company. I am working closer to the plant, as I explained. This plant manufactures agricultural insecticides. There are a number of small industries in Boundbrook directly south of our plant, one and two-tenths miles. We have the Bakolite Corporation; we have an acetyline plant, and then we have the Oil-less Bearing Corporation. They make oil-less bearings for cars, — one mile from our plant.

Q. And do any of these factories emit gas and smoke? A. The condition in Boundbrook is a typical industrial town with many smogs in the air.

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Q. By the way, how large, in population, is Boundbrook?
A. The population is rather small, because the town is limited to one square mile. More people get work in the town than you have there. The population is only 6,000, but there are many surrounding communities that contribute the workers.

Q. And are there any especial characteristics to any of the smoke, take, for instance the Calco Company? A. If the wind is in the right direction we get fumes from the Calco Division of the American Cyanamid. We get fly-ash contributed from many stacks, four in our surrounding area, and our own two smoke stacks are great offenders.

Q. They burn what kind of coal? A. We burned coal and, prior to February 1st, we had very inefficient Scotch marine boilers that produced a great amount of fly-ash in our greenhouses, on our plants, and on our flowers.

Q. Then, since February 1st, 1949, what did you do with the suction boilers? A. They have been discontinued and we now have a new power plant for our heating system.

20 Q. And you burn now what type of fuel? A. We still burn coal.

Q. Still the same fuel? A. From new automatic stokers, damper controlled.

Q. And take, for instance, the smoke from the Calco Company, is it a pleasant smoke or otherwise? A. It is quite obnoxious at times, — not seasonal, but at times.

Q. And what have you noticed, if anything, about the colour of it? A. There are various colour smokes coming out of the Calco plant.

30 Q. Now, has any of this smoke and gas from the Calco and the other plants passed over your orchid houses? A. Yes, sir.

Q. How frequently does that occur, approximately? A. It depends entirely upon the prevailing winds. The Calco plant is located slightly southwest of our plant and our prevailing winds are westerly and we quite frequently do have southwest winds.

Q. And have you ventilators in your orchid houses?
A. Yes, sir, on both sides and the tops of our houses.

40 Q. And during what seasons of the year do you have those ventilators open, approximately? A. We have a very small amount of ventilation down as far as 35 degrees Fahrenheit and as the temperature increases, in the warmer season, during the peak, we have them full, wide open.

Q. And do you get any of this outside smoke inside of your greenhouses? A. From our own stacks we get an abundance of fly-ash, yes, sir.

Q. An abundance of fly-ash? And is that condition more or less when the ventilators are open? A. It is greatly increased inside the greenhouses when the ventilators are open.

Q. And what about the smoke from the outside factories, does that increase or decrease when the ventilators are open? A. It will increase, sir.

Q. Now, what do you do, if anything, about the deposits of fly-ash that you have spoken of, and soot, on the roofs of your greenhouses? A. If we have a rainy season it offers little problem, but, during the dry seasons, occasionally in the summer time, if we have seven or eight days of very dry weather, the accumulation is heavy. We wash it off with the hose but, in the summer time, we need shading, so it is not too detrimental to our cause.

MR. SLAGHT: Pardon? I did not catch what you said about the rainy season problem? A. During the rainy season, the soot is automatically washed off in proportions.

MR. KEOGH: Q. Then, have you ever observed any signs of smoke or gas injury on your orchids? A. No, sir.

Q. And have you ever observed any signs of injury to your orchids by the deposit of fly-ash and soot that you say gets in and deposits on them from time to time? A. The general effect of fly-ash is a nuisance. We have to take cotton — when we are grading the flowers, we have to either blow it off, or take a piece of cotton and gently tap it off.

Q. And is it possible to get it off in either of those manners? A. Yes, sir.

MR. SLAGHT: Pardon me; I did not catch the two ways again.

MR. KEOGH: Blowing it off, or a piece of cotton. And have you been prevented from selling any of your orchid blooms commercially by reason of any of these deposits of fly-ash or soot on the flowers themselves? A. There may be one or two exceptions. One exception may be where some sap, some nectar, has gotten on to a sepal, that is a part of the flower, and a piece of soot, rarely. This does not happen very often; occasionally it may happen where soot gets on the nectar. It may be hard to move and the amount may be decreased by 25c a flower, but that is the rare occasion.

Q. And just so we will understand, what part of the flower is the sepal? A. The sepal is one of the parts —

Q. Perhaps you have a photograph. Have you got a photograph that will show it? A. In my portfolio, sir.

HIS LORDSHIP: Well, he can probably tell us what the sepal is. A. Thank you. Have you ever seen an orchid moving? The lebullum, which is the lip, and you have more or less petals

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sticking out from this lebullum. Well, these are the sepals. In other words, they are a distinct part of the flower. A plant physiologist would be able to give you the technical terms of them.

Q. Would it be to the layman, sort of part of the petals of the flower? Wouldn't that be a rough description of it? A. That is right, sir, yes.

MR. KEOGH: Q. Then, I show you Exhibit No. 96A and B, which I believe you have already seen during the trial, and I ask you to tell me what is your opinion as to the appearance of these two orchid leaves, from a health standpoint, apart altogether from the deposit of soot, and we will come to that. A. Due to the fact that the cleaned area to my knowledge, shows no injury,—and we have thousands of leaves that have the same kind of deposit at Boundbrook on our plants, and we have suffered no damage,—I would say there is nothing that should hinder the orchid plant in this condition from producing the very normal required amount of blooms.

Q. To put it roughly, then, do you say that these leaves were healthy, notwithstanding the deposit? A. Yes, sir.

20

Q. Do you spray or syringe your orchids? A. Yes, sir.

Q. How often? A. This depends upon the climatic conditions. During warm summer seasons we occasionally spray our plants early in the morning, before the hot sun comes up. We do that to prevent dehydration.

Q. And what do you spray them with? A. We spray our plants with water for general culture, and we also spray our plants with insecticides, such as D.D.T. emulsions.

30

Q. Do you use any oil sprays? A. Our D.D.T. emulsion, three years ago, was quite a controversial subject. Most practical growers said it would kill the plant because it contained an oil. Immediately after the war, in co-operation with Ruttgers University, under the supervision of Clyde C. Hamilton, we carried out some experiments, using a very heavy U.S. Navy formula of D.D.T., which in the opinion of our orchid growers —

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Q. You cannot say what somebody else gave you or somebody else's opinion, but you can describe it. A. It was formerly D.D.T. 25%, a wetting agent of 50%, and a solvent, xylene, 55%. That was put in to dissolve the D.D.T. so it could be made into a spray, and the oil or the wetting agent that is used to spray the D.D.T., that was susceptible in the solvent on the foliage of the plants, otherwise it would not stick. Now, it was the theoretical opinion at that time — the controversial point was this, as to whether it would be beneficial to the plant or it would kill the plant, but we have been using it now for three years in experimental tests, and we have now adopted it through our commercial processes. I have observed it to cause no injury, despite the oil.

A. Yes.

Q. Then, you spoke of spraying water. What kind of water do you spray? A. We spray ordinary well water, or city tap water.

Q. You do not confine yourselves to rain water? A. No, sir.

Q. Is the use of rain water the modern practice? A. No, sir.

Q. Rain or soft water? A. No longer modern practice in modern horticulture.

Q. In your practice? A. No, sir.

Q. You find no difficulty with ordinary city tap water or well water? A. No, sir.

Q. Then, Exhibit 104A, I would like to ask you what, in your opinion, could cause those markings? You will have to handle it carefully, because it is just lightly taped on. A. As a grower my observations of this type of injury could be one of many things. It could be a burn of an insecticide that was used; it could be excessive light; it could possibly be poor culture; it could be a disease or other things that I do not have knowledge of. As a grower, I could not say.

Q. Then, I think you will find on the next page, turning the first page over very carefully — open the book flat before you, turn to Exhibit 104B which was referred to by one of the witnesses as having a spotting caused by moisture, combined with some foreign substance. Do you see any evidence of any spotting to amount to anything on that? A. No, sir.

MR. SLAGHT: What type of flower was B?

MR. KEOGH: It was another orchid leaf.

Q. Is what you see on that leaf — I believe there are a few black flecks on it, what you see on that leaf, would that be harmful to that orchid plant, in your opinion, — three or four very small black specks on it? A. No, sir. We have many leaves that just drop off the bottom of the plant. They are just cast-offs by the plant themselves, with these little minute markings on them, and I do not see anything that would be out of the ordinary as far as this leaf is concerned.

Q. That 104B has a sort of yellowish cast to it. What does that indicate to you as to the position of that leaf on the plant?

A. If this leaf were located on the bottom, say, of a cypripedium, that is more of a soft leaf — I think this is a soft leaf, there is no label on it, — normally the bottom leaves of the cypripedium plant just turn a yellow and decompose.

Q. And is the cypripedium one of the hybrids? A. No, that is a different kind. It is a softer leaf and it is not as heavy textured.

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Q. And you say that looks like a cypripedium towards the bottom or outside of the plant? A. Or a very small Cattlaia leaf, but it is not labelled.

Q. And on this question of the bottom or outside leaves, does the orchid plant grow from the centre? I am just asking for information now. A. No, sir. The orchid plant is a rhizome. If we have a fully developed mature orchid plant, we have five or six bulbs with leaves and each year at the base of each bulb down the area, it is called a rhizome, there is a little bud. Now this bud develops into a little eye, or else an advanced bud and it slowly progresses over the growing season into a fully developed bulb and leaf. In other words, each year it goes through a new cycle producing a completely new leaf and bulb, starting from that little bud.

Q. And that bud or eye is near the bottom of the previous year's bulb? A. At the base, yes, sir.

Q. And is it below the fibre in the plant? Does it start below it or above it? A. Well, it is usually right on the surface.

20 Q. I think the witness has a photograph or two that might explain that.

HIS LORDSHIP: If they are important in this case — I don't want to get into the whole business of the details of growing orchids unless it really relates to the question of liability.

MR. KEOGH: Quite so, my lord, but it will come up later about the dividing of the plants and the doubling, and so on, and I think a photograph will help.

HIS LORDSHIP: Well, if it is important.

30 MR. KEOGH: You showed me a photograph the other day of two plants, one which had this development and the other one which did not, and you have produced a photograph which, I suppose as the exhibit will be 107, will be marked as 107. You have produced a photograph of two orchid plants side by side, one which appears to have a lot more growth on it than the other. Will you explain the difference to his lordship in connection with this business of this rhizome of the eye and the doubling of new growth and propagating?

40 MR. SLAGHT: Well, my lord, I don't want to make formal objection, but I do suggest to my friend it was shown by one of our witnesses yesterday, who was an expert, — he told us all about this bud and that they reproduced in two or three years, and anything that goes to liability, I think he should put in, but —

HIS LORDSHIP: I am sure Mr. Keogh will not rove very far afield. Of course, we must have in mind two things. One is that it is a question of liability that we are concerned with here and not a question of the extent of the injury that may have been

done. All I have to decide is whether the nuisance has been committed within the meaning of the term as used in the common law. If that is true, whether serious results flow in from it or results that are not so serious is not a question for me at all. That is a question for the Referee on the assessment of damages.

MR. KEOGH: I quite agree, my lord, and I am only bringing up these points on the question of credibility in connection with some of the statements made in evidence by the plaintiff's experts.

10 HIS LORDSHIP: Well, you are entitled to meet anything that has been adduced by the plaintiff's witnesses and I do not want to limit your evidence in the slightest.

MR. KEOGH: Thank you, my lord. We will leave that there for a minute.

Q.. Then, one of the plaintiff's witnesses said, I believe it was Mr. Walker, said that at one time he noticed some brown tips at the end of the orchid leaves. I have not asked you about that yet, have I? A. No, sir.

20 Q. What could cause that? A. That could be mechanical injury. Some one may happen to brush by, and, with a little excessive pressure, that may instantly bruise the tip of the orchid leaf. It may be done by the spray, the insecticides.

Q. Any other possible cause of that brown tip on the leaf? A. On the leaf?

Q. Yes. A. Some nutritional experts claim it is due to nutrition, but I have had very little experience on nutrition.

Q. Then, were you down at the McKinnon plant early Monday afternoon? A. Yes, sir.

30 Q. And did you hear the hammers banging in the forge shop? A. Yes, sir.

Q. And did you feel the tremor of the ground outside? A. Yes, sir.

Q. And, maybe if I am permitted to lead to shorten it up,— where did you go in the way of walking around there? A. We went directly into the forge shop and into — we walked directly up next to the cupolas.

Q. And then outside, where did you go? A. We walked around Mr. Walker's premises.

40 Q. That is, along the front and along the back and along the side? A. Yes, sir.

Q. And this tremor, what effect, if any, in your opinion, would the tremor of the ground which you felt outside, immediately outside of McKinnon's plant, when you heard the banging, have on orchids staked in pots 300 feet away, on Mr. Walker's premises? A. By standing directly outside of Mr. Walker's property, that is on the sidewalk, the thud was very slight, and

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that type of vibration was produced by streetcars, prior to the time that they were removed, at Boundbrook; streetcars produce this type of thud.

Q. Streetcars where, with reference to your greenhouses?

A. They were running adjacent to our greenhouses at Boundbrook.

Q. You mean alongside of them? A. Right alongside of them, continuing right up the side of the ranch.

Q. And for how many years did that streetcar condition exist at Boundbrook? A. Approximately 20 years prior to 1938.

Q. They are motorized now? A. Yes.

Q. Did you have any trouble from vibrations while you were employed there, during the latter part of those 20 years? A. No, sir.

Q. Then, one of the plaintiff's witnesses said that the shaking of the tops of the plants, the shaking of their tops, or heads, half an inch, causing them to quiver half an inch, would injure them. Do you agree or disagree with that statement? A. I do not believe it would have any effect on the plants.

20

Q. Is there any doubt of that in connection with a plant that was staked or tied to a stake in the pot? A. A staked plant should be quite rigid, because that is the reason for putting the stake in. The stake is put into the pot and then a string is tied to the stake and to the bulb, to support it.

Q. Would a quivering or shaking of the top of the plant half an inch, staked in that condition, would that injure an orchid plant? A. Not to the best of my knowledge.

30

HIS LORDSHIP: What about a vibration that is continuous; that you have coming in continuous rapidity; blows that cause a vibration day and night? Have you considered that aspect of it? A. No, sir. I am not an expert on vibrations. I would not want to be quoted on that. However, sir, if I am permitted, I might explain that we are using a pneumatic potting machine, which is a tampering device for our potting.

Q. Well, you use that, while you are potting, but you do not keep at it day and night with this tapping machine? A. No, sir.

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Q. I want to get your mind on the problem that I am confronted with, not hypothetical cases, — that is the vibration that is set up by a hammer coming down at regular intervals, where they are putting things through I suppose just as fast as they can put them through, and a hammer comes down regularly with these repeated vibrations each time. That is the problem that I want to get before your mind and get your view, if you are in a position to express an opinion. If you are not, that is the end of it. A. On

vibrations outside, we have compressors that run continually to feed our potting machines. There has been no harm from those compressors.

MR. KEOGH: Q. Are they air compressors? A. Yes.

Q. And are they in your orchid houses? A. They are directly in our orchid houses, adjacent to the benches.

Q. On which the orchid plants grow? A. Yes, and they are adjacent to the compressor air machines.

10 Q. Adjacent to the compressor air machines that run the potting machines? A. Yes.

Q. And I understand those potting machines are not working on the same plant all year, but are you potting by means of machines all the year around, in your business? A. Yes, sir.

Q. Have you a photograph of one of those potting machines?

HIS LORDSHIP: Well, I want to understand the potting machines, because I do not get the slightest bit of assistance from some other process that is quite different from the one that is complained about. As I understand the potting machine, there is one blow struck and that will go on to another pot.

20 MR. KEOGH: No, that is not quite correct.

HIS LORDSHIP: I may be wrong, but I thought that was brought out in cross-examination.

MR. KEOGH: His lordship has just said that is what one of the plaintiff's witnesses said, that a potting machine just struck one blow. What do you say about your potting machine?

MR. SLAGHT: It just gave a push.

THE WITNESS: Very well.

HIS LORDSHIP: Has it any similarity to the type of vibration that is set up by this 5,000 pound hammer?

30 THE WITNESS: Well, sir, it comes down and it rams this peat into the pot. I don't know anything about vibration from an engineering standpoint.

Q. Does it set up a vibration throughout the greenhouse? This picture you show of a potting machine which is apparently working, and I suppose is set apart for that purpose, does it set up a vibration throughout the greenhouse that would cause tremors and cause the pots to move around? A. No, sir.

40 MR. KEOGH: Q. What about the air compressors that pump air to the machines? What effect do they have in your greenhouses? A. They affect the bench for about 25 feet down the line from the particular houses. Now, these plants appear normal.

Q. They affect the bench in what way? A. There is a little movement.

Q. You are shaking your hands—a little tremor? A. That is right, a little tremor.

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Q. A little tremor of the bench for a distance of about 25 feet from each air compressor? A. Yes.

HIS LORDSHIP: Do you want to put this in?

MR. KEOGH: Yes, my lord.

—EXHIBITS No. 108A and 108B: (A) Showing girl operating the potting machine; (B) Showing a potting machine by itself.

THE WITNESS: That is right; standing by itself.

HIS LORDSHIP: Well, Mr. Keogh, this would be a good place to adjourn for lunch.

MR. KEOGH: Yes.

—Whereupon Court adjourned until 2.15 p.m.

Wednesday, April 27th, 1949, 2.15 p.m.

EXAMINATION-IN-CHIEF CONTINUED BY MR. KEOGH:

Q. Mr. Erickson, how often do you re-pot orchids? A. It is common practice to re-pot Cattlaia orchid plants every two years.

Q. And what fibre do you use to re-pot them? A. Osmunda fibre, from the Osmunda fern.

Q. And when you re-pot, what do you do with the aerial or overhanging roots? A. The roots extending outside the pot are cut away.

Q. You cut those off? A. Yes, sir.

Q. And has the cutting off of those aerial roots any effect on the health of the rest of the orchid plants, in your experience? A. It would be impossible to re-pot without cutting away those roots.

Q. That is the standard practice in your business? A. Yes. There is no other way to do it.

Q. And are orchids peculiarly susceptible to movement? A. No, sir.

Q. What do you do with your orchid pots from time to time — that is, the plants in the pots? A. From time to time, during the Easter season, during the Christmas season, or a special period such as Mother's Day, we have to transfer these pots in steel trucks from one side of our range to the other; for instance, from the east side to the west side, in order to put them in houses where we can properly control the temperature, in order to force or retard the crop. Now, during this transit, the trucks have no springs, hard rubber tires, there is considerable movement in the truck, considerable tipping, and some of the roots and some of the leaves may be jarred a little, but it has not been detrimental to the plants to a great extent.

Q. Then, what are the possible causes of elongation of orchid leaves? I am speaking now of Cattlaia orchids, in all these cases. A. Elongation might be caused by many factors. As an orchid grower, there are a number of things could happen. It may depend upon the peculiarity and the characteristics of a particular variety of Cattlaias that are crossed with another genera called Laelia hybrids, that are crossed Cattlaias. That is one type of genera that is crossed with another type of genera; that is common to the Cattlaia family. The Cattlaia is influenced by the Laelia Cattlaia and the growth automatically becomes elongated by the generic background. In other words, the parent knits shape to the plant. Now, in importing a particular variety of species, — let us take the Cattlaia, the mossy Cattlaia in its native habitat in South America, the leaves are rather plump and rather short, stubby and wide. Now, when they are cultivated in North America as a rule some varieties may not respond — they become thin and narrowed out, but the effect is that their production under this elongation is increased because, under cultivation, orchids do produce more flowers than they do in their native habitat, as has been proven.

Q. Have you a photograph of the plant showing some leaves as the plant came from the jungle, and others elongated as grown in your greenhouse? A. I have, sir.

Q. And is this raggedy, short leaf with a tear in it, in this photo, is that a leaf as it came from the jungle? A. Yes, sir.

Q. And the other, the longer leaves, are as grown by you? A. Yes.

Q. And that is the type of Cattlaia which you speak of? A. That is the Cattlaia Mossie.

30 —EXHIBIT No. 109: Photo of two orchids.

Q. Then, apart from any generic characteristics, are there any other conditions or causes which would produce elongated leaves, or leaves being more elongated than usual? A. Cultural conditions may produce this type, shape, or form in the plant, but there is one thing we must bear in mind that, in commercial horticulture, we are interested in the finer production of the plant, no matter whether it be wide, short, stocky or elongated. It is the final result that we get in the end.

Q. And, in your experience, has the elongation of leaves any effect on what you call the bloom, or leaves? A. No, sir. The entire crop of Cattlaia Mossie that we have bloomed this past year and produced a phenomenal crop and, by observation, I have found that all the back bulbs were short and stocky and in the bulbs that produced this phenomenal crop this year, they are all stocky and narrow.

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Q. And, then, you spoke of cultural conditions might produce this elongation. I didn't ask you what cultural conditions you had in mind and were referring to. A. Over-watering can be detrimental to the plant; by the same token not enough water can be detrimental to the plant. It depends entirely upon climatic conditions but, for North America, we have to hit a happy in-between cultural programme.

Q. And was that the only cultural condition, or is there any other cultural condition which would have a tendency to elongate the leaves? A. At times too much light may do this in some varieties, not in all varieties; that would depend entirely upon the variety, the generic background and numerous other factors.

Q. I am speaking now about Cattlaias and Cattlaia hybrids only. A. Well, I am referring to that same species.

Q. Does that apply to them? A. Yes, sir.

Q. Then, when are the white roots of the Cattlaia fully grown? A. I am speaking now in general terms; I am not talking about any one individual plant, because you can always prove a point by taking one particular type, variety, but in general, at Boundbrook, New Jersey, we notice great root activity immediately following the semi-dormant period of November, December, January, and February; in March, the roots begin to start, and by June they are quite well established.

Q. I am not sure we are meaning the same thing. You say quite well established. I asked you when they were fully grown? A. Well, sir, fully grown at that time.

HIS LORDSHIP: Do they not grow any more after that?

A. Some varieties do, sir, but, in general, they are finished at that time.

MR. SLAGHT: Would that mean in February? A. No, by June, sir. There are exceptions to every case, though.

MR. KEOGH: Q. Then, would vibration cause the root of an orchid plant to chafe, if the plant were properly potted? A. It is my opinion that vibration, as far as the whole unit is concerned, the pot and the roots, — if it is properly potted the compost and the roots should be very compressed, if it should vibrate it would vibrate as a solid unit, and there would be no chafing inside.

Q. And we had some evidence here — first of all of a chafing of the inside or interior roots. What, if anything, would that indicate to you as to the manner of potting? A. If a Cattlaia orchid is improperly potted and the compost were loosely set so that the roots could not be anchored properly, then, I think chafing would be the result of poor potting.

Q. If the compost was firmly potted, you would not expect it. Is that what you mean? A. I would not expect it.

Q. And, by "compost" do you mean the same thing as this osmunda fibre? A. Yes, sir. That is what I refer to as compost.

Q. Then, we had some evidence that the outside roots, where they leaned over or crept over the pot, these aerial roots, were found leaving a brown mark. Have you anything to say about that? A. As I mentioned before, in transporting our plants from one location to another during these holiday seasons, we do do
10 great damage to our roots. In the same varieties — but it doesn't affect the plant.

MR. SLAGHT: I thought you said great damage. A. To the root itself.

Q. Pardon me for interrupting, my lord. Did you say we did great damage? A. To the root itself, but it does not affect the plant itself.

MR. KEOGH: Q. You are speaking of these aerial or overhanging roots? A. That is right.

Q. Then, a statement was made by one of the witnesses —
20 I believe it was Mr. Duncan, that normal orchids should double every three years? Do you agree or disagree with that statement, and what can you tell us about that? A. I disagree with that statement. If this were true, the Thomas Young orchids, instead of having 342,000 square feet of glass, that would mean that three years from now we would have to have in the neighbourhood of 600,000 square feet of glass. That is by no means true.

Q. Without getting into any argument about glass, if you don't mind, what in your experience has been the normal period for orchids to reproduce and bear seed at your business premises?
30 Cattlaias I am talking about in all these things. A. Shall I explain about propagation and seed later, sir?

HIS LORDSHIP: No. Can you answer the question first? A. All right, sir, pardon me. The reproductivity — we are talking now about seeds, not the —

MR. KEOGH: Q. I want to make sure you are talking about the same thing as Mr. Duncan was talking about.

HIS LORDSHIP: I am not sure that we are, because the witness said that normally orchids should double themselves every three years, but I think it was explained later what he meant by that was that you could take a plant and divide it and have two
40 plants where you had one before and I would like to know, having regard to that, whether you disagree with the statement, and what your experience is. A. In other words, you want me to explain propagation reproductivity?

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MR. KEOGH: Yes. A. The ordinary Cattlaia plant will produce just enough new growths to replace the back bulbs that are continually dying off from year to year in commercial practice. Occasionally — we have a special variety that is world-renowned, called Couhaniana; this is world-renowned, white, with a coloured lip. It is an orchid that is very famous and that has been an extensive propagator. Now, in our study book we have made 3,600 various crosses; in other words that is taking plant A and putting it on plant B; now, out of that huge number of crosses this Couhaniana is the only successful propagator that we can say doubles itself every three years.

Q. And is that Couhaniana, or whatever you call it, it may be famous, but I don't know anything about orchids, — is that restricted to your company? Is that something you started, or is it generally circulated in the orchid business? A. Our particular variety is practically successful with us. We have sold some plants, many years ago, to some of our competitors, and there are some others around.

20 Q. But outside of that variety, when do other orchid plants normally and under normal conditions double themselves, or propagate themselves? A. Only by small fractions, — perhaps by 10% of one particular variety will double itself after three years, but then another variety, about 10% will die off so, over a period of time you just about break even if you want to keep your commercial productivity at its maximum peak.

Q. And by commercial productivity, do you mean the growing of flowers for sale? A. Yes, to make a living by the flowers you sell.

30 Q. Then, so as to have a commercial flower selling proposition, you have to pretty well keep even on the propagating or division, or the doubling? A. Yes, sir.

Q. Then, I think the seed question was mentioned. I forget whether by you or by me. In the normal course, and in the normal Cattlaia orchids, how often do they produce seed? A. They produce seed only when hybridized.

Q. That is crossed with another plant? A. Yes.

40 Q. And how often does that occur, in your experience? A. Only when it is rather desirous to make a cross, but only 30% of those crosses yield productive seed. In other words, yield seed that is worth planting. 70% are thrown away because they are not vital.

Q. In other words, you expect to get only 30% of productive seed from your orchids, on the average? A. That is right. That is our record, based on over a 20 year average.

Q. And, in the case of orchids that you want to cross or hybridize, can that be done once a year or oftener, or longer, or what? A. Only once a year. An orchid only blooms once a year.

Q. So that even under the best of conditions, you may fail to get seed from 70% of the orchids that you cross in any one year? A. That is correct by my experience.

10 Q. Then, in your experience, are orchids very sensitive to gas and smoke? A. In speaking of fly-ash, we have seen great amounts of fly-ash from our own stacks, particularly after a blow-down, that is, when the tubes are cleaned off at midnight and we can come along the following morning and there is an abundance of soot from our own stacks all over our entire ranch. For gas, a few years ago —

Q. Well, before you leave that, does that soot or fly-ash cause any permanent damage to the orchids, in your experience?

A. No, sir.

Q. And I think you told us before how you removed it?

A. Yes.

20 Q. Then there was another statement made, I think it was by Mr. McAlpine, that, when the orchid root is disturbed it invariably died. Do you agree or disagree with that statement?

A. Was he referring to the interior or the exterior roots at the time?

Q. I think he was referring to the interior roots, because he spoke of them having fixed themselves tenaciously to the inside of the pot, so tenaciously that you could hardly separate them with a knife. Oh, I am sorry. I am correct. Mr. Pond informs me he was talking about the aerial roots. A. Well, as I mentioned before —

30 Q. Well, what you said about that before applies to them?

A. Yes, sir.

Q. Do you burn soft coal in your boiler stacks at your place?

A. Yes, sir.

Q. And how many tons of coal do you burn a year, approximately? A. That varies with the type of winter we have; oh, an average of 4,000 tons a year.

40 Q. Then, are your smoke stacks from that boiler house located in the middle of your greenhouses, or to one side, or other, or whereabouts? A. Prior to February 1st this year they were located directly in the centre of our two ranches.

Q. Now you have moved them to one side? A. Yes, sir. We have them on the east end.

Q. Then, what type of shading do you use on your orchid houses? A. We use the standard preparation that is manufactured by Clark & Daniels. The new and patented name is "Solar Shade."

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HIS LORDSHIP: When you mention "shade," is that a spray? A. Yes.

MR. KEOGH: Q. And that is a spray, as his lordship said, that is sprayed on the outside of the greenhouse glass and roof, is it? A. Yes.

HIS LORDSHIP: Q. When do you spray that on? A. That spray is a progressive process. It depends on the intensity of February. The first application is made in February and then it is built up to its peak in June and July. It is done progressively. It depends on the type of weather we have. If we have a late snow in March, a light coat will be taken off.

Q. I suppose your weather will be different from the weather we have here? A. Yes, sir. I have no knowledge of the weather here.

MR. KEOGH: Q. Regardless of the number of coats you build up to until it reaches the peak in the middle of summer, you leave it on until when? A. We take it off approximately the 15th of October, but then we have to re-apply a light application again to prevent burning.

Q. And when do you start re-applying it again? A. We start the following February or if our glass is particularly clean even during December and January, we occasionally have to put a light protective coat on.

HIS LORDSHIP: I do not think it surely helps us very much as to what was done in another climate, where the lighting conditions are probably different.

MR. KEOGH: Well, possibly not.

HIS LORDSHIP: If the theory is that it is a good thing for these greenhouses to have a spray of this material that adheres to the glass, I don't know, but that may come into the question of damages, but even that, I think, has not much to do with the question of liability. However, do not let us take too much time on what is done where the conditions are different from where we are, farther north.

MR. KEOGH: Well, perhaps I will finish by asking this witness, is an orchid a plant that requires a great deal of sunlight? A. No, sir, not a great deal of sunlight. It requires sunlight, but it is greatly misunderstood.

Q. Is your reason for the shading to cut down the sunlight so they won't get too much? A. Too much sunlight will bring the temperature up so high that the plants will not tolerate the heat.

Q. And at what temperature do you try to keep your orchid houses, during their growing season? A. Well, the ideal temperature is 70 degrees.

Q. And at what humidity do you try to keep your orchid houses? A. That varies. 60% is ideal for our type of climatic conditions.

Q. Then, we had some evidence that the green tips of the orchid aerial roots had turned brown in some cases. What might cause that condition? A. After the growing season, if a root is established by June, it is a natural thing for little brownings to appear on the tip of the root, as it comes in activity in July and August. Some varieties keep on growing throughout the complete cycle, but the average orchid tip begins to turn brown and eventually it decomposes.

Q. And after the end of June, you say? A. Yes.

Q. You are speaking now of these aerial or exterior roots?

A. Yes, I am talking about general Cattlaias; no specific variety.

Q. Then is the lack of aerial roots a sign of starvation?

A. No, sir. We have observed some varieties in our collection that do not throw roots out on the exterior of the pot and other varieties have a great amount of roots extending on the outside of the pot. It depends upon the generic background in many cases.

20 Q. Your witness, Mr. Slaght.

CROSS-EXAMINED BY MR. SLAGHT:

Q. Then, Mr. Erickson, I understand you are not a meteorologist? A. No, sir.

Q. And I understand you are not a graduate chemist?

A. No, sir.

Q. And your academic education, for what it is worth, consisted, do I understand, of one year of two terms in Ruttger's College, where you took a course in nursery practice? A. Yes, sir.

30 Q. That is the extent of it? A. Yes, sir.

Q. Your academic course? A. Yes.

Q. You have had no academic course in chemistry? A. No, sir.

Q. Then, let us go to Boundbrook for a minute or two. You told us of some four war plants — by the way, do you know how far the McKinnon cupolas are from the Walker greenhouses, or don't you know? A. I will not quote the footage, sir, but I have been on the outside of the property and up by the cupolas of the McKinnon Company, sir.

40 Q. All right, but you won't venture a guess as to how far away they are? A. If it is a guess, sir, I would say about 300 feet.

Q. Well, you are giving me the best of it there. I think it is a little further than that. Then, the forge shop, can you estimate how far that is away from the Walker's? A. Well, I would say about — relatively the same distance.

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Q. Well, you are a little under there, too — about 450. Now, the Calco Chemical Company, they make industrial chemicals, miscellaneous, you told us? A. Yes.

Q. And I think you said they were one and seven-tenths miles away from you? A. Yes, sir.

Q. And from your nearest greenhouses? A. Yes.

Q. Then, your greenhouses run how far — half a mile away from that? A. Approximately, yes, sir.

10 Q. And a mile and seven-tenths, in my figuring, is 8,976 feet, I might tell you. I think that arithmetic is correct. And let me ask you, do the Calco Chemical operate a foundry and melt iron? A. No, sir, not to my knowledge; they may, sir.

Q. Well, they don't, according to my instructions, and they don't feed any scrap iron into any furnaces for melting purposes. A. No, sir.

Q. And scrap iron — perhaps you are not chemist to know — is usually covered with rust? A. Yes, sir.

20 Q. And, as I understand it, down in Boundbrook or thereabouts, you have no rust problem at all, no iron problem getting on your plants and helping to destroy them? A. Sir, we have the Boundbrook Oil-less Bearing Company one mile from us.

Q. Are you swearing that there is any iron deposit in your greenhouse? A. No, sir, I am not.

Q. And you have never analyzed the smoke from that mill of this Oil-less Bearing Company? You have never had any analysis of it? A. No, sir.

30 Q. Have you ever had any analysis of any of these deposits? Take the ash that you speak of that bothers your plants. A. We were prepared to have an extensive analysis programme but, due to the fact that the neighbouring florists in our area —

Q. I didn't ask you to apologize about it. You don't need to. You are not the chief down there. You don't lay out the policy. Did you ever have an analysis that you can speak of? A. No, sir, only on water.

Q. Well, I didn't ask you about that.

HIS LORDSHIP: Well, what do you mean by "only on water"? You had a water analysis? A. Yes, sir.

MR. SLAGHT: Q. Had a water analysis? A. Yes, sir.

40 Q. And then, have you had any analysis of the gases that penetrate your greenhouses, if any, of course? Let me ask you, are you saying that any bad gases get inside your greenhouse at all? A. We have objectionable odours at times, sir.

Q. Well, I didn't ask you that. I suppose perhaps that is a fair answer that bad gases would be expected to make an objectionable odour. Do you know what those odours come from? A. I

am not prepared to tell you only in one case when they cleaned out the formaldehyde vats at the Bakolite Corporation, we did get a very, very strong odour.

Q. What kind of smell has formaldehyde? A. The smell we got is ammonia chloride.

Q. I should think it is a very pleasant smell? A. Well, it is a very obnoxious smell.

Q. Then, are you prepared to swear there is no SO₂ in formaldehyde? A. No, sir. I am not a chemist, sir.

10 Q. No. I thought not. You say you burn soft coal and you use blowers? A. We did, sir, until February 1st; we had hand-fired boilers with one stoker.

Q. And then now you have more stokers? A. Now we have, sir.

Q. Do you burn any coal-oil in your plant that gets into your greenhouses in the fumes? A. No, sir.

Q. Are you aware that McKinnon's burn coal-oil in large quantities?

HIS LORDSHIP: Did you say "coal-oil"?

20 MR. SLAGHT: I am sorry, I mean bunker oil and crude oil. Do you burn any of those in your plant? A. No, sir.

Q. Are you aware that McKinnon's burn large quantities in their forge shop when they are being operated, and the fuel oil odour is bunker oil and crude oil? A. No, sir.

Q. When you made that statement, were you aware of that? A. No, sir.

Q. Do you know anything about the contents of crude oil and bunker oil insofar as offensive fumes are concerned? A. No, sir.

30 Q. Nothing whatever. Now then, a word about the fly-ash. I think you have told the Court it does not have any, in your opinion of it, that fly-ash has got any tar in it that you can swear; I am told it hasn't. A. I have no knowledge of that, sir.

Q. You have no knowledge of that. Now, you said that you had some Cattlalias — am I right in that? A. Cattlalias, sir.

Q. And that they got dirty sometimes in your greenhouse and from soot. Is that what you told us? A. Yes, sir.

Q. And what do they sell at — the best grade of them? A. What type are you talking about?

40 Q. The best grade that you grow. A. The best grade commercial orchid?

Q. No, the Cattlaia. A. You are talking about the flower?

Q. Yes. A. The best grade, at present market, in other parts, the good grade wholesale orchid costs about \$5.

Q. And you sell the dirty but best grade, do you, for \$4.75? Is that your story? A. Sir, the slight speck that I am talking about, that is a spot mark —

10

Q. Are you just talking about one speck? A. One speck; that is what I am talking about.

Q. And for that one speck you take off 25c? A. Yes.

Q. How does that speck get on there? A. The orchid secretes a nectar, as a sugar. That sugar is sticky. A little fleck of coal dust may contact that and our grader may or may not take that off. It depends on the area. Sometimes it does not come off successfully, but that is a rare case.

Q. Now, let us see what that means. Are you telling me that your orchids are so well trained that, with those specks flying around your greenhouses, each orchid will only take on one speck. That is your story, is it? That is what it sounds like to me. A. No, sir, but if there is only one speck of nectar, that would be only one place for it to make contact.

Q. So only one speck of nectar or only one speck of dirt, which? A. There has to be a sticky surface to get the speck.

Q. Of course there has to be, and sometimes, I am suggesting that sticky surface on one bloom will catch five specks. What do you say? A. It could be possible.

20

Q. And are you telling the Court that a \$5 orchid with five specks on it, that you only take a quarter off and sell it for \$4.75? A. But, sir, this is not a common case.

Q. I didn't ask you common or rare. You made the statement that when these blooms are specked we sell them for 25c less, and I may tell you I am instructed by Mr. Walker that when his blooms are specked he only gets about half price for his orchids, \$2.50. Are you going to tell us that with a fine speck of dust on a delicate orchid bloom, you only take off 25c? If you do, just say so and we will pass on. A. Sir, I am talking about a very minute speck now. If we happen to have penetration by, say, a beetle —

30

Q. Well, do you have such things? A. Yes, sir.

Q. Well, then what? A. That flower is sold — that No. 1 normal worth \$5, is sold for 75c.

Q. Exactly. You didn't tell us anything about that in chief, did you? A. We were talking about soot.

40

Q. Well, perhaps your counsel didn't ask you, but you were trying to help the Court with the view that, in your experience, when you, and I am dealing with yourself for the moment, that the dirt you get in your greenhouses but which causes no deterioration of any kind, that that involves knocking off more than 25c? That is not true, is it? A. I am talking about some bloom injury. If anything happens that injures it, it is immediately put in group No. 2.

Q. Never mind that. Fumes and deposits of smoke do get into your place, or whatever it is, and will sometimes lodge themselves, because you have told us they will make you sell a plant for 75c. Isn't that true? A. We don't sell the plant, just the flower.

Q. For 75c? A. That is a very rare case, sir.

Q. Well, is it? A. It is true in rare cases, yes, sir.

Q. All right. I want to refer you to Exhibit No. 43 which has been put in by Mr. McAlpine. who has had a wide experience in orchids and is a chemist and he has analyzed some of the stuff that lodges in the Walker place on the roof, and iron, as iron oxide, is as high as 43% in Exhibit No. 43, and another analysis from the Walker place, iron as iron oxide is as high as 45.4%. If you had that sort of deposit at your place, do you suggest to this
10 Court that it would not create a serious injury? A. Sir, I am not a plant physiologist, and we would consult our plant physiologist in that case.

Q. I should hope you would. Now then, you do some washing in there at times when dirt gets on, you said in chief this morning, for seven or eight days in the warm weather, and so on, in the summer accumulates dust and stuff and we wash our plants. Is that right? A. Are you referring to the glass surface or to plants?

Q. I am referring to the plants. A. Yes, sir.

20 Q. And how do you wash them? A. By spraying overhead with the hose.

Q. And that applies to other plants as well as orchids? A. I imagine so, sir, but I am an orchid specialist.

Q. Well, never mind that. Don't you know, from 14 years there, and don't you know whether they wash other plants? A. Yes, sir, it is common sense.

Q. They do, then, do they? A. Yes, sir.

30 Q. All right. And I think you used the word — and I was rather pleased with it this morning — you said the big nuisance that we get comes from our own stacks. Do you remember saying that? A. Yes, sir.

Q. That is the big nuisance you get. And the nuisance that comes in and derogates from the flowers and causes the washing, what is it that causes the washing of flowers in your place? A. It is so frequently, sir, that the grower — may I explain the grading system?

40 Q. Yes, if you have to, but if you can tell me the cause, we won't bother about the detail. A. As the grader examines a flower to classify it in the various grades, if he sees a speck of dirt, he just places it and puts it in the slot —

Q. Now, you tell me about the washing. A. We never wash the flowers. I thought you were talking about the greenhouse plants.

Q. Do you ever wash your greenhouse roofs? A. Yes.

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Q. How often? A. That depends entirely upon the weather, sir.

Q. And that is from the nuisance that is caused, do you state, by other plants in the neighbourhood, or is your own stack the main offender again? A. We have other nurseries in our neighbourhood.

Q. Perhaps you don't understand me. You mean nurseries? A. I mean other greenhouse places.

10 Q. Other greenhouse places. Well, what causes the stuff to lodge on the roof of yours, that you wash off when you water the roof? A. We blow our boilers down in the summer time. May I explain this?

Q. Oh, now, now. If you will answer my question first and then I will let you make any explanation you like. What is it you wash off the roof when you wash it? A. We wash off fly-ash, the soot.

20 Q. And where does it come from? A. It comes from our stacks. It comes from our neighbour's stacks throughout the town and from the central railroad, the Lehigh Valley Railroad, the Reading Railroad, and the neighbouring trunk lines.

Q. And you have cat-walks you put the men up on the roof to wash them? A. No, sir, it is not necessary.

Q. How do you wash them? A. In the summer time, unless the accumulation is very heavy, we just simply run the hose over the top of the greenhouses and wash them off.

Q. And did you tell me you had 424,000 feet of glass there? A. 342,000 feet of glass.

Q. How much does it cost you to wash them once? A. I am not prepared to make that statement.

30 Q. Now, if somebody put that stuff on there wrongfully — we will leave aside whether it was the railways seven-eighths of a mile away, or somebody else put it on there wrongfully, that would be costing you a lot of money in the year, wouldn't it, if you were going to wash it off, as regards being out ten miles from nowhere, where you didn't have any neighbours who caused a nuisance to you? A. Sir, may I —

40 Q. Perhaps my question is too involved. It costs you a lot of money to wash off that nuisance periodically that other people lodge on you, according to your story? A. By the same token, if we have a light coat of shade on our greenhouses and we do get a little fly-ash and we need another coat, we don't have to put that second coat on, so the fly-ash may be a little bit beneficial.

Q. Well, let us take one thing at a time. What does it cost you to wash your 432,000 feet of glass? A. As long as it takes a man to just run down the side of the house with the hose.

Q. Well, how many miles does it run? A. We have more than one man.

Q. Of course you do. You have an army. What does it cost you, or can't you tell me? A. That is such a negligible factor, sir, we don't bother with that from an accounting standpoint.

Q. How many men do you employ? A. We have approximately fifty in the orchid department.

Q. And they all get out as washers. How long does it take to wash this total greenhouse, once over? A. With the house in mind, you are talking about the brush operation?

Q. I am talking about any kind of washing. A. I thought you were talking about midsummer washing.

Q. Well, I will extend that, if I may. You take any wash you do, any time of the year. There are people who throw stuff on from the outside without any right to do it — perhaps you call it a nuisance. Take any time of the year, washing with the brush, washing, when you wash, 342,000 feet with your fifty men, what does that cost you? A. That is a very expensive proposition, but that has to be done regardless of the nuisance. That has to be done as a cultural practice in any greenhouse. We have another greenhouse in Ohio where we have very little fly-ash and we spend just as many hours taking that off as we do in Boundbrook.

Q. Now, what is that very serious material that you wash off with fifty men, 342,000 feet? How does that get there? A. That material is put on by our own spraying rigs, as a protection for the plants.

Q. Yes, but I am speaking then of other material that comes from the outside. You do not suggest it only comes in the summer time, do you? That is the real stuff — if there be real stuff, or the Calco stuff, and I am not suggesting they only run the engines in the summer. You see my point now? A. Yes.

Q. I am going to put it to you frankly and then I will leave it, because as I see it, you come here to tell us that these outside things, while they are a nuisance, they don't cost you money to operate.

HIS LORDSHIP: To be fair to the witness, I think, Mr. Slaght, he said their chief nuisance came from their own plant. It was fly-ash from their own plant that gave them the chief trouble. He did not suggest there was anything very serious from these other outside places, as I recollect.

THE WITNESS: That is correct, sir. There might be different ones, but I am not saying that.

HIS LORDSHIP: He was not putting it that there was really anything that he could say that there was any interference with their business that came from outside plants.

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MR. SLAGHT: Oh, well, then, my lord, I will depart from my procedure, if the witness tells us that. His lordship then has put it correctly, that you are not saying there is any serious interference from these faraway outside places? A. No, sir, not in major importance, compared to our home stacks.

Q. The home stack is practically the whole thing, isn't it?

A. Well, with the exception of a south wind when we have the freight trains passing by with the south wind.

10 Q. Oh, a freight train passing by. Then, we will pass, Mr. Erickson, to one other branch of your evidence. By the way, Young & Company, they are a corporation with corporate shares?

A. Yes, sir.

Q. Are you a shareholder? A. No, sir.

Q. I am instructed that, for many years, they had so much trouble running their big business that they did not pay any dividends. Do you know anything about that? A. Sir, that is a statement that I am not prepared to statistically defend, but our company has been in good standing, even through the depression.

20 Q. Even through the depression? A. We have not made much money, but there was only one or two years that we went under to a slight degree.

Q. Well, then, I won't press that with you. Now, it has been sworn in this case, mind you, as late as yesterday, that these injuries that you saw on the orchid plants show to you are burns, and you told my friend this morning that you are not a chemist but they might come from three or four different causes. Do you remember saying that? A. Yes, sir.

30 Q. I put it to you, you are not prepared to say to this Court they did not come from burns? What do you say? A. That is correct, sir. I am not a plant physiologist or a chemist.

G. Quite so. You wanted to be fair with us. Now then, a word about light in the main and barring the sunlight in the hot weather, when the sunlight is inclined to be creating too much heat inside a greenhouse and it does, doesn't it, sometimes, if you don't shade it off? A. Yes, sir; it has to be shaded off.

Q. And I am going to suggest this to you that, when you shade the sunlight off, the primary purpose is to prevent it raising the temperature inside the greenhouse? That is the primary purpose of shading it off, isn't it? A. Basically, yes.

40 Q. And that, during the winter months and during the spring and fall months and even in the summer, sunlight is an important factor for orchids and other plants to have in order to thrive and to grow? A. Yes, sir.

Q. A very important factor, I would like to put, — what do you say? A. Yes, sir.

Q. And therefore if outside substances, — let us take the example, some iron rust is spewed over the roof of your greenhouses in the winter, or our greenhouses here, and shuts out the sunlight to a substantial extent, we are not getting the best conditions inside to grow our plants, are we? A. To what candle would it come down?

10 Q. To what candle? Well, I think I can help you on that. I think the spectrum gentleman, — first, before I show you this, what do you say the cut-down of sunlight in the cold winter would need, or could be before it became injurious? My theory is, I may tell you frankly, if you cut it all off in the winter time, you are injuring your conditions of growth. What do you say? Would you permit a man to cut down your sunlight and still feel your growth was not injured, inside? A. Sir, during the winter months, the plant is either dormant or semi-dormant, there is not much growth taking place.

20 Q. Do you mean it doesn't need the sunlight? A. It needs sunlight, but not full intensity.

Q. Well, you have told me that. And assuming that somebody cuts it down a bit, are you prepared to give the percentage that you could sufficiently let him cut you down without feeling it did impair your chances of proper culture on your plants? A. We have raised orchids for a number of years with a deposit of fly-ash on the top of our greenhouses during the winter months, without washing it off, and where we have newly re-glassed a house, even in the middle of the winter, we occasionally have to put a coat of Solar Shade on top of that house.

30 Q. How far away is your plant from St. Catharines—some five or six hundred miles? A. Our plant is 30 miles south of New York City.

Q. Then, we cannot put it into miles. That would be 500 miles, I would suggest, probably? A. Yes, sir.

Q. To travel up here takes 12 hours to come up, doesn't it? A. Yes, sir.

40 Q. Then, you don't know anything about the relative climatic conditions between the St. Catharines climate and your climate down there? A. Only from what I observed on the trees. The trees are further advanced than I thought they would be, by my observations here.

Q. Then supposing the sunlight was cut off in the winter time to the extent of 50% of the natural sunshine that would go through the glass in the winter time, are you prepared to swear

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that that would not be injurious up here? A. Since I did not have a good observation of a complete cycle in this type of climate, I would not be prepared to state anything on it.

HIS LORDSHIP: Well, take down in your own greenhouses. If some one that had nothing to do with your plant, placed a substance on the roof of your greenhouse that cut off the sunlight to the extent of 50%, would you take kindly to it and say, "That is quite all right. That is going to do us good." A. No, we would attempt to wash it off and increase our light intensity. It would not be ideal.

10

Q. Well, I just want to get your practical view.

MR. SLAGHT: Your lordship was far more successful in getting a practical answer than I was.

HIS LORDSHIP: Well, after all, Mr. Slaght, we have to reduce this trial to practical things before we are through.

MR. SLAGHT: I agree, my lord, and I want to try and do that. Now, your little visit to the plant was made on Monday? A. Yes, sir.

20

Q. Monday last, that would be the 25th of April. Who arranged it for you and how long before you went there? How long before you went did you arrange with some of the officials of the defendant company that you would be making the visit? A. I arrived on the train in the morning. I knew nothing about the visit, sir, and I was just put in an automobile and I went over there. I knew nothing about the situation. In fact, sir, I never heard of the McKinnon Company till I was told I was coming up here.

Q. But our friends expected you here and expected you on that train? A. Oh, certainly.

30

Q. Met you, perhaps? A. Yes.

Q. Met you at the train and whisked you over to the plant. What time did you get to the McKinnon plant, — I mean to look around? You might have had lunch or something. What time did you start to look around there? A. I don't want to state that to the minute, sir, but I would say it was around two o'clock.

Q. In the afternoon? A. Yes.

Q. And did you go to the forge shop around that time? A. Yes, sir. We went to the —

40

Q. The forge house is where the hammers are? A. Yes, the forge house first, and then we went to the cupolas.

Q. And, in the forge house, you saw some hammers working? A. Yes, sir.

Q. Do you know how many, or don't you? A. All I remember, sir, is two hammers that were, at that time, were pounding.

Q. And do you know, by the way, the different weights of those hammers there? A. Yes, sir. I believe I was told that, but I don't want to be quoted.

Q. Well, I suggest to you when you were there there was the 3,000 pound hammer working, that is the big one was working. That is the biggest hammer you saw working. What do you say? A. Yes, sir, I believe that is correct.

Q. And they told you so? A. Yes, sir.

10 Q. Did you know they had a 5,000 pound hammer that they didn't work for you? A. That I don't want to comment on, sir, because when I was there it looked as if everything was in operation.

Q. Then all right. Then, while you were inside the forge shop, you of course felt a serious vibration from the big hammers there? A. Not so much vibration as thud.

Q. Wasn't it rather a bang, bang, bang? A. Yes.

Q. And first, when you went outside, on the sidewalk outside, you could still feel the effects of the thud? A. Yes, sir.

20 Q. And you went all the way around the Walker green-houses, and all the way around there you still felt, perhaps let us say to a degree, the constant thud of the 3,000 pound hammer? A. That would be correct, sir.

Q. And you didn't go in? A. No, sir.

Q. And you didn't look in to see whether the pots were slipping? A. No, sir. I was entirely on the sidewalk and on the street.

Q. Now, let me have the little potting machine by which you fill the pots. What is the circumference you put this pot on? A. Six inches in diameter.

30 Q. I see you have got a nice looking young lady in this picture. She is apparently operating that machine. What do you call it, a patter machine? A. No, that is a pneumatic potting machine.

Q. And what is the diameter of that machine that pats down the six inch diameter flower pot? A. The diameter of the machine?

Q. Yes. A. Approximately three inches across on top.

Q. And then how thick is the little weight at the end of it? A. Approximately one inch.

40 Q. So we have a base of metal three inches in diameter by one inch thick that is being pressed down on to the fibre? A. Well, sir, that is at 40 to 60 pounds per square inch.

Q. All right; 40 to 60 pounds per square inch and it is being pressed down on the fibre there.

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HIS LORDSHIP: I don't understand the process. You say it is three inches in diameter? A. We are talking about the cylinder.

Q. Well, but the part that comes in contact with the earth?

A. That is the stick.

Q. That is the stick? A. Yes.

Q. Then how wide is it across the bottom? A. About one inch. It is tapering off.

10 Q. It is tapering off to an inch. I think Mr. Slaght was getting a distorted idea of the process.

MR. SLAGHT: Oh, well —

HIS LORDSHIP: Exhibit 108B shows the instrument.

MR. SLAGHT: Perhaps I did not look at the proper exhibit. Oh, well, then, it is not as big a surface as three inches in diameter by one inch thick that really comes in contact with the patting business? A. No; just like a one inch chisel that comes down.

Q. And you don't do that in the greenhouses. You have a potting house? A. Well, the potting house is usually part of the greenhouse.

20 Q. What, each greenhouse has a potting house as part of it? A. On our west side we have one, two, three — three out of four sheds all on the east side; we have one out of three that were.

Q. Well, then, in the potting house itself — A. The others are adjacent, sir.

Q. Well, I don't know whether they are adjacent or not, but anyway, let us see what you are trying to tell us now about the comparison here. Somebody has to carry the pots from the greenhouse into the end of it, or where the little potting house is? A. That is right.

30 Q. What is it, about 10 by 6, the potting house? A. The potting house, some of them range — 50 by 12 is the usual size. They are all different sizes.

Q. Well, different sizes, to which you carry these pots with the orchids in them, and then the fibre is loaded in them in the potting houses, the contents of the pot? A. The first process is to take the plant and the pot. We take the plant out of the pot and cut away the old compost and the old roots. Then we put it into a new pot, set in our peat for a starter, and then we start working the machine, and the faster your foot goes the faster that stick goes down.

40 Q. All right. Now, where are the waiting pots that are to be treated? You have just told me you take the old one out and you fill the new one. What do you do when you tamp that down? Your men carry it away to the greenhouse again. That is true? A. Well, usually they stay there. It would be usual to go every

two or three minutes into the greenhouse where we only — we have two or three in there lined up and all ready, and then the boys carry them away and put them to where they are to mature.

Q. Well, where is that? A. Well, that may be in a house adjacent, or on a bench, or somewhere near there.

Q. Anyway, they don't stay very long in the potting house, or do they? A. No, sir.

Q. A day? A. Usually a full day; sometimes not a day.

Q. So that a day would be the most that a plant would stay there? A. That is right.

Q. And do you think that is comparable to our greenhouses where these heavy steel hammers, with pistons and steam practically all the year around, and we are told, I think, that they go about eight or nine shifts a day as a rule, these heavy hammers, and that forge, close to our beds and our plants and our roots, all the year around, or 300 days a year of continuous vibration when the big hammer is working. Now, do you think there is any reasonable comparison, Mr. Erickson, insofar as the probability of injury to the plant is concerned in those two processes and if you say, "Yes," I will not ask you another question about it. I will judge your answer then. What do you say? A. May I just forget the vibration?

Q. No, I won't forget the vibration, if you please. I would like you to answer my question and then you can make any addition you like. I cannot forget the vibration. That is the root of our trouble in that respect. Please answer my question. A. Sir, I am not equipped to make a statement on vibration, because I am confused with motion.

Q. Yes, but you have made statements here on vibration. A. Thinking in terms of motion, sir.

Q. All right, think in any terms you like. Let us use vibration and motion. I ask you, and then we will leave this, do you think it is fair to suggest to the Court there is any real comparison and the possibility of injury to plants from the one day at most the little potting thing we have seen and 300 times a year vibration caused by the big hammers that you felt yourself? A. The facts are self evident, sir.

Q. That is, you agree with me it is not a fair comparison?

A. I have to, yes, sir.

Q. Well, I thank you. I think you have tried to be fair with us.

HIS LORDSHIP: Then, may I ask one further question. Are you in a position to say whether or not the vibration created by this steam hammer in operation would or would not do injury to orchid plants?

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MR. SLAGHT: May I ask him to bear in mind, of course, my lord, that it goes for a continuous period?

HIS LORDSHIP: I say continuous vibration — well, two shifts a day.

MR. SLAGHT: Sometimes only one.

HIS LORDSHIP: One shift a day or two shifts a day, whichever it may be, for 300 days in the year. Are you in a position to give an opinion as to whether it would or would not do injury?

A. Basing it only on one observation that I made a test, may I have your permission, sir, to explain this test?

Q. All I am asking you is, are you in a position to give an opinion? A. Only on motion; not on vibration, sir.

Q. Well, I am talking about the problem I have got, not another problem. If you are not in a position to give an opinion, no one is criticizing you. After all, you are called as a witness here trying to help me arrive at a sound conclusion. You are not here for the purpose of advancing the cause of one side or the other. That is as I regard an expert witness. He is not called to advance one side or the other, but merely to help me, and I am merely asking you can you help me on that problem? A. Theoretically, sir, only by theory, I would say only minor damage, if any, would be caused.

Q. Well, what do you mean by "theoretically, only by theory"? I am asking from any experience you have had, are you in a position to give me a sound opinion as to whether it would or would not damage the plants, that is, with the more or less constant vibration? A. No, sir, I am not equipped.

Q. Well, then, that is all right.

MR. SLAGHT: Then, I shall leave that point. Now, I am nearly through, Mr. Erickson. Oh, you spoke about injury might be done to plants, to my friend this morning, to greenhouse plants by over-watering them, that it can be detrimental. Do you remember saying that? A. Yes, sir.

Q. And that under-watering can be detrimental? A. Yes, sir.

Q. Do you know of any instances of over-watering or under-watering by Mr. Walker or his associates, in our greenhouses?

A. I have never seen any of Mr. Walker's plants, with one exception those in his show window down in his shop, if that is his shop. That is the only plants I have ever seen.

Q. You put forward over-watering and under-watering as a possible cause for injury. I want to see if you come here to tell the Court if you have any right to say that that is the cause of injury in our greenhouses, from over-watering or under-watering? A. No, sir. That could be one of the causes, but I am not stating that it is in your greenhouses, no, sir.

Q. Thank you. Now then, just on your truck on your own place, although perhaps I don't need to go into this. When you truck your roots across the city, or a distance of how long in minutes in the truck would they get the little jolting, greenhouse to greenhouse? A. That is not a conventional truck. That is just a little hand truck, steel body, hard rubber wheels on it. You go from the east side to the west side; travel about 2,000 feet.

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Q. Well, how many minutes are they in the truck? That is what I want to get at. A. They may be in the truck, say, 15
10 minutes, but the roots are sometimes damaged.

Q. Yes, and you put it this morning and it surprised me, but I took it down, in this 15 minute process, "We do great damage to the plants in trucking." Do you want to take that back? A. No, sir. We do do great damage.

Q. And to the roots of orchids? Is that right? A. Yes, sir, externally, not internally.

Q. All right; externally the roots are damaged, and how are they damaged? A. When you take the pots and put them inside of a truck and the pots rub aside one another, there is friction and
20 that is how the roots are cut, or they may be damaged as the man pulls it out. We could not run commercially if we did not have these quick purposes.

Q. And that vibration is such, or the rubbing is that, while it isn't a nuisance, it is something you say you create yourselves — I am surprised — but it is damage to your product? A. Only to the roots.

Q. Well, are you telling this Court that when you do great damage to the roots of orchids, that you are helping the orchids to grow, or that you are even leaving them with a normal chance?
30 A. Yes, sir. These roots are only a fractional amount. We don't deliberately bruise them up. If one root is jutting outside a pot and it accidentally gets bruised, that plant is not going to die, sir.

Q. Well, is it going to be injured if it gets bruised? A. The root itself.

Q. Will be injured? A. But it will show no sign in the plant.

Q. Then, is it your story that an orchid plant with an injured root is just as good an orchid plant as one with a root that is free from injury? A. Externally, not internally. External
40 roots, if they are injured, I have not seen it proved that it does any harm. Internally, yes.

Q. Have you a theory why it harms the plant if the internal root is not injured and the external roots are injured? Forget that question for a moment. We have heard in this case that the external roots are tenacious in clinging to other substances. Is that right? A. Well, that is partly true.

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Q. And that even they go down to and cling to the edge of the pot? A. No, sir.

Q. They don't? A. Not always. In some cases, yes; in most cases, no. I have pictures, sir, if you want to see them.

Q. Well, we have had evidence on that and when they cling to the pot and to other external objects, they feed? A. Sir, there was a great controversy — now, you mentioned before that my training was inadequate in the agricultural schools, and —

10 Q. Don't bother with that. First, if you can say "yes" or "no" to that, try and do it. Do they feed? I think that was admitted. We have had evidence that they do feed, — that they have not the hairy sections like lots of flowers have, but cling to these places; they feed in extraordinary places. Is that true? A. That is partly true, yes.

Q. Well, if they feed, what becomes of the food they take in? It is for no other purpose than to create vigour and strength to the orchid plant, isn't it? A. No, but, sir, may I be allowed to explain the structural roots?

20 Q. Isn't that the purpose of the food, the sugar and starch they try to get? A. Sir, I would like to have somebody more capable of explaining these — plant physiology.

Q. All right. I will put it in another way to you and it will serve my purpose. It has been sworn that they do feed in that continuous clinging of those plants, and store up sugar and starches also, and also a reserve in the sugar and starching process. Will you deny that statement? A. Can I explain just the problem we have.

30 Q. I would rather ask you whether you can deny that statement. You have admitted the feeding. What is the food taken into them for? A. Basically to produce a good plant.

Q. And then you are telling me that a root that is injured on it, for instance it is scuffed part way across so that it is half way cut in two — I am putting that as an example in saying that is sworn to, and that they can take in food below that scuff on the pot and take in food below, and as it is basically taking the food to make a better plant in the pot, that that is not an injury, that that is not deleterious to the plant as a whole?

MR. KEOGH: I did not hear the witness say anything about any cutting.

40 MR. SLAGHT: He swore there are hundreds of roots inside the pot and maybe one root outside the pot and it is just like the arm of a man. You lose one arm and you are not going to lose the battle. Are you telling me there are hundreds of roots, in all of six inches in diameter? A. Yes, sir. There is a huge clump, sir.

Q. Then, as your one soldier is injured, does it have some effect, or are you going to say it does not have any? A. I am not going to say it does not have any. That is a problem for a plant physiologist, sir.

Q. You have told me that before. All right, Mr. Erickson.

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RE-EXAMINED BY MR. KEOGH:

10 Q. A few questions arising out of my friend's cross-examination. You have offered my friend a photograph showing that the external roots do not cling to the outside of the pot. He did not ask to see it.

MR. SLAGHT: Then he altered that by saying in some cases.

HIS LORDSHIP: What is this for?

MR. KEOGH: Showing the external roots do not cling to the outside.

HIS LORDSHIP: Of course if you have a photograph with roots on the one hand clinging, it doesn't mean that that is the practice. I do not see that we glean anything by that.

20 MR. KEOGH: No, but he said generally they did not cling to the outside of the pot and he says, "I have a photograph showing that it does not."

HIS LORDSHIP: That does not show it is general. That shows this, that you have some one who says that all men in Canada are black. Just a picture of one black man doesn't verify it.

30 MR. KEOGH: Q. Then, you made the statement to my friend that there was a great controversy in connection with whether the external or aerial roots did something or other and you were not given an opportunity to explain that. Would you just tell me what you meant by this great controversy? A. The internal roots are formed — form a basic foundation of a plant inside the compost and we might be able to say that the roots which come out on the side are just a little extra. Some varieties do send out many of these roots, but some varieties of hybrids that we have never send out more than one or two roots on the external side, so if we damage one or two of these roots outside, a physiologist perhaps could prove that for commercial purposes it is not detrimental.

Q. In other words, the main feeding is done by the internal roots inside the pots? A. Yes, sir.

40 HIS LORDSHIP: I think the evidence by one witness was that it is only with the purpose so far as the internal roots are concerned principally to anchor the plant and that the main feeding was done by the external roots. Are you in a position to say anything one way or the other about that? A. That does not seem apparent in 200,000 Cattlaias at Boundbrook.

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MR. KEOGH: Your experience at Boundbrook has been the opposite of what his lordship has quoted as the other witness saying? Is that right?

HIS LORDSHIP: Why do you say that it is not apparent? I want you to say why it is not apparent. A. Because we have damaged many of these external roots and we have never had any commercial disaster from it.

MR. KEOGH: Q. And have you, on occasions, cut off masses of external roots when you are re-potting them? A. Yes, in seedlings, we have wired the benches and these roots extend down sometimes quite a distance and we have to sever them off or else we could never remove them from the bench as they are locked in.

Q. And you have cut off several without any apparent damage to the plant when you were re-potting? A. Yes, sir. That is the only way we can re-pot them.

Q. Then, you told my friend you saw an orchid plant in the window of Mr. Walker's store this morning, so I am wondering if there was anything special about that, or if you mentioned it for any special reason, or if there was not, I don't want to know.

20

A. It seemed to be a normal plant. It may have been imported, I cannot say, but, from my observations it had been a Mossie and was producing after it had been imported one or two years, I cannot say.

Q. It looked like a normal plant? A. Yes.

Q. When you are saying Mossie? A. Cattlaia Mossie; a nice specimen plant.

—Witness excused.

HIS LORDSHIP: We will take ten minutes recess.

—Intermission.

30

ERIC LONGHURST, sworn,

EXAMINED BY MR. KEOGH:

Q. Mr. Longhurst, what is your occupation? A. I am an electrician, sir.

Q. Employed at the McKinnon Industries Limited, St. Catharines? A. That is right, sir.

Q. And for how long have you been so employed? A. Approximately 15 years.

Q. Then, in the early part, perhaps in the early stages — I am leading a little, subject to my friend's objection.

HIS LORDSHIP: Yes.

40

MR. KEOGH: Q. In the early part of November, 1944, were you instructed by your plant engineer, Mr. McAuley, to assist Dr. Morris Katz in the operation of certain test instruments?

A. I was.

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Q. And were those instruments set up in a small building known as the test house on the Canadian Warren Pink property?

A. They were.

Q. And is that test house located on the south side of Carlton Street, opposite the most southerly of Mr. Walker's greenhouses?

A. That is right, sir.

Q. And what would be approximately, the distance that that test house is south of the most southerly of Mr. Walker's greenhouses? A. I would say approximately 150 feet.

10 Q. Then, did Dr. Katz instruct you as to the nature and operation of that equipment set up in that test house? A. He did.

Q. And with the exception of a few months in the summer and early fall of 1948, who were the only people who had keys to that test house, and who had access to it? A. Dr. Katz and myself.

20 Q. And what was the reason for the exception in the summer and fall of 1948? What others had access to it? A. During that time we grew chrysanthemums and an employee of Mr. Dunn's was present during the daylight there, at the day time shift, and during the night the McKinnon plant protection men were on duty.

Q. That is the plant police were on duty at night? A. Yes, sir.

Q. And that was during the strike, was it? A. Yes.

Q. I should have asked you, this test house is surrounded by a high wire fence? A. That is right.

Q. The gate of which is usually kept locked? A. That is right.

30 Q. And there is a lock on the door of the test house itself? A. That is correct.

Q. And between the enclosure, — between the test house and the high wire fence there was an experimental plot? A. That is right.

Q. And it was in that plot where you were, or you were growing chrysanthemums? When I say "you" I mean you and Mr. Dunn and his employees, last fall? A. That is right.

40 Q. And, with the exception of you and Mr. Dunn and the plant police at night, during the fall months of the fall of 1948 you and Dr. Katz were the only ones who had access to this equipment in the test house? A. That is correct.

Q. Now, the equipment in the test house on Carlton Street went into operation, or commenced to operate, about what date? A. Approximately the 25th of November.

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Q. Of what year? A. Of 1944.

Q. And with the exception of certain minor periods which I will ask you about later, how long have the test machines and equipment in that house operated since, from the standpoint of continuity? A. They have run continuously with those exceptions until yesterday.

Q. And I believe in the early years they were operated only during the growing season, from May till November? A. That is correct.

10 Q. And then, in later years, they have been operated pretty well continuously, have they? A. Well, since May of 1948 until the present time it has run continuously.

Q. Then, on or about June 14th, 1948, was a similar test house, with similar equipment, put into operation on the premises of Dunn's greenhouses on Queenston Street, St. Catharines? A. That is right, it was.

Q. And was that also under Dr. Katz's instructions? A. Yes.

20 Q. And was that house at Dunn's also under the access, the sole access and custody of you and Dr. Katz, with the exception that a key was left in Mr. Dunn's office for the hydro man to read the meter once a month? A. That is correct.

Q. Outside of that the only keys were the ones you and Dr. Katz had? A. That is right.

Q. And that test house at Dunn's had a lock on the door? A. Yes.

Q. So you and Katz had the keys, but it was not surrounded by any wire enclosure like the one at McKinnon's? A. No, it was not.

30 Q. Now, I hand you a photograph which was taken according to the note on the back, on September 30th, 1946, showing a lot of tubes and a meter and so on which we will explain gradually, but of what is that photograph, what is that a photograph of, generally speaking? A. That is a photograph of the sulphur dioxide detector.

Q. In the test house at McKinnon's? A. That is right.

Q. We had better mark that, perhaps, as an exhibit.

—EXHIBIT No. 110: Photograph of sulphur dioxide detector at McKinnon's.

40 Q. And is that the sulphur dioxide test equipment by which outside air was sucked into this apparatus in the test house? A. That is right.

Q. And the air was sucked in by an electric motor which is connected to a compressor, and which is shown in the lower left corner of that photograph? A. That is right.

Q. And then the meter shown at the lower centre of that photograph Exhibit 110 is to measure the accumulative total flow there through this equipment? A. That is right.

Q. Then, I show you a second photograph taken on the same date, September 30th, 1946. Of what is that a photograph?

A. That is a recorder which records the concentration of sulphur dioxide, or the presence of sulphur dioxide in the air.

Q. And does that recorder run automatically? A. Yes, sir.

Q. And is that the automatic sulphur dioxide record machine which was and still is in the test house at McKinnon's?

A. That is right, sir.

10 —EXHIBIT No. 111: Photograph of sulphur dioxide recording machine.

Q. There is a roll of white paper with perforated edges shown at the bottom of that, — looks like a plat sheet in that photograph. What function, or what is the purpose of that paper in that machine? A. Well, that is the way the permanent record is made and the record travels continuously through the machine, under a pen which records the presence or absence of sulphur dioxide in the air.

Q. There is a pen in the machine which records itself on that record continuously? A. That is right.

20 Q. And the chart, one filling of that roll of that chart lasts approximately how long? A. Approximately two weeks in this machine.

Q. Then, I show you a third photograph, which I am instructed was taken on the same day, and of what is that a photograph? A. This is a photograph of what we call the dust equipment, or the equipment for collecting dust from the air.

Q. And that is also installed in the test house in the vicinity of McKinnon's which you have already described? A. That is right.

30 —EXHIBIT No. 112: Photograph of dust equipment.

Q. I will come back to Exhibit 112 in a minute. There are a couple of things I want to ask you about the recorder shown in Exhibit 111. Up to 1946, what was your procedure as to the removal of the charts from the sulphur dioxide recording machine shown in Exhibit 111? A. I removed them weekly.

Q. And what did you do with them? A. I sent — mailed them to Dr. Katz, in Ottawa.

40 Q. But first of all, when you took them out of the machine what, if anything, did you do? A. Well, daily they are marked and, being marked won't affect them from the mechanical chart and the date and time. Several times a day I marked on the chart and they are shipped away.

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Q. And you say periodically you marked data and the time on these charts, and then when you took them out of the machine you mailed them to Dr. Katz, did you, at Ottawa? A. That is right.

Q. And that was up until some time in 1946? A. I believe that is correct, sir.

Q. And then, from then on I believe you only removed them every two weeks? A. That is right. I removed them as they ran out.

Q. As the roll ran out? A. That is right.

Q. And from there on what was your procedure with these charts in the sulphur dioxide machine? A. In place of sending them to Ottawa as before, we kept them in Mr. McAuley's office.

Q. Mr. McAuley is your plant engineer? A. Yes, sir. We kept them in his office and approximately once each month, Dr. Katz came to St. Catharines and was given the charts and he made his tabulations from them.

Q. Approximately once a month he saw them? A. That is right.

Q. Then, what was the procedure about those charts insofar as the records at Dunn's test house, or down to 1948 was concerned? Was it the same in the two weeks, — the procedure of removal? A. That is right.

Q. And then Dr. Katz seeing them when he came to St. Catharines? A. That is right.

Q. And when you removed each of these rolls from each machine at the end of each two-week period, did you make any entry on the outside of the roll, first of all as to which test house it came from? A. That is right, sir, I did.

Q. And secondly as to the period covered by the roll? A. That is right.

Q. That is when you removed each roll? A. That is right.

Q. And have you a specimen roll to produce, to give us an idea? A. Yes, sir, I have.

Q. Your lordship, we have a box, or I should say boxes of those and I do not propose to bring them to Court, because Dr. Katz has summarized in his tabulations the result of them. They will be here if Mr. Slaughter wants them. We will need a truck to bring them down and they will be here, but I thought to facilitate the procedure I would file one specimen roll as an exhibit and we can have all the original rolls here, if my friend wants them. You have produced and we will mark as Exhibit No. 113, a roll of the charts from the sulphur dioxide machine, which has on it, written in your handwriting — A. That is right, sir.

Q. —these words, "McKinnon Recorder 0.00, December 1st, 1948, to 15.00 December 13, 1948." A. That is right, sir.

Q. And the 00's in the sheet refers to the hours on the clock on a 24-hour basis? A. That is right, sir.

Q. Do you mean 15 o'clock? Pardon me. My friend asks

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me to ask you, by "00," do you mean midnight? A. That is right, sir.

Q. And 15 o'clock would be 3 o'clock in the afternoon following? A. 3 p.m.

Q. And your lordship will notice the red lines on the edge of the chart made by the pen in the machine. Is that right, witness? A. That is right.

MR. SLAGHT: Are these some particular make of machine?

MR. KEOGH: I will ask him.

10 Q. Do you know the name of this sulphur dioxide recording machine? A. No, I do not.

Q. Do you know the name of the sulphur dioxide suction equipment? A. No, I do not.

Q. I think Dr. Katz can give us that.

HIS LORDSHIP: There seems to be notes made on this. Did you make these notes? A. Yes, sir.

Q. For instance, there is "Cell 1 and Cell 2, 1430, December 1st, 1948." What does that mean? A. There are two conductivity cells in the machine.

20 MR. KEOGH: I don't think your lordship will understand—

HIS LORDSHIP: Mr. Keogh, there is only one witness can speak at once. It is very difficult to keep our record straight if we get more than one person talking at a time. Will you proceed, witness? A. There are two conductivity cells in the detector and you have to distinguish between the two, because from time to time the concentration of sulphuric acid, or sulphur dioxide, rather, in the air are not the same over any given period of time, so that while one records one concentration, the other cell might record something entirely different.

30 Q. Now, I want to make sure I understand you. You started out with this automatic machine? A. That is right, sir.

Q. And the red line is made automatically? A. Right.

Q. The hours are stamped automatically? A. No, they are not. They are on that chart, but we don't use those markings.

MR. KEOGH: He has said already he entered the hours on the chart. A. Those written are actual time markings. That is a universal chart.

40 HIS LORDSHIP: Wait a minute. I want to know so I will understand the chart, that is all. First the red line is the only thing that is automatic? A. Yes, sir.

Q. Well, then, when you take the chart off, or the roll off at the end of the two weeks, do you go along and stamp in these hours? A. No. When I take it off at the end of the two weeks, I mark the time when this chart or this curve terminates. Then we have the time that the chart was taken off, but we know and we can explain, sir, the fact that all these markings represent a half an hour approximately, and you can tell what time these indications took place by the different marks.

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Q. Oh, well, I want to know how much of this is calculation and how much is an authentic record, a mechanical record. We start off, then, with the red line as the only mechanical record?

A. That is right.

Q. Well, then, when you took this roll off, what did you do? What marks did you start in to make on it? A. I did not start in to make any marks, except to mark the time of day when I went to the test house, and those are my markings on there.

10 Q. Then, this mark you have put on, Cell No. 2 and Cell No. 1, 8, December 1st, 1948, was written in by you? A. That is right.

Q. And that you did some time after December 15th, was it? A. No. I go to the test house and I mark — the pen is at that point when I mark that time on it.

Q. Oh, I see. Some time you visit the test house then? A. I do that periodically.

Q. And you write this in? A. That is right.

20 Q. Well, I am getting that far. And what do the arrows mean? A. That means that this curve from here to here is a representation of what happens.

Q. The curve that is from 12 noon, is it? A. Well, no, those markings do not mean anything. We can disregard those markings.

Q. Well, it is marked and, so that I can identify it on the record, the mark to the right hand side, the red mark to the right hand side of the word "Cell No. 2", is a recording from Cell No. 2?

A. That is right, sir.

Q. And to the left hand side from Cell No. 1? A. That is right.

30 Q. Now, you are going to explain the significance of that — what you mean by that? A. Well, the machine being automatic, it changes from one cell to another periodically every half hour so that we have a record of Cell No. 2 from this point to this point. Then, the recorder switches over automatically and records the conductivity of Cell No. 1.

40 Q. And you said something about the cells might vary. What did you mean by that? A. By that I mean the result that we get from what is going on in the cell varies. In other words, the concentrations of sulphur dioxide in the air are not constant, so that for this half hour we may have a fumigation of a certain concentration. Then we switch over to Cell No. 1 and have a fumigation — may reduce or increase as the case may be, and we have a record of it then.

Q. Well, just take in this case, this cell. Is there anything to indicate what these lines mean, Cell No. 1 had got down to the third square from the top, the third distinct square from the top? A. I beg pardon, sir, but Cell No. 1 had increased to that point.

Q. Well, all right; it had increased to that point. I said down. A. Yes.

Q. All right. It had increased to that. Well, then, when it switched over to Cell No. 2, why would that not carry on from there? Why wouldn't Cell No. 2 go up and then come back gradually? A. That is because the cells are filled with a solution of known resistance or conductants and with the known resistance that cell starts at that point on the scale and if anything happens to change the resistance or the conductants of that solution, the curve immediately begins to move up the scale.

10 Q. Well, then, would the colour of this depend on the condition of the fluid in the cell? A. That is fixed.

Q. I say would the colour — A. No.

Q. When you say it is fixed, if the fluid was put in the cell— what do you mean by "it is fixed"? A. Do you mean if it were an improper mixture, an improper solution put in there?

Q. Yes. A. Oh, yes, then it would change.

Q. So that the colour of this would depend on the condition of the fluid in the cell being correct? A. That is correct.

20 Q. Yes. I rather gathered that. Well then, you were going to tell me about these marks that show this "6 p.m., 8 p.m." and so on. How are those stamped on? A. Those are stamped on by the manufacturer of the chart.

Q. Oh, I see. Those are on when it is put in? A. Yes.

Q. But you put on in lead pencil the hours and you did that by some form of calculation? A. That is done when the tables are made and the data is gathered from this chart. These markings are then put on.

30 Q. What do you mean by that? A. Well, we take this roll of chart and certain readings which we gather from the machine, and we have to make a table, take the data, in other words, from this, and arrive at the sulphur dioxide content in the air and, to do that, we have a continual record, so we have to know what time this took place or that took place.

Q. And you calculate that by taking about half an hour to move one square? A. Yes, sir.

Q. And you know, when you change the roll, you have a record of that? A. Yes, sir.

40 Q. So you start out with that as the data and the hour that you change the roll, and then you calculate the half hour per square? A. That is right, but you don't take the whole roll for these calculations, because you do have the actual time markings on here at eight and fourteen, thirty, and progressively along.

Q. Is that when you would call to inspect it? A. That is right, sir.

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Q. You would call to inspect it and write on the time you were there? A. That is right.

Q. And how was it that, in each case, there appears that there is a change over from one cell to another when you call?

A. I marked those purposely when I called so that we will know which is which of those two cells.

Q. Well, if you were not there when the change over took place, how would you know? A. Well, it happens there are only two cells. You can start out at any point one, then you can work progressively along the chart. You can tell whether it is Cell 1 or 2.

MR. KEOGH: I think what his lordship means is, if you get there and they are not actually changed over, do you wait until they are changed over? A. I have to.

Q. That is your practice? A. Yes, that is right.

HIS LORDSHIP: Q. Do you know when they are changed over — what time? A. Yes, actually I have to stay there till they do change over to measure the flow through them.

Q. Then there is a note here, "9 December 3rd, flow reduced to one to .0 cubic feet per second aspiration." What does that mean? A. That is an order I received from Dr. Katz to reduce the flow through the machine, and that I did.

Q. What do you mean by reducing the flow through the machine? A. The flow of air drawn in from the outside through those cells.

Q. You can regulate that, too? A. That is right, sir.

Q. Now, is there anything else of that sort that you should tell us so that we may understand this? A. Well, I cannot think of anything. Of course, I am willing to answer any questions that may be put, but I acted actually under orders. I could not offer any suggestions about anything else right now.

MR. KEOGH: I have a number of questions to ask him, my lord.

HIS LORDSHIP: He said he acted under orders.

MR. KEOGH: Q. You took your instructions, generally speaking, in connection with all the details covered by that test house, from whom? A. From Dr. Katz.

Q. Now, will you just hold up Exhibit No. 110, the photograph? That photograph I suggest you hold up in such a way that perhaps his lordship can see it, shows you a tube or column containing mercury, I believe, immediately above the electro motor in the lower left hand corner. Is that right? A. That is right, sir.

Q. Then, on each side of a flask or bottle which is shown in the centre of the photograph, are two thick glass tubes. What are they called? A. Those are called the conductivity cells.

Q. And those are the cells that you spoke of to his lordship just now? A. That is right, sir.

Q. And then to the right of these cells is a thin glass tube connected with some bottle, and is that known as the water manometer column? A. That is right.

10 Q. Then, various details are shown on the face of the air-flow meter at the bottom of the photograph? A. That is right.

Q. And they measure, I am instructed, not only the accumulative airflow, but also the airflow for each aspiration of the two conductivity cells? Is that right? A. That could be, yes.

Q. And you have to look closely at the photograph, but there is a number appearing on each conductivity cell. Is that right? A. That is right.

Q. One of them being No. 1 and the other No. 2? A. That is right.

20 Q. And can you tell us whether the one to the right is No. 1 or No. 2? A. The one to the right of the photograph is No. 1.

Q. So that the one to the left is No. 2? A. Yes.

Q. Now, while one of these conductivity cells is filled with this solution that you mentioned to his lordship and which I will explain in a minute, and the air is being drawn through it in what is called an aspiration, the other cell is emptying or partly emptying? Is that right? A. That is right.

30 Q. And the performance of that being that while one cell is being aspirated or the air being drawn through it, the other is being emptied or refilled with a fresh solution in readiness to receive the air in its turn, so that the operation as between the two cells, the passage of air is continuous into one cell and bubbling through the solution and then, by the time that is finished, the other one is emptied and refilled with a fresh solution and then the air being switched over can pass through the other side? A. That is right.

Q. And that goes on alternately all the time?

HIS LORDSHIP: I thought there were certain times that there was a switch-over from one to the other and you marked them on the roll.

40 MR. KEOGH: That is the needle in the recorder, my lord. That is a separate part of the equipment. This equipment, each of these conductivity cells is connected by an electric wire to the automatic recorder shown in Exhibit 111.

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HIS LORDSHIP: Oh, I see. The recorder is recording one cell for a period of time and then it switches over and records another cell? A. Yes.

Q. Yes, I understand.

MR. KEOGH: Yes, and the needle, as you told his lordship, takes a little jump at the time of the change-over, from Cell No. 1 to Cell No. 2, and vice versa? A. That is right.

Q. Now then, I want you to explain the dust collecting equipment shown in 112. If you will hold that up. That equipment consisted in the first instance of a copper pipe leading from the outside into the test house? A. Yes, sir.

Q. And which pipe is not shown, but would be at the top of that photograph, Exhibit 112. Is that right? A. That is right, sir.

Q. And then, connected to that pipe is a brass, originally was a glass bowl containing glass wool, or cotton wool — that was the first year? A. And silica gel.

Q. A glass bowl behind the copper pipe leading in from the outside, containing glass or cotton wool and silica gel? A. That is right.

Q. And that was for the first year approximately? A. Approximately, yes.

Q. And then after the first year, that glass bowl was replaced by the brass ring containing filter paper? A. That is right.

Q. And behind the filter paper is a lucite tube, containing silica gel? A. And the wool.

Q. Now, none of these things are shown in that photograph Exhibit No. 112, they are all up above, but, then, coming down, the pipe continues on down as the machine in the photograph shows, through the meter towards the bottom of the photograph, which measures the amount of the flow of air? A. That is right.

Q. And then, outside air is sucked into and through that equipment shown in Exhibit 112, by a pump which is operated by the motor shown at the left bottom of the photograph? A. That is right.

Q. Then, during the first year that the dust collecting equipment was operated, my instructions are that you removed the glass bowl containing the wool and the silica gel once a week and sealed it, the ends on it, and mailed them to Dr. Katz, in Ottawa? A. That is right.

Q. After the first year you received instructions from Dr. Katz to substitute the brass ring and the filter paper and the lucite tube, instead of the bowl containing the silica gel? A. Yes, that is right.

Q. And from that time on, what did you do with the filter papers and the tubes of silica gel which you removed from the McKinnon test house, and, in 1948, from the Dunn test house?

A. They were removed several times a day and taken to the McKinnon laboratory for analysis.

Q. And they were analyzed in the McKinnon's laboratory, that is the filter paper and the silica gel, and then you received this analysis, did you, from Mr. Gaukroger, or some one at the McKinnon laboratory? A. That is right. I received a type-

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written copy from him.
Q. And you got the typewritten copy of that analysis probably two or three days after the day you submitted it? A. That is right.

MR. SLAGHT: He used the expression, "they were removed."

MR. KEOGH: Q. Well, you removed them personally and took them over to the company's laboratory? A. Yes, sir.

Q. Then personally received the analysis for each filter paper and the silica gel from Gawkroger and you kept those analysis until when? A. Until the arrival of Dr. Katz.

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Q. And then, as you have told us, held them about one month or so and then you submitted those analyses to them? A. That is right, sir.

Q. And you removed the filter paper and the silica gel from the McKinnon test house from the dust collecting equipment in the McKinnon test house, how many times a day? A. For the first year approximately three times a day.

Q. At what times in the day? A. Roughly 7.30 a.m., 11.30 a.m., and 3.30 p.m.

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Q. And then, after the first year, how often did you remove those things from the McKinnon test house? A. Well, as a matter of fact, I should say really that I did until we started the test house at Dunn's.

Q. You kept up that procedure until you started the test house at Dunn's, which you have told me, I think, started about June 14th, 1948? A. That is right.

Q. Then, you had two test houses to look after from then on? A. That is right.

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Q. And what change in the hours for the removal of the filter and the silica gel took place then? A. Well, at McKinnon's they were removed and at Dunn's they were removed at approximately 7.30 a.m. and 3.30 p.m.

Q. In other words, those would be the times when you removed them from the McKinnon test house and then it would take you how many minutes to drive over to Dunn's to remove it from there? A. About 10 to 15 minutes.

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Q. Those would be the right times; at McKinnon's, 7.30 and 3.30? A. Yes.

Q. And then did you attend, say, 15 minutes later, or the length of time it took you to drive down to Dunn's on Queenston Street? A. Actually that is not true. I took one out of Dunn's at 7.15, one at McKinnon's at 7.30. I took that out again at 3.00 o'clock at McKinnon's and 4.00 o'clock at Dunn's.

Q. 7.15 at Dunn's and 7.30 at McKinnon's in the morning, and 4.00 o'clock and 4.30, was it? A. 3.30 and 4.00, approximately, in the afternoon.

Q. 3.30 at Dunn's? A. I beg pardon; 3.00 o'clock at McKinnon's and 3.30 at Dunn's.

Q. Then, did you run that dust collecting equipment at the McKinnon test house while the strike was on last year? A. No, sir, we did not.

Q. With that exception, has the dust collector equipment at McKinnon's been operated continuously since it was first set up? A. Yes, sir, I would say it has.

20 HIS LORDSHIP: Q. Is there any reason why you didn't run it while the strike was on? A. Yes, sir. We didn't have the facilities of the McKinnon laboratories for analysis.

Q. And you cut off getting samples? A. Well, the samples come from the laboratory and go to it, and we didn't have access to the laboratory.

Q. What do you mean, "the samples come from it"? A. What I mean by that, the filter paper and the silica gel we used, they come from the laboratory.

MR. KEOGH: But the plant was picketed nearly all the time? A. Yes, that is right.

30 Q. But you did run the sulphur dioxide equipment all through the strike? A. Yes.

Q. Both at McKinnon's and at Dunn's? A. Yes.

Q. But you discontinued the dust collecting at each one? A. That is right.

Q. Now then, you have a sample sheet, I believe, of certain other observations which you made each time you visited each test house? A. That is right, sir.

Q. Which you wrote down at the time? A. Yes, I have.

40 Q. Will you produce that sample sheet on ruled paper, which I want marked as an exhibit, and then I want to have the witness explain to your lordship what he did in respect of each column on it, and what they mean. You have attached to this another sheet headed "Dust meter"? A. I have given you the actual sulphur dioxide and dust data.

HIS LORDSHIP: Better put them in as separate exhibits.
 MR. KEOGH: Yes. We will deal with the sulphur dioxide first.

—EXHIBIT No. 114: Sample sheet of notations made by Longhurst showing sulphur dioxide machine recordings.

Q. Now, on Exhibit 114, there are several columns and, taking them in order, when you go to the McKinnon test house you made notes on this ruled sheet of paper, Exhibit 114, did you?

A. That is right.

10 Q. And that is at the regular times that you visited, that you have already told us? A. That is right.

Q. And the first column represents the temperature reading of the barometer which is located in the test house, does it? A. I believe the first column is the date.

Q. I beg pardon, yes. There is a date in the first column.

MR. SLAGHT: You have not got a spare copy of that, have you?

MR. KEOGH: No, I don't think so. I don't think you kept a spare one of this?

20 THE WITNESS: No, I have not.

MR. KEOGH: Q. The second column, then, is the temperature reading of the barometer?

HIS LORDSHIP: No, the second column is the date, the third column is the weather, and the fourth column is the temperature.

MR. KEOGH: Then, the fourth column is the temperature reading on the barometer, you having entered these other particulars of the date and the time and the weather, as his lordship has said, and you then took the reading from the barometer which is located in the test house? A. Yes, that is right.

30 Q. And you enter that in the fourth column? A. That is right.

Q. Then, the next column is a number of the conductivity cell, which is then being aspirated or bubbled through? A. Yes. As a matter of fact in that column both conductivity cells are readings for both of them, and in the next column, but we had to take them one at a time.

Q. Yes, because they are alternative. There is one and then two, and they function alternatively? A. Yes.

40 Q. Then, the next column is the height of the mercury which you observed from looking at the U-shaped mercury column, that you have already spoken of? A. Yes.

HIS LORDSHIP: What does that indicate? A. That indicates the suction of the system indicated by the pressure. It has a graduated scale.

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MR. KEOGH: And that is shown in one of the exhibits filed.

MR. SLAGHT: The suction of what? A. On the complete system.

MR. KEOGH: It is hard to see, but it is on the front of the pressure tank in Exhibit 110. It looks like a thermometer in the distance, but it is really a U-tube of mercury with a graduated scale? A. That is right, sir.

Q. And then you next take an observation of the height of the water in the water manometer column? A. That is right, sir.

HIS LORDSHIP: What is that figure? A. That indicates —

HIS LORDSHIP: There is a heading to that. There is no difficulty. It says "C.M. of water."

MR. SLAGHT: All right, my lord.

THE WITNESS: Centimeters of water.

HIS LORDSHIP: I would like to ask the witness what does that indicate.

MR. KEOGH: Yes, what does the height of water in the column indicate? A. That indicates the suction and incoming lines and its purpose is to indicate any leaks that might occur in the machine itself if we change its level. That is a safety feature, so we know whether or not the sucking was inside the house. It is all coming in through the glass intake tubes.

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HIS LORDSHIP: Why, for instance, on Cell No. 2 would it show 16 and on Cell No. 1, 9? A. That is due to the fact it is connected from glass tubes and they have a constriction, and the constriction is not the same in both tubes. The constriction would be a little different in the size of Cell No. 2 than of Cell No. 1, hence the different reading.

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MR. SLAGHT: The tubes are a different size?

THE WITNESS: By which this manometer is connected to the suction system.

MR. KEOGH: Then, the next taken observation from the manometer is the volume in cubic feet of the airflow during the time that particular conductivity cell which was then operating was being aspirated? A. That is right.

Q. And you enter that in? A. That is right.

Q. And then you take an observation from the air meter of the cumulative airflow to date up to that time? A. That is right.

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Q. And you enter that into the next column on Exhibit 114. And then you take the reading of the difference between the cumulative airflow and the previous cumulative airflow reading from the time of your last visit? A. That is right.

HIS LORDSHIP: I do not see that on here. There is the meter reading in cubic feet and that is followed by the cumulative total, but I do not see anything that shows — A. The next col-

umn would indicate that this is the cumulative total cubic feet passed through that meter in a certain period — during a certain period of time.

MR. KEOGH: Can you show his lordship any entry you make on that Exhibit 114 of the difference between the cumulative airflow at that visit and the time of your previous visit? A. Yes, I could, sir.

10 Q. Would you mind putting your finger on it? A. This is the reading taken at nine o'clock on December 2nd. I read the meter. This reading was taken December 1st, 1430. That was my last visit. That is the afternoon visit, that is the morning visit. I read the meter in the afternoon and I read the meter the following morning. The difference between those two readings was 640 cubic feet, indicated here; the period covered was from 1430 December 1st, until nine o'clock on December 2nd.

HIS LORDSHIP: Yes. I see. Well, the cumulative total is the difference? A. Of the meter readings between the two visits.

Q. I see.

20 MR. KEOGH: Q. Then, I believe you also make a note of the period covered since the last reading of the barometric pressure shown at that time on the barometer? A. That is right.

HIS LORDSHIP: Where is that? A. In the next column; here is the barometer readings, temperature and pressure.

HIS LORDSHIP: Well, the next column is the date. A. No, that is part of the period covered. In other words, for this 190 cubic feet shown there. Then we go on and read the temperature and the barometer and the pressure.

Q. Now then, we are coming to the last few columns of Exhibit 114, which relate to the dust collector? A. Yes.

30 Q. And in that, as you say, you read the mercury again? A. That is right.

Q. Now, the mercury meter is attached to the dust collector apparatus? A. That is right.

Q. And you put that in the next column? A. That is right, after the date and the time.

Q. And then you take an observation of the air, the volume in cubic feet for a ten minute period, as shown by the airflow meter attached to the dust collector? A. Yes.

40 Q. And you make that entry in the next column? A. Yes, that is right.

Q. I think I have covered all the columns, but I think I had better ask the witness, — have I covered all the columns on Exhibit 114? A. I believe that you have, sir.

Q. Now then, about the middle of December, 1944, under the supervision and direction of Dr. Katz, did you install on the roof of the McKinnon power house building certain wind recording instruments? A. I did, sir.

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Q. And where did those wind instruments come from?
A. They came from the Dominion Meteorological Office in Toronto.

Q. And they were expressed to Dr. Katz, care of McKinnon's? A. That is right.

Q. I will explain the machine in detail in a minute. There were two of these machines, were there, which you installed under Dr. Katz's supervision? A. Yes, sir.

Q. And is one called an anamovane? A. That is right.

Q. And where did you install that? A. On the roof of the coal hoist, adjoining the power house.

Q. And that would be how many feet south of the test house at McKinnon's, that you have already spoken of—approximately?

A. I wouldn't know. I would have to guess. If I am allowed to guess, I could do that.

Q. Well, we can get the exact measurements from some one else, but it would be in the neighbourhood of three or four hundred feet? A. Yes, I would say.

20 Q. And is it pretty well due south of the test house? A. A little southeast of the test house.

Q. And that was an anamovane, you said? A. Yes.

Q. Then, the second machine which you installed was an anamograph? A. That is right.

Q. And that was connected by an electric wire to the anamovane, on the roof? A. That is right.

Q. And where was the anamograph installed? A. In the electrical shop, which was located in the power house of the plant.

30 Q. And does the anamograph make continuous automatic charted records, showing the direction and velocity of the wind during each 24 hour period? A. It does.

Q. And will you produce one of those charts as a sample?
A. (Produced.)

—EXHIBIT No. 115: Sample of anamograph chart.

Q. And the only entries on that, witness, are the date and the fact that it is McKinnon Industries. Everything else is made by the machine. Is that right? A. That is right.

HIS LORDSHIP: Q. Well, how do you read this graph? How do you interpret it? A. Well, there are pens which draw this continuous line.

40 Q. No, just interpret it as it is. A. Well, in other words, that is a southwest wind blowing at a certain velocity, so many miles per hour for any given hour.

Q. What tells you it is southwest? A. That is what I was going to tell you. The pens draw those little marks below that solid line for south, above and on top of the line for north, and the bottom line east and west, so if these little ticks are going below the line, they indicate the wind direction was in there.

Q. Well, that is simple.

MR. KEOGH: My friend wanted the date of that. The date of this specimen happens to be from December 7th, 1948, to December 8th, 1948? A. That is right; 8.00 a.m. in both cases.

Q. And you have preserved all of those charts? You have them in boxes, the same as the other records? A. That is right, sir.

10 Q. Now, I want to just take your procedure about the charts from the anamovane. At about what time did you remove the daily chart from the anamograph? A. Approximately 8.00 a.m.

MR. SLAGHT: Now, pardon me. I thought you were going to ask him about the anamovane, and then you used the word "graph."

MR. KEOGH: Well, there are two. The vane is up on the roof and it is connected by an electric wire to the graph.

MR. SLAGHT: I know, but it was the use of words there. You said you were going to take him over to the anamovane and then you asked him about the anamograph.

20 MR. KEOGH: Oh, well, if I did, I made a mistake. I am talking now about the anamograph, the recording instrument. About what time each day did you remove the 24 hour chart from the anamograph? A. Approximately 8.00 a.m.

Q. And have I asked you yet where the anamograph was installed? A. Yes, you did.

Q. And I think you told me it was connected by an electric wire with the anamovane? A. That is right.

Q. And at about 8.00 a.m. each day you went to the anamograph in the office of the power house and removed the daily chart? A. That is right.

30 Q. And then you wrote the date on the top of it, as appears on this sample, Exhibit 115, and then you put a new blank chart in it at that time, did you? A. Yes, that is right.

Q. And then, after you removed these charts, you took them over to your office, did you, in the McKinnon Industries? A. Yes. They were kept in the same office as the rest of the records.

Q. And that is an office shared by you and the plant engineer, Mr. McAuley? A. Well, that is hardly true. I work for Mr. McAuley. I do not share his office.

40 Q. Well, for the purpose of these experiments, you shared his office. I know you don't sit there all the time. A. Yes, that is right.

Q. Then, you made a tabulation, did you, of these charts, in a binder, which you kept? A. Yes, sir.

Q. And have you got that binder? A. I have.

—EXHIBIT No. 116: Binder containing charts.

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Q. And you made these tabulations or entries of what the chart showed in this binder, Exhibit 116, how often, from the anamograph charts? A. Well, they might accumulate for two or three days, or possibly a week, and then I would take them all and bring them up to date.

Q. You were not alone a week with any of them? A. Oh, no.

Q. And it was usually two or three days? A. That is right, sir.

Q. And then, are the tabulations that you compiled in that binder, Exhibit 116, from the charts of the anamograph, true and correct and complete tabulations, according to the anamograph charts? A. Yes, sir, to the best of my interpretation from the chart.

Q. Well, I mean, you did not do anything to them or take anything away? You put it down exactly as those charts showed? A. That is right, sir.

HIS LORDSHIP: Have you any summary of that?

MR. KEOGH: Dr. Katz, I believe, will have a summary and another witness will have some graphs, my lord, summarizing them in graph form.

HIS LORDSHIP: You said you entered them to the best of your interpretation. What do you mean by that? A. Well, by that, I mean that you have to look at the chart and figure the average way — I don't have to, but what we have done is figure the average wind velocity for a given period of time, or, in other words, the time in which the prevailing wind was in any one direction.

MR. SLAGHT: I am sorry. May I have him repeat that, my lord? I did not catch it. You figured what? A. The average wind velocity in miles per hours for the length of time that the wind blew in any one given direction.

MR. KEOGH: In other words, this chart, Exhibit 115, shows certain parts of the recorded line opposite 50 and opposite 40 and opposite 30 and 20 and so on, and you compiled an average from the entries on the chart? A. That is right, sir.

Q. Otherwise the rest of it was just copied from the — A. The directions are copied directly from it.

Q. And then what did you do with this binder or book? To whom did you submit that from time to time? A. That was used by Dr. Katz in the making of his tabulations.

Q. Dr. Katz when he came to St. Catharines was given this binder, Exhibit 116, by you, from time to time? A. That is right, sir.

Q. Now, did you make any other readings or observations for Dr. Katz, or in accordance with his instructions, besides what we have already gone into? I am referring now to the summer season of 1948. A. Yes, I did. I took temperature readings with a ceiling psychrometer.

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Q. And what does that psychrometer consist of? A. It consists of two thermometers, one with a wet bulb and one with a dry bulb; the purpose of which is to give you two different temperatures, from which the relative humidity can be arrived at.

10 Q. And did you compile it, or did you just give the two readings to Dr. Katz and have him compile it? A. That is what I did. I gave the readings to Dr. Katz.

HIS LORDSHIP: Did you only do that in the summer of 1948? A. During the time the chrysanthemums were growing; that is the only time.

Q. I see. Did you only do it in the summer of 1948? A. Well, the summer and fall of 1948.

MR. KEOGH: Q. And you did not, as I understand it, keep any permanent record of those humidity readings during that
20 time? A. Not the humidity readings.

Q. You submitted them to Dr. Katz from time to time when he arrived, but you did not write them down? A. No, I merely submitted the temperature readings. He worked out the humidity.

Q. Oh, yes. There are two, a wet and dry, and that was done principally, I believe, in connection with the special planting of chrysanthemums, which were grown that fall? A. That is right.

Q. Then, did you also make up, under Dr. Katz's instructions, the solution used in the conductivity cells which are shown in the sulphur dioxide record, or suction mechanism, Exhibit 110?
30 A. Yes, I made up that solution.

Q. And is that the solution which is shown in the large glass jar at the top of the photograph, Exhibit 110? A. That is right.

Q. And then it has a connection with the two conductivity cells? A. That is right.

Q. And that solution was a mixture of what? A. Sulphuric acid, distilled water and hydrogen peroxide.

Q. And you made that up into proportions given to you by Dr. Katz? A. That is right, sir.

Q. Then, have you told us now, the correct general descrip-
40 tion of the things which you did in connection with these various tests? A. I would say so.

Q. And did you perform all the operations and make all the notes in connection with all of that, truthfully and correctly? A. I did, sir.

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Q. And were all the charts and records and data and information which you submitted in result of them to Dr. Katz, at all times arising out of all of these tests and observations, wholly and completely true and correct? A. Yes, sir, they were.

Q. Then you have extra copies of these charts and records at the plant, if my friend wants them? A. I have.

Q. Your witness, Mr. Slaght.

HIS LORDSHIP: We will adjourn until to-morrow morning at ten o'clock.

—Whereupon Court adjourned until 10.00 a.m. Thursday, April 28, 1949.

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Thursday, April 28, 1949, 10.00 a.m.

MR. KEOGH: I would ask your lordship's indulgence to ask this witness another two or three questions before my friend proceeds with his cross-examination.

HIS LORDSHIP: Yes.

MR. KEOGH: He produced a form yesterday and I gave it back to him.

HIS LORDSHIP: Oh, yes, Mr. Keogh. I might state for the convenience of counsel and the witnesses, that the Court will rise to-night until Monday morning. We will not sit to-morrow.

MR. KEOGH: Thank you.

THE REGISTRAR: You have already been sworn, Mr. Longhurst. A. I have.

MR. KEOGH: Q. Mr. Longhurst, you produced a form yesterday, which was attached to the yellow sheet, Exhibit 114, and then I separated it and gave it back to you and then I forgot to ask you about this other form. I think it was headed "Dust meter." Will you produce that now, please? A. That is it, sir.

30

Q. And this is another form. This is a column form headed "Dust meter," consisting of two pages, another form of data which was made up by you in connection with the dust equipment in these test houses? A. That is right.

Q. And this is a specimen of that? A. That is right.

Q. And you have the other forms of this kind at your plant in Mr. McAuley's office? A. Yes.

HIS LORDSHIP: What dates does that purport to cover?

40

A. This started with the date November 22nd, 1948, and runs down, a date for each line, the last being December 2nd on the first page and then on the second page it runs from December 2nd, 1948 to December 9th, 1948.

MR. KEOGH: Q. And this is really a continuation of Exhibit 114 as far as the dust equipment is concerned. Is that right? A. That is right.

Q. Shall we mark this "114A," or a separate marking, my lord? You will remember there are two or three columns of 114 that refer to the dust equipment, and this apparently is supplementary to that.

HIS LORDSHIP: Well, this may be 114A.

—EXHIBIT No. 114A: Supplementary report on dust equipment.

MR. KEOGH: Q. Then will you take this form, 114A, and give us a typical entry right across the page for, say, the first date, 10 November 22nd, and tell us what you did and what those entries represent? A. May I start at some later date, because I need two dates?

Q. Yes, take some date on the form so as to explain it. A. To begin with, we marked down the date, the time of day and read the meter which is in connection with the dust equipment shown in one of the pictures, and take that reading and the reading previous, subtract the previous reading from that reading and that gives us the cumulative airflow through the dust trap for a given period of time, which is stated here.

20 Q. And that is put in one of those columns? A. That is right, sir.

Q. And the first heading on that column? A. Yes.

Q. What is the heading? A. "Cumulative total cubic feet."

Q. Then, what is the next column representing? A. The next column represents the time the paper was started, or inserted, and also the time the paper was removed, so that we know the cumulative total cubic feet of air that passed through that paper, the dust trap, rather, for a given period of time.

30 Q. That is the filter paper you told us about yesterday? A. That is right.

Q. And then what is the next column? A. That is all.

Q. And you made the observations represented by that specimen sheet and the other similar sheets that you have in the plant, truly and correctly, and put them down correctly? A. That is right, sir.

Q. Then, just one other question. In the months of December, 1946, January, 1947, February, 1947, and December, 1947, you collected, I believe, certain samples of air at various locations in the forge shop of McKinnon's, in the foundry of McKinnon's, and at the core grinding ovens and core sanding room, and at the gas fired furnaces in department 34, and the cyanide melting pots at the die-casting machines in department 63, and at several other locations in the foundry and forge shop in the McKinnon Industries Limited, for the purpose of submitting them to Mr. Gaukroger for analysis for carbon monoxide gas. Is that right? 40 A. That is correct.

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Q. And did you take those samples properly and correctly, and did you correctly report the times and the locations at which you took them to Mr. Gaukroger, the head of McKinnon's laboratory? A. Yes, I believe I did.

Q. And you delivered those samples in each and every case to him? A. Yes.

Q. And I suppose you delivered them either on the day you took them or on the day after? A. I delivered them immediately after taking them, the same day.

Q. All right. Your witness, Mr. Slaght.

MR. SLAGHT: Well, are you putting them in?

MR. KEOGH: No. It was samples of air, and then the air was analyzed by Mr. Gaukroger, and he will report his analysis.

MR. SLAGHT: Oh, I see. Another gentleman will give us the report?

MR. KEOGH: Yes.

MR. SLAGHT: Oh, thank you. I didn't quite understand.

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CROSS-EXAMINED BY MR. SLAGHT:

Q. Mr. Longhurst, I want you to look at Exhibit 11, which is a plan which shows the Warren Pink and shows your cupolas and the forge shop, and there is marked on it, "Test plot." I want to see if you agree with what Mr. Ure told us about that. Have you seen this before, perhaps? A. No, I don't believe I have.

Q. Well, I will identify it. Here are the Walker greenhouses. Over here is shown your forge shop. Here are the cupolas. Here is the Warren Pink and the surveyor has marked "test plot" a little bit off Carlton Street? A. That is right.

Q. Would that accord with your ideas of where it is? A. I would say that is it, approximately.

30

Q. So that I might put a line — just put my pencil from the forge shop over to your test plot, and would you agree with me that the wind would have to be blowing pretty well from a northwest direction to carry anything from the forge shop to your test plot? A. I would say, sir, it would — closer to due west. Now, there might be some north in it.

Q. From the forge shop? A. That is right.

Q. There might be some north in it, but would you think closer to a due west? A. Yes.

40

Q. Then, from the cupolas — probably you would be right; it would be pretty well due west from the cupolas to the test plot? A. As they are fairly close together, it would be something like that.

Q. And who selected the place to put the test plot? A. That I cannot answer.

Q. Who did you first get instructions from, or did you have anything to do with building the house on it? A. No, sir, the house was there.

Q. And you cannot help me on who made the selection? A. No, sir, I cannot.

Q. All right. Now I think, perhaps, Mr. Longhurst, we can shorten your cross-examination a good deal. If I am correct in my understanding of what you told my friend, you are an electrician? A. That is right, sir.

10 Q. Have you ever handled a job of this type before? A. I have up to a point. I am the instrument man in charge of the electrical recording instruments in McKinnon's.

Q. Then, let me ask you with regard to the solution used in the cells. You were telling us yesterday, as I gather, that there were three ingredients in the liquid used in the cells; sulphuric acid, distilled water and hydrogen peroxide? A. That is right, sir.

Q. Who selected those three ingredients? A. Dt. Katz.

20 Q. You had nothing to do with their selection? A. No, sir, I did not.

Q. And, perhaps, not being a chemist, you don't know the parts they are supposed to play in the job they are supposed to do? A. No, sir, I did not.

Q. You cannot help us on that? A. No, sir.

Q. Then, who did the mixing over a period? A. Of the three ingredients?

Q. Yes. A. I did the mixing.

Q. Throughout the period? A. Yes.

30 Q. Did you ever mix similar ingredients before? A. No, sir, I had not.

Q. Can you tell me the proportions of the three? A. That I used?

Q. Yes. A. Yes, sir, I can.

Q. All right. Sulphuric acid? A. Well, I will have to give them to you relatively. Well, I can tell you the sulphuric acid.

Q. Well, do it any way you like, as long as I get the set-up. You have done the completed mixture with three ingredients and if you can help me as to what the relative proportions are, making the 100, just do that. A. Three litres of distilled water.

40 Q. Well, can we leave the litres out? Are you able to do it in percentages? A. No, sir, I am not.

Q. You have got to give us the detail. All right. Three litres — A. Of distilled water. I added ten C.C.'s of a hundredth normal, that is .01 normal sulphuric acid.

Q. Yes? A. Also one cubic centimeter of 30% hydrogen peroxide.

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Q. And can you give me a rough estimate of what that would be in percentages, or don't you want to? A. No, sir, I cannot.

Q. Well, if you cannot, I don't want to check on it. And you say you got that entirely from Dr. Katz, on his instructions? A. Yes, sir.

10 Q. And may I take it that in everything you did over the period in connection with these machines, and the purported recordings on them, and all you did you did because Dr. Katz told you to do it and not your own initiative? A. Exactly, sir.

Q. Yes. And you have put in Exhibit 114, a sample sheet of other observations. We went over that in detail yesterday, you will recall, with his lordship's help, and I am not going over that again. Am I right in the date I have noted as the date that somebody selected to give a sample to the Court for this white one — that has a date on it? A. Yes, sir.

Q. And is the date December 1st, 1948, to December 13th, Exhibit 114? A. December 1st, 1948, to December 12th.

Q. 1948? A. Yes.

20 HIS LORDSHIP: Just a moment. I want to get those dates, if I can? A. December 1st, 1948, to December 12th, 1948.

Q. Yes.

MR. SLAGHT: Q. Who selected the sample for you to expose to the Court? A. I selected the sample.

Q. Did you show it to Dr. Katz? A. I don't believe I did, no.

Q. Now, then, 114A, which we made this morning — what dates does that cover on the dust? A. November 22nd, 1948.

30 Q. Oh, yes, we had those. I need not take you over them again. There are two pages and you gave the dates on the separate pages. Did you select that sample? A. Yes, sir.

Q. Now, did I understand that these two graphs that you put in are samples of similar graphs that you have over the entire period? A. That is right, sir.

Q. Are they here, because I would be interested specially in some of them and not so much in others and I want to know if for other witnesses you have got them here lodged, so that I may readily, perhaps with your help or somebody, pick out those I need from the other ones.

40 MR. KEOGH: I could have had them here yesterday if my friend had mentioned it. I could have had them here. They involve boxes and boxes and boxes. It would take a carload to bring them down.

MR. SLAGHT: Well, when Dr. Katz takes the box, I shall want them.

HIS LORDSHIP: Well, they will have to be available so that counsel may have any samples he wishes for the purposes of cross-examination, whatever difficulties may be involved.

MR. KEOGH: May I say, my lord —

HIS LORDSHIP: Just a moment till I get through. Whatever difficulties are involved will have to be overcome, because we cannot limit the right to cross-examination by difficulties in preparation that you may have in presenting your case.

10 MR. KEOGH: Quite so. I do not want to go into the trouble of bringing them down and burdening the Registrar with them until my friend told me he actually wanted them. If he says he wants them, I will have them down here this afternoon.

HIS LORDSHIP: You won't need to file them all in Court, but if counsel desires the graph for any particular date, you will have to have it.

MR. SLAGHT: I will facilitate that, my lord.

MR. KEOGH: I hope he doesn't want us to bring them all.

HIS LORDSHIP: You don't need to file them all in Court, but if you have them available —

20 MR. KEOGH: I will put them at that work.

HIS LORDSHIP: That will suffice.

MR. SLAGHT: Unless my friend is not calling Dr. Katz.

MR. KEOGH: I expect to call him some time to-day.

HIS LORDSHIP: Mr. Slaght may not reach Dr. Katz's cross-examination to-day.

MR. KEOGH: I don't think he will.

30 MR. SLAGHT: I will facilitate my friend in every way so that we do not burden the Registrar of the Court with boxes of documents. I will be selecting some of them. I cannot give my friend those selections for the moment.

Q. And when these do come, I take it we will find them all kept in your handwriting? A. Yes, sir, the dates marked thereon will be in my handwriting.

Q. Well, is there anything marked thereon that is not in your handwriting? A. There will be possibly sometimes a mark of Dr. Katz's, when he made his tabulations.

Q. I see. But the original records on them will all be yours?

A. Yes, sir, they will.

Q. None of those will be Dr. Katz's original recordings?

40 A. No.

Q. But he may have marked some analyses on them?

A. No, there are no markings of that kind on them.

Q. Now, from whom do we get the net result over the period? Are you able to tell me that? A. No, sir.

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Q. Are you able to give me the averages or net results? We have got three or four years' charts and so on, and I have not heard anything except on this sample, that will give me any sort of summary of what you found. You are not in a position to do that? A. No, sir, I am not.

MR. KEOGH: Dr. Katz will do that.

MR. SLAGHT: Well, I rather anticipated that, but I didn't want to miss it, if it were here. You don't know anything about the building, that is, about building this test house? A. No, sir.

Q. There was a test plot alongside the test building. Did you do any gardening there? A. No. I had nothing to do with the gardening.

Q. Did you observe the progress of the test plants that were planted from time to time? A. I saw flowers there, yes, sir.

Q. And we have had photographs here. Let me have two or three, Exhibits 34 and 35, I think.

THE REGISTRAR: Exhibit 35 is the scrap pile. It must be some other number, Mr. Slaght.

MR. FERGUSON: Exhibits 29, 30 and 24.

20

MR. SLAGHT: Q. Did you see the gladioli beds at times? A. Yes, sir.

Q. Will you take a look at that photo. I don't suppose you have seen it before? A. No, I don't believe I have.

Q. It is Exhibit 24 in this case. Just take rather a good look at it. It was put in and sworn to as a photograph of your test plot planted with gladioli over there. What do you say as to whether you saw conditions like that? A. I believe that I saw this. I would say that I saw those flowers planted there, yes.

30

Q. No, but, I mean, can you tell me whether you think that is a fair photograph of what you have seen from time to time, or at times? A. Well, sir, I would say that is a photograph. I am not —

Q. That is all I am asking you. Then I am going to show you another one. There is some good looking fellow in there. I think it was Mr. Thomas. This is Exhibit No. 29. Take a good look at that. Those flowers are gladioli. Do you think you saw them when they were something like that? In other words, would that be a fair photograph of what you observed a little later on? A. Yes, I would say that is.

40

Q. That is a fair photograph. Now then, did you have anything to do with ripping them up a day or two after we photographed them? A. No, sir.

Q. Do you know who did? A. No, I do not.

Q. You do know they were ripped up? A. Well, now, I wouldn't say that. They were removed after a certain length of time, yes. I will say that they disappeared from there.

Q. Who removed them? A. I don't know.

Q. Do you know the date? A. No, sir, I do not.

Q. Well, we have that. Take a look and see if Exhibit 30 looks like the plot after they were removed? A. Yes, I would think so.

Q. A fair photograph? A. Yes.

Q. Oh, why did you discontinue the experiments during the strike? A. And, by that, do you mean the dust experiments?

10 Q. Whatever you discontinued. First, tell me what did you discontinue? A. We discontinued the dust.

Q. And the strike, we are told, was from some early in July, about the 12th or 13th of July to the 2nd of November. Would that accord with your idea? A. That would be approximately right.

Q. 1948. And why did you discontinue taking dust records during the strike? A. Because we didn't have the facilities of the McKinnon laboratories.

20 Q. Oh, yes, perhaps you told us that. You could not get in the lab., so you could not take records. You could have taken the records and preserved them? A. No, we could not. We had to get the equipment from which we made the test, from the lab.

HIS LORDSHIP: What equipment? A. The silica gel, the glass wool and the filter papers.

Q. Well, would that not have been available another place than in the McKinnon lab.? A. No, sir, excepting, for one reason. These, — I know, while it is not my job, these things are weighed from very delicate scales, and perhaps they were not available, — I don't know.

30 Q. Well, then, I want to understand just what it is you got from the laboratory. You got the silica gel? A. That is right.

Q. And what else? A. The glass wool and the filter paper.

Q. Now, what it is that is weighed on the delicate scales? A. The filter paper.

Q. The filter paper? A. That is right, sir.

Q. And did the weighing of it have anything to do with the result that would be obtained? A. I would say so, but I didn't do the analysis, so I would rather some one else would answer that question.

Q. All right.

40 MR. SLAGHT: Q. You have been in the forge shop? A. Yes, sir.

Q. Been there when the 5,000 pound hammer was working?

A. I don't know — the 5,000 pound hammer.

Q. Well, when the very heavy hammers were working?

A. Yes, sir.

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Q. Felt the tremor? A. Yes.

Q. You have been over near the Walker place? A. No, I have not. I have been over at our own test house, but I have never been there.

Q. Well, at your own test house, did you feel the tremors?

A. I have, sir.

Q. And then you have been around there for a period of two or three years. It has been sworn in this case that volumes of smoke at times came out of the cupolas, the McKinnon cupolas, and, when the wind was in that direction, the smoke would carry it over the Walker greenhouses. You have seen that in a general way, I take it? A. Yes, I have.

Q. And smelled the oil when the oily smoke — you have been in the forge shop? A. Yes, sir.

Q. You know they turn on taps of oil there for fuel? A. Yes, sir, I do.

20

Q. And the forge shop being closer — 450 feet away — there is approximately, and may I take it you have seen heavy fumes from the forge shop when the wind is blowing our way, passing over the Walker greenhouses? A. Yes, I have.

Q. That is all, thank you.

HIS LORDSHIP: Any re-examination?

MR. KEOGH: No, my lord, no re-examination.

HIS LORDSHIP: There is a question or two I want to ask of you to elucidate something for me. See if I can get to understand your wind records. Looking at Exhibit 115, you told me, I think, that there was an automatic pen that made these little purple marks? A. Yes, sir.

30

Q. And does it, at the same time, draw the horizontal purple line? A. That is right.

Q. Now, if the wind is in the north, the vertical lines would all be above the horizontal lines? A. That is right.

Q. In the space marked "N"? A. That is right.

Q. Then, in the lower section, there is east and west, and if the wind was directly from the north there would be no marks opposite the southeast or west spaces? A. That is right.

40

Q. And then, on this sample, we have a series of marks for a portion of the 24 hours opposite the letter "S", and a series opposite the letter "W" and some at the same time, although not so long, opposite the "E". What does that all mean? A. That meant that at that particular time —

Q. Just take that from eight to nine o'clock and interpret that for me. A. That is a southwest wind and the reason for these little marks is that the pen drags along the paper and it fluctuates to give you that little mark and when it returns to the horizontal, it over-shows a little bit.

Q. Why wouldn't the upper one over-show? A. Well, you will find it does, if the wind —

Q. It doesn't on this one. A. No, it doesn't on this one, but actually the pen adjustments would have something to do with it; it would be if you had all the charts here. You see those little marks are there, too, particularly if the velocity is such that you are getting these marks rapidly.

Q. Well, we have got almost velocity nil here on one, and still they show above the line at eleven o'clock on the 8th. That is almost nil. A. Don't you agree with me, though, sir, they are a little more prominent here?

Q. Yes, but on one line they are not there at all and on the other one they are. There may be an explanation for it, but if you don't know why — A. Well, it is a characteristic of the machine, the recorder.

Q. I see. Well, supposing during the period of the 24 hours there were changes. Do you record that? A. Yes, sir.

Q. And then take — I am just trying to interpret your record, for December 7th, 1948, along with the sheet. Now, on December 7th from 12.00 midnight to — you take that up, to — does that start at 12.00 midnight or 12.00 noon? A. 12.00 midnight.

Q. Well, this sheet starts at 8.00 o'clock in the morning? A. Yes, sir.

Q. Yes, I see. Then from 8.00 until 9.00? A. 24 — that would be midnight, sir.

Q. 8.00 o'clock in the morning until midnight? A. No, that is 8.30 p.m. until midnight.

Q. 8.30 until midnight of the 7th? A. Yes.

Q. But you start at 8.00 a.m.? A. That is right.

Q. Well, I want to get a starting point the same as yours, if I can. There is not one, is there? A. Not on that particular sheet.

Q. Well, how do you make your record as of December 7th? How do you make your record in your book from midnight on December 7th until 8.30 p.m.? A. Well, sir, there is another chart preceding this. As soon as we change the charts at 8.00 o'clock in the morning from zero of that day until 8.00 o'clock is on another chart. Then, from 8.00 until midnight is on this chart and from zero of the following day, or midnight until 8.00 on the following day.

Q. Well, why don't you make the record according to the charts? A. I do make them according to the charts.

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Q. I know, but starting at 8.00 a.m. I suppose you make yours for a complete day? A. Yes, that is right.

Q. Yes, I see. Well, I want to again, if I can, relate your entry in the book to this chart. You show there up until 8.00 o'clock, or 8.30, it was a southwest wind? A. That is right.

Q. Now, that is 8.30 p.m.? A. That is right.

Q. And then you show it as a west wind from 8.30 until midnight? A. That is right.

Q. I see. Well, supposing the wind varies during your period of recording, do you take the average? A. No, sir. Every change in direction is recorded there. For instance, if you go on to the 8th, where the balance of this chart is, you will see that from midnight to 3.00 is west.

Q. Yes, I see. A. And then from 3.00 to 4.00,, southwest.

Q. Yes. A. And from 4.00 till 7.30 approximately — there were two little ticks there, but to 7.30, which is the closest line to our first indication, from 4.00 till 7.30 it is west, and from 7.30 till roughly 8.00 o'clock southwest. Then, of course, I take the chart following this, and 7.30 would go on to 9.00, do you see?

20

HIS LORDSHIP: Yes, I follow it now. That is quite clear. It might be better if we had a number of these charts, Mr. Keogh, filed as an example.

MR. KEOGH: I will have them up here this afternoon.

HIS LORDSHIP: Oh, we don't need them all.

MR. KEOGH: As a matter of fact, I could give you a week right now.

HIS LORDSHIP: Well, if you would give us a week now, I think that would serve your purpose of being able to follow how it is done. Is this a week at about the same time?

30

THE WITNESS: This is approximately the same time as the yellow sheet which I gave you, so you can plan them together.

Q. Well, the ones you are giving me here, to start on December 6th — A. No, I believe the original is at the bottom, starts at the first, or the 7th, or the 8th.

HIS LORDSHIP: November 30th.

MR. SLAGHT: Are those daily records you are giving to his lordship? A. Yes, sir.

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HIS LORDSHIP: Well, then, this will be Exhibit No. 115, and it consists of eight sheets commencing November 30th, 1948, to December 8th, 1948. Well, thank you. A. Is that all, sir?

Q. That is all. A. Thank you.

—EXHIBIT No. 115: Weekly chart wind graph (8 sheets).

—Witness excused.

REGINALD WILLIAMS, sworn,

EXAMINED BY MR. KEOGH:

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Q. Mr. Williams, your present position is what? A. Superintendent of Foundries for the Canadian Westinghouse, Hamilton.

Q. And you were at one time with McKinnon's, I believe? A. Yes, that is correct.

Q. Over what period? A. From February, 1941, to October, 1945.

10 Q. And your duties at McKinnon's — your title at the McKinnon Industries was what? A. Assistant General Metallurgist when I left. During my time there I served in several capacities. I was chief chemist.

Q. And you were assistant chief metallurgist when you left? A. That is right.

Q. And is that your profession — metallurgy? A. Yes. I had previously been a metallurgist for the Steel Company of Canada in Hamilton for three years. I graduated from McMaster University in 1936, in science.

20 Q. You got your B.A. degree in science, I understand? A. That is correct.

Q. And you took the science chemical course there? A. That is right. I majored in chemistry.

Q. And do you belong to any professional or scientific association? A. A member of the Canadian Institute of Chemistry at that time. I dropped it last year because I am no longer in chemistry.

30 Q. Up till last year you had been a member of the Canadian Institute of Chemistry and now that you are more on the foundry end of the business, you dropped it last year? A. Yes. I am more in supervision now and I don't require it. Also, at that time, I was registrar in the Technical Bureau of Personnel at Ottawa, on the registry of engineers and technical men during wartime.

Q. That is while you were at McKinnon's? A. That is correct.

40 Q. Then, I believe as assistant chief metallurgist at McKinnon's, you had certain tests made in the month of June, 1945, of the water-wash, first of all, of the cupola gases before and after they left the scrubbers or water cones, and secondly of the water in the water-wash system which circulated through those water cones. Is that right? A. That is correct.

Q. Then, have you your analysis or report of your analysis that you made at that time in front of you, or a copy of it? A. Yes, sir.

Q. And the date of it is what? A. June 4th, 1945.

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Q. And perhaps I had better show it to your lordship and my friend. This was a report which you made to Mr. McAuley, the plant engineer, which gives certain figures at the top and, as I understand, is an analysis of the cupola gas, and then the rest of it an analysis and the water scrubber system? A. Yes. I might sum it by saying —

Q. Just a moment till his lordship sees it.

HIS LORDSHIP: Well, I think it would be convenient to have it filed in its present form. Have you a copy?

MR. KEOGH: I have not a copy of that one, but I have a copy of the others.

HIS LORDSHIP: Well, very well, show it to Mr. Slaght.

—EXHIBIT No. 117: Report of analysis dated June 4th, 1945.

MR. SLAGHT: I wonder if I might ask the witness, — this document you have handed in bears date June 4th, 1945. When was it prepared? A. How do you mean, when was it prepared? When was the work done?

Q. No, when was the report prepared? A. On that date.

20 Q. And the work was done when? A. There are two dates there; a little later.

Q. Well, perhaps that is sufficient. A. May 23rd and 24th.

Q. I didn't want to interrupt at present. I will cross-examine on it.

MR. KEOGH: It shows right in it the dates.

MR. SLAGHT: All right.

HIS LORDSHIP: Now, what is it? How would you describe it? A. It is headed "Laboratory Report, Water-wash —"

30 Q. I know, but a report on what? A. I would say it involves the effect of the gases when dissolved in the water-wash system.

Q. No, no. What is this document. Is it the analysis?
A. It is a laboratory report.

Q. I know it is a laboratory report, but does it show the result of an analysis of air taken at certain places, or does it of the water shown at certain places? I want to get a description of it so I will know what to call for if I want it again. A. It is the cupola water-wash tower analysis and the gas analysis before and after the water-wash.

40 HIS LORDSHIP: Now, does this report show an analysis of the gas in the cupolas before the water-wash and after the water-wash? A. Yes.

Q. And shows all the constituent parts of the gas? A. It shows the gas, carbon monoxide and carbon dioxide.

Q. You see we are gradually getting to what it is. If it is an analysis of gas, it would show all the constituent parts of the gas. If it is a report showing the carbon monoxide in the gas, that is a different thing altogether. Now, I do not want to be confused

in my own mind as to what it is. Just tell me what it is? A. Well, there are two things in this report, sir. The first one shows an analysis of the carbon dioxide and the carbon monoxide before the water-wash.

Q. Now, just a moment. I think I am getting to understand it now.

MR. SLAGHT: What is the date of that again, Mr. Williams? A. June 4th.

10 MR. KEOGH: Q. And the work was done on May 21st and April 23rd.

HIS LORDSHIP: Now, have I got it right? In the first place it shows an analysis of gas in the cupolas with respect to the carbon dioxide and carbon monoxide? A. Yes.

Q. Before and after the water-wash? A. That is correct, sir. That is one thing.

Q. And as far as the gas is concerned, nothing else? A. That is correct.

Q. It doesn't say whether there was present other gas or not? A. Not in this report, sir.

20 Q. Then, I understand that now. The other thing that it shows? A. In the second part of the report shows the corrosive effect of these gases in our water-wash system, so that it might be termed the acidity of the cupola water-wash.

MR. KEOGH: No. What is the analysis as shown by the second part of the report? That is what his lordship wants.

HIS LORDSHIP: Yes.

MR. KEOGH: What analyzing work did you do, which is shown by the second part of the report? A. Well, the second part of the report indicates that the pipes and metal parts —

30 Q. No, not what it means. We will ask you later what it means. But what does the analysis you reported in the second part of the report show? A. It is shown as a percent. acid.

HIS LORDSHIP: Well, let me see it. I think I can describe it for myself. All right. Go back to the witness stand. It is an analysis of the water from some place, — and we will find out — to show the presence or absence of acid? A. That is true.

Q. Well, does that comprehend it? Is that a correct description of it? A. The report shows that this water-wash system has become acid.

40 Q. Yes. But when you started to make your analysis, what were you doing? What were you doing before you made this report at all? It is the result of what operation? A. Well, sir, we found the pipes were all being eaten away in this tank, so we had to check into it, find out why and we took samples of the water and checked them for acidity, percent. acid.

Q. All right. Then, did you analyze samples of the water in the tanks for acid? A. Correct.

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Q. Well then, this report is the result of an analysis of water taken from the tanks that cuts the water from the cupola system? A. Correct.

Q. And the analysis is for the presence or absence of acid? A. Correct.

Q. Well, now, we have got that far. What kind of acid were you looking for — any kind? A. Any kind; just general acidity.

Q. Now, is there anything else that you analyzed for? A. Alkalinity, which is the opposite to acidity.

Q. That is dealt with in the third part of the report? Is that correct? A. Yes.

Q. Now, then, Mr. Keogh, I think we understand it. You may proceed.

MR. KEOGH: Q. Just for the record, I know — I appreciate the report is being filed, but can you indicate in a general way or not in a general way on the gas analysis, what was the carbon monoxide analysis in the cupola on the charging floor and after going through the water-wash tower in the cupola? A. On the charging floor, before the cupola gases went through the water-wash, the analysis was carbon dioxide 14.2%; carbon monoxide, 9.8%. After going through the water-wash tower, the carbon dioxide was reduced to 4% and the carbon monoxide to 3%. That is acid that these gases were dissolving in the water and it was borne out by the fact that our pipes, pumps and metal parts of the water-wash cupola system were being eaten away after about six weeks. On May 21st we checked the water and found it to be acid and we found it to be increasingly acid as the day went on. At 9.30 a.m. it was .03% acid; at 2.30 p.m. it was .067% acid; and at 4.30 p.m., .080%. To overcome this we added soda-ash to make it alkaline.

Q. Is that also called soda bicarbonate? A. It is mostly sodium bicarbonate. There may be a little soda bicarbonate in it, but it is just a very cheap form of sodium carbonate.

Q. And was there any other reason why the soda-ash was added to the water-wash system besides the reasons you have told us? A. No, sir; it was to neutralize the effect of the acid so it would not eat the metal parts away.

Q. We have had a suggestion made by one witness here that it was because the water was slimy. Is there anything in that, as to why the soda-ash was added? A. The soda-ash might make the water feel a little softer. That is about the only thing I can think of. Soda-ash is a common thing used to soften water.

Q. Well, it was the corrosion of the pipes and the pumps that was the real reason? A. Yes, that is the real reason as far as I was concerned, and it did seem to fix it up, because we had no trouble after that.

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Q. For the record — I have not been able to give a copy of that to my friend because I have not got one, — would you mind reading out the acidity figures, or perhaps just the first and last and the rest will be shown in the report — of the water? A. I would just be repeating myself; I just gave those.

Q. Oh, you gave them. Then, don't bother repeating them. Then, will you pass on to the third part of your report. First of all, have we finished with the acidity analysis now, or is there anything more about that? A. I don't think so.

10 Q. Then, will you pass on to the third part of your report, the alkalinity? A. We find we are more interested in keeping track of the percentage of alkaline materials in the water-wash system and, at 7.30 a.m., it was .03 alkaline and, as the day went on, the alkalinity became less, which means it was getting more towards the acid side. At 9.30, it was .002 and at that point we put another 100 pounds of soda-ash in it. At 10.30, the alkalinity was again up to .04% and then, as you go down through the day, you find it goes to about .01; at 2.30 p.m. in the afternoon another
20 100 pounds was put in and at 3.30 we have a test of .02, and at 12.30 a.m., which is shortly after midnight the following day, it is down to .01 again.

Q. And were the results of the alkalinity analysis consistent or inconsistent with the result of the acidity analysis? I mean, does one go along about the same lines over on the converse side? A. Yes; they were just the reverse.

Q. What you would expect, one from the other? A. That is right, and that procedure was kept up up to the time I left.

30 Q. Up to the time you left. And how often, just generally speaking, was the water tested? I know we have not got the details here, but was it a daily or a weekly matter, that is, the water in the scrubbers? A. To begin with, for the first week or so, we ran it every hour to get records after we found what was going on. We just ran upright checks perhaps a couple of times a day and we knew just when to add the soda-ash, which was done two or three times a day.

Q. And that was the practice followed up to the time you left, in 1945? A. Right.

40 HIS LORDSHIP: Q. What was the particular process that was going on that produced the acidity? A. I would say it was essentially a mixture of carbon dioxide and sulphur dioxide dissolving in the water to form and dilute the acids which reacted with the steel.

Q. Did you make any analyses to show that? You speak of acid. I was wondering whether if you could give me the formula of what had taken place to produce the acidity? A. Yes.

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Q. Have you got any analysis of that that you made at the time you started up? You said "I would say", but I was wondering if you had made any analysis when you were making your investigation for acidity? A. That report, sir, is a record of the percentage of acidity.

Q. Yes, I know. Let me have that report, please. Well, there is nothing on this report to show what the acidity was.

A. That is correct, sir.

Q. Did you conduct any experiment that you could indicate what the chemical action was that had produced the result?

A. Well, it is a very well known fact, sir, —

Q. Well, now, it would not be hard to answer that question, you see. You don't want to evade anything, but my question is, I am trying to be precise and we will just go along. Did you conduct any experiment at this time to ascertain what the chemical action was that produced the acidity and what the acidity was? A. Yes. It is very simple to detect that, sir. We have various re-agents, one of them is called latmis paper which, if you take a blue latmis paper and put it into acid material, it will turn pink.

Q. Oh, yes, I know that. I intend to follow my question up, but with another question, if I can get an answer to the first question. Did you conduct an experiment to ascertain what the chemical action was? If you have acid, you have a chemical formula for it. You can analyze it and write down the chemical formula. If you have water, we know the chemical formula is H₂O. A. That is right.

Q. If you have a gas that passes through the water, I want to know if you analyzed that to ascertain what that gas was so that you are able to mathematically put down the process and see the result. We used to do this many years ago, far longer ago than you did. I worked at that at one time. Now, can you give me that equation for this? A. Carbon dioxide dissolves in water to form carbonic acid.

Q. You are speaking in generalities. I am asking if you made any experiment and analysis of the process and recorded the result showing an equation? A. I don't believe we did, sir.

Q. Well, now, I have got it now that you didn't. It has taken me a long time to do it.

MR. KEOGH: Then, I see by your report Exhibit 117, that at 3.00 a.m. on May 23rd, 1945, if I am interpreting it correctly, 200 pounds of soda-ash was added? A. That is correct.

Q. And then, on the same day at 2.30, at 10.00 a.m., 100 pounds of soda-ash was added? A. That is correct.

Q. And on the same day at 2.30 p.m. 100 pounds of soda ash was added? A. That is correct.

Q. Making a total in that 24-hour period of 400 pounds of soda-ash added to the water in the water-scrubbing system?

A. Yes. We were only interested in correcting the condition there.

Q. Yes. Well, while you were there, did the quantity of soda-ash added, the daily quantity, that is the 24-hour quantity of soda-ash added to the water in the cupola water-washing system run from somewhere in the neighbourhood of 300 to 500 pounds per day — would that be correct? A. That is correct.

HIS LORDSHIP: Pounds or gallons?

10 MR. KEOGH: Pounds, my lord.

HIS LORDSHIP: Oh, yes, you are dealing with soda-ash.

MR. KEOGH: Then, you have a second report there, which is dated July 5th, 1945, and a copy of which I will hand to my friend. Will you tell us what that is? A. This was an analysis of cupola gases at McKinnon Industries before the water-wash and after the water-wash.

Q. And an analysis of what gases? A. Carbon dioxide, carbon monoxide and sulphur dioxide.

20 HIS LORDSHIP: I think you are just putting it probably a little inaccurate.

MR. KEOGH: I should have said an analysis of the air, too.

HIS LORDSHIP: An analysis of the air for those gases. A. That is correct.

HIS LORDSHIP: That is, for — A. Carbon monoxide, carbon dioxide, and sulphur dioxide.

HIS LORDSHIP: Carbon monoxide is C.O., isn't it? A. Yes.

30 MR. KEOGH: Q. And at what points in the cupolas were these analyses taken? I mean, either before or after the scrubbers, or both? A. Before the water-wash was taken at the charging floor, and the gases were taken right out of the stream of gases going up the stack. After the water-wash was —

Q. Well, just before we leave that, just to get the mechanics of the thing, was some sort of sampling device, as you say, shoved right inside the stream of gases at the charging floor inside the cupola? A. Yes: an eight-foot pipe was inserted in there, connected to a rubber tube, because it is very hot and warm in there.

Q. Yes, it is all right, and the air was drawn out through that? A. Yes.

40 Q. At the charging floor? A. Yes.

Q. Then, what was the procedure followed above the water?

MR. SLAGHT: May I interrupt the witness? Did the witness do this sampling, himself, or is he telling what some one else did?

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THE WITNESS: This was done under my supervision.

Q. With you present? A. I was present from time to time, not 100% of the time.

MR. KEOGH: Q. Then, what was the procedure in taking the sample of the air or gases in the cupola stack above the water scrubbers? A. We went up on the roof and inserted the pipes connected to a rubber tube down into the stream, just above where the water flowed over us.

Q. Just above the water cone? A. Yes, coming right out of the stack, but just a few inches above where the water was flowing over the cone.

Q. And you took your other samples there? A. Yes.

HIS LORDSHIP: This will be Exhibit 118.

—EXHIBIT No. 118: Report made by Williams July 5, 1945.

MR. KEOGH: This shows the samples taken June 9th to 26th. Is there anything to indicate the analysis with respect to those dates? A. No, sir. Those were taken just as a sort of spot samples to find out roughly what the ranges of percentages were. Other reports give specific hours and days.

Q. Well, what I am getting at is, for instance, the first one, was that on June 9th or June 26th? A. I imagine they are in chronological order, but I think it says between those dates, does it not, sir?

Q. Oh, yes, so we don't know what dates these were taken? A. No, we don't. Just a series of tests run on different dates to try and get a rough idea of what the percentages were and parts per million were coming out of the stacks so that we could line up our analytical equipment for a more accurate analysis.

Q. Then, on some of them there is nothing to show the C.O. or C.O.2? A. That is correct. We were satisfied that that must be roughly the percentage that was coming through, and we were no longer interested. We ran a few more of the S.O.2's to just verify the thing a little more.

Q. I see. Then, you have another report dated August 3rd, 1945, I believe, of an analysis of air. the first part of it being an analysis in the cupola stacks for sulphur dioxide before and after it passed through the water scrubbers, or the roof of that? A. That is correct.

—EXHIBIT No. 119: Report on analysis of air dated August 3rd, 1945.

Q. And then the second part of Exhibit 119 is an analysis of air at the cyanide pots for hydro-cyanic gas. Is that correct? A. Yes, that is correct.

HIS LORDSHIP: Probably you are going to clear up some of the things in this?

MR. KEOGH: Yes, but I thought I would wait and see if your lordship wanted to say anything.

HIS LORDSHIP: Well, I will wait till you finish. You probably will clear it up.

MR. KEOGH: Then, the first part of this report of August 3rd, 1945, which we have now marked as Exhibit 119, sets out the method of the analyses and the calculations, and what I would take to be the chemical equation that you arrived at. Is that correct? I just want to know that, because I want to pass on, myself, to the results of the analyses. A. Yes, it is just —

10

Q. —what to a layman's mind was the mechanics? A. Yes, it is the mechanics of getting the answer, yes.

Q. Then, the analyses taken at the charging floor of the cupola, according to my interpretation of it — you correct me if I am wrong — they run from 3.5 to 18 parts per million at various times in the day as shown on this, of sulphur dioxide gas?

A. That is correct.

20

Q. At the charging floor. That is the floor above the foundry where they put the charge into the cupola? A. Yes, and before the water-wash.

Q. And my friend has asked me to ask you, and inside the cupola? A. Correct.

Q. Then the analyses taken of the samples inside the roof outlet of the cupolas and after the gases and air had passed through the cupola water and the scrubbers as shown by this report, Exhibit 119, runs from .5 to 3.5 parts per million, including three samples showing nothing at all of carbon dioxide?

A. That is correct.

30

Q. Then, going on to page 2 of your report, Exhibit 119, the first part of the last paragraph is what I, as a layman, might describe as the mechanics of the analyses. Is that right? A. That is right.

Q. For hydrocyanic gas, and then tell me if I am interpreting this correctly. The result of that analysis is in the last two sentences on that page, "We ran six tests during the day and were unable to detect any H.C.N.; thus due to the sensitivity of our test, H.C.N. if present is less than 3 parts in ten million."

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HIS LORDSHIP: What is the significance of this. A. We were testing any exhaust gases from our works to find out just what amounts were going into the air.

Q. I would like to know something about that. A. What goes on underneath the stack.

Q. Yes. Would this gas come out of the cupolas at all? A. No, sir, the cyanide pots.

Q. Where are the cyanide pots? A. In departments 42 and 65.

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Q. That doesn't tell me very much. A. They use those, as I understand, for some heat treating operations and use the cyanide cells in them and they are heated up to some temperature, perhaps 1500 degrees, and, in doing so, the H.C.N. gas is liable to come off from them.

MR. KEOGH: His lordship wants to know where do you find 42 and 65 with reference to the buildings at Ontario and Carlton? A. They are in the Delco division and I would say they are east of Ontario Street, the opposite side from the foundry.

Q. Well, they cannot be directly opposite from the foundry, because that is a blank corner. A. Well, I mean on the opposite side of the street and farther south.

Q. They would be on the east side and south of Carlton, approximately how many feet? I know you didn't measure it. We are told the smoke stack on the big power house is 600 feet south of Carlton. A. This building is probably one or two hundred feet south again of the big smoke stack.

Q. So this Delco building in which the cyanide pots are located, would be approximately 700 feet south of Carlton and on the east side of Ontario?

20

HIS LORDSHIP: I did not realize part of the plant was on the east side of Ontario Street.

MR. KEOGH: Oh, yes.

HIS LORDSHIP: It is not shown on Exhibit No. 1.

MR. KEOGH: I have a panoramic photo which I will undertake to prove later, which will show it very well, if your lordship wishes me to file it now.

MR. SLAGHT: We have not heard of this before.

HIS LORDSHIP: Well, it is news to me that the plant extended over on to the east side of Ontario Street.

30

MR. KEOGH: Oh, yes, there is a lot of it on the east side.

HIS LORDSHIP: I notice it is listed as McKinnon Industries, but there is no indication to show that it is on the east side.

MR. KEOGH: Just while I am waiting for that; for the record, is H.C.N. — that is hydrocyanic acid gas, is it? A. That is correct.

Q. And these heat treating pots in these departments where hot metal is plunged into the cyanide, it was at the stacks of those pots that you made these analyses referred to on the second page of Exhibit 119?

40

MR. SLAGHT: My lord, I wonder if my friend would mind me asking him if he is directing this to some part of my case and, if so, what part?

MR. KEOGH: We were asked about it on discovery and gave you certain information. If my friend is not suggesting hydrocyanic gas, we will not pursue it.

MR. SLAGHT: It seems to me it is knocking down a man that has not been set up.

HIS LORDSHIP: I was rather thinking that, myself. It seems to me there has been no evidence directed to a nuisance arising out of the escape of hydrocyanic acid.

MR. SLAGHT: No, I have not directed any, but my remark is directed to hydrocyanic acid. The first part is quite relevant and we are directly in conflict on it and the case is long enough instead of knocking somebody down that has not been set up. Unless I am
10 wrong, I do not want to argue that. If I have put in —

MR. KEOGH: My friend's witnesses spoke of fumes and gas without saying what it was and the statement of claim does not say what it is so we will just stop at that.

This is the panoramic view, and I will have that identified later, my lord.

MR. SLAGHT: Of course, when I make that remark, I make it in regard to the Delco plant. The gas in the foundry is what we complain of — the foundry fumes.

HIS LORDSHIP: Oh, well, probably it won't take much
20 longer if we just allow it to take its course. May I understand the directions on this photograph?

MR. KEOGH: It is an early photo taken from two blocks south of the plant.

HIS LORDSHIP: Looking north?

MR. KEOGH: Looking north, yes, my lord. Ontario Street is the one running up through there.

HIS LORDSHIP: And where is Walker's greenhouses?

MR. KEOGH: In here, somewhere, opposite the test house.

HIS LORDSHIP: Will that be Carlton Street, along there?
30

MR. KEOGH: Yes.

HIS LORDSHIP: Oh, yes, I think I see the greenhouses now. Well, this photograph may be filed now that we have been discussing it, as Exhibit 120.

—EXHIBIT No. 120: Aerial panoramic view of the McKinnon Industries plant.

MR. SLAGHT: What is the date it was taken.

MR. KEOGH: There is a date on the back. I think it was
May 17th.

HIS LORDSHIP: It is stamped May 19th, 1947, as having
40 been received on that date.

MR. KEOGH: Yes. I believe it was taken either on that day or the day before, my lord.

MR. SLAGHT: Who took it?

MR. KEOGH: A man named Sellers of the Aerial Photo Service in Toronto, and we will have it identified later on either by him or by Mr. Foote.

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MR. SLAGHT: I may be able to admit it.

MR. KEOGH: Air Maps, Limited, Toronto.

HIS LORDSHIP: Well, have you finished with Exhibit 119 now?

MR. KEOGH: Yes, my lord.

HIS LORDSHIP: I want to ask the witness one or two questions about it. The No. 2 sample that you dealt with, there is a note opposite it, "No blast off." What does that mean? A. That means the cupola is operated by a forced air system and when that is off, you do not melt any iron and the gases do not come out of the cupola as readily as whenever the blast is on. Of course, the products of combustion are much less.

Q. There would be no iron being melted at that time?

A. No, sir.

Q. And that shows 3.5 parts per million? A. Yes. That shows also the amount of it, and just opposite of that, you will notice a rather high one, "Blast just started." That is 18. Now, that is unquestionable, because you derive your sulphur acid from your coke and part of the sulphur in your coke is absorbed by the metal and the other part goes off as sulphuric acid. as a gas, and we do notice that on two occasions there, just when the blast is started up, you get a little higher shot of S.O.₂ than when normal operations are in process.

Q. Well, you say a little higher shot. It would appear to be about twice as great. A. 18 parts per million in one case and 13 in another.

Q. And then you are referring to item No. 4 as 18; No. 5 is down. Well, that was taken half an hour after the blast had started? A. Yes. Normally, when the cupola was in operation, it ran about 7 to 10, or something like that.

Q. Well, you were not taking a sample at the same time on the roof, were you, or were you? A. No, sir.

Q. For instance, it would be interesting if we had an analysis showing the comparable condition of the roof at the time that the analysis was taken from the cupola, you understand?

A. Yes.

Q. You didn't do that? A. No.

Q. For instance, when you have this sample No. 4, when the blast just started, which shows 18 parts per million, from the roof at that time? A. That is correct.

Q. I see.

MR. KEOGH: We will have some.

HIS LORDSHIP: All we are doing is dealing with this one at the moment.

MR. KEOGH: Then, am I interrupting your lordship?

HIS LORDSHIP: No, I am through.

MR. KEOGH: Q. Then, you have another report there covering —

HIS LORDSHIP: Oh, you can go into that after. I think this would be a convenient time to have a little intermission.

—Intermission.

—On resuming.

MR. KEOGH: I am through with this witness, Mr. Slaght.

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CROSS-EXAMINED BY MR. SLAGHT:

10 Q. You gave us some figures about the alkalinity test in the third part of your report. Is that a test that is known as the P.H. test? A. No, I wouldn't say so, sir.

Q. You wouldn't say so? A. No.

Q. Well, what figure would you call neutral in the alkalinity test? A. You would get zero percent. acid and zero percent. alkalinity. I know what you are speaking of. There is the P.H. scale which runs from 1 to 14 and neutral is 7 in that.

20 Q. Well, that is what I wanted to get from you, because we may see later they are pretty similar. Are they pretty similar, what you call the P.H. test and the alkalinity test? A. They do use that for similar reasons on that type of system, but it is not used in this particular case.

Q. It was not the case in this case? If you do not use the P.H. test, what type of test do you call yours? A. Just measuring the percentage of acids in the sample of solution from the tanks.

30 Q. When you said to his lordship, "We made no complete analysis and we didn't record the result," you mean you did not do a P.H.? A. No, sir. His lordship was referring to more specifically an analysis for sulphuric acid, or some other acids and for carbon monoxide acids, and my answer to that was, "No, we didn't."

Q. Why didn't you do a complete test while you were at it? A. We were only interested at that time in correcting the corrosion of our pipes and getting it fixed up as quickly as possible, and we quickly determined it was acid and we knew how to correct it to make up the alkalinity.

40 Q. Then, these tests that were made at that time, were not made with a view to correcting, if you needed to correct, the quantity of S.O.₂ you were letting out of your chimney? A. No. That is more or less a corollary of this test.

Q. Yes, the main idea of these tests was to get something to save your pipes, to save your money, because every six weeks, they were getting down? A. That is correct.

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Q. I am not blaming you for that. It is a worthy purpose. Now, how big was this tank, and I presume you and I mean this big tank situated at the foot of the cupola, is it, or off to one side?

A. It is off to one side, in another part of the foundry, sir. I have not been in that plant for a number of years. I am just getting my bearings.

Q. No, I want to be very fair to you. Would it be a tank that held the water which was used and re-used in the cupola processing? A. It was used and re-used for water-washing the gases in the cupola.

Q. That is up at the top of the cone-shaped thing? A. Yes.

Q. That is the tank we are talking about. Can you give me the approximate capacity of it, either dimensions or capacity, in gallons? A. Yes, I would hazard a guess that the tank might be some 20 feet square. I am only guessing at that, and probably 6 or 8 feet deep, and maybe it might hold 20,000 gallons, or something like that.

20

Q. Now, you have not dealt with it, but am I right in suggesting that the water in that tank was re-used and re-used, as we have heard, and went back after doing a supposed job by being dropped on the cone and was collected in the same tank and then would go back over again and then be re-used? A. That is partly true. There was fresh water added to the system every day but, essentially, it was used over and over again and probably, oh, we will say five or ten thousand gallons new water introduced. You know, I am only guessing at those figures.

30

Q. But take the start of the day, and sometimes the cupola worked two shifts, 18 hours a day. Take when the cupola was working 18 hours a day on the two shifts, the same water would be used for those 18 hours? A. No. During that time there would be other water added to it.

Q. Well, did you add water more than once a day? A. As I understand the system and which probably the plant engineer can give you more specific information about, but as I recall it, the water was being added to it continuously and a certain amount of the water was drained off. Now, that is my recollection, and I think if you questioned the plant engineer on that, he will give you more specific information.

40

Q. All right. I won't question you if you are in doubt about it. But the reason part of the water was drawn off the tank was because, using it over and over again, it was getting slimy? A. That is true, yes. There were solids, not only dissolved gases, but solids that were washed out of the cupola stack.

Q. Some solids and some gases, which created, as a witness told us — you were not here a few days ago — that the tank looked to be to him full of slimy water? A. It thickened up.

Q. You object to my word "slimy"? A. Well, I suppose very fine particles might make it slimy.

Q. Now, we heard that, in Detroit in a similar plant, fresh water was used, and I suggest to you that slimy water, if that is a fair expression, being used and re-used part of 18 hours — and, by the way, there, it is a continuous process, isn't it — I suggest slimy water might be used three or four hundred times before there was any new water injected into it. What do you say?

A. As I understand there was fresh water continually being added and sort of an overflow in the tank taking off the water continuously, and there was a filter system in the tank which removed the larger particles of solid from the mixture.

10

Q. Are you able to say there was continual or an automatic re-introduction of fresh water, or did, as you told me a few minutes ago, I think you said once a day we put fresh water in?

A. You misunderstood me, if you think I said that.

Q. Perhaps you said every day? A. Every day water was continuously being added and, as I recall it, it is three or four years since I was there to see it, but there was an overflow, and the tank would not overflow.

20

Q. I don't want to spend too much time, but let me ask you, why didn't you use fresh water instead of slimy water? Economy, I suppose? A. I imagine that is cost.

Q. Yes, cost a little more to use fresh water? A. Yes.

Q. Then, coming to your Exhibit 119, if you will. Has your lordship a copy of 119?

HIS LORDSHIP: No, I have not, but proceed.

30

MR. SLAGHT: Well, I am looking at your Exhibit 119, and that is a report dated August 3rd, and the sampling was done on what dates? I am only going to examine you about part No. 1, which is sulphur dioxide. I am not going into the hydrocyanic. Tell me how the sulphur dioxide sampling was done, the results of which appear on the report of August 3rd. A. I would say the samples taken at the charging floor were done on August 3rd.

Q. The same date? A. Yes.

Q. And the samples after the wash? A. I would say those were done on another day, sir.

40

Q. Then, let me get that then. What other date? How long before August 3rd? A. I would say it would be some time between August 3rd and August 8th because at the end of that report I have August 8th marked with the wording "More samples at 10.00 a.m. and 8.00 a.m."

Q. But that is on the cyanide? A. No, sir, still on the sulphur.

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Q. Well, if that be so, I don't think you would make out a report on August 3rd when part of your work was done later, on August 8th. But that is what you said? A. Yes.

HIS LORDSHIP: Let me see that exhibit. On its present form it is a very confusing document. Let me see it. It has samples 1 to 8 and the hours at which they are taken, those samples taken at the charging floor, and then at the roof outlet, samples 1 to 7, and the hours of those are given and they run along the same hours as the other samples and unless one analyzes it very closely and scrutinizes it, it will appear to be a statement of samples that were taken at the same hours, on the same date, and it does not appear so at all, and it is unfortunately prepared in the form in which it is.

MR. KEOGH: Well, I may be to blame for that. Perhaps if the witness can write in under "roof outlet" the dates of the samplings under that, that might remove it.

HIS LORDSHIP: Well, if some one copied it in the book of exhibits, that gets before another Court and the Judge examining the book of exhibits would probably never see this discussion in the evidence or know that it was there unless it was drawn to his attention.

MR. SLAGHT: I found it very misleading, especially in the light of Mr. Williams' statement to us that there may have been several days elapsed between the samples on the first page, taken at the charging floor, Nos. 1 to 8, all of which were taken on August 3rd, you suggest?

THE WITNESS: Yes.

HIS LORDSHIP: Are you sure they were taken on August 3rd? A. Yes, I am sure they were taken on that date, sir.

MR. SLAGHT: Q. And you are equally sure that the samples beginning on top of page 1, known as "roof outlet," were not taken on August 3rd? A. I feel they were not, sir, because at that time we had only one gas analysis.

Q. I will adopt Mr. Keogh's suggestion, if it will get it in shape, instead of wasting time. Take the original exhibit, with Mr. Keogh's consent and my consent, and start at the top of page 1 under "roof outlet" and if you have a fountain pen, just be good enough to put "8.00 a.m." and in front of "8.00 a.m.", and the No. 1, the date you say it was taken, according to your best information.

HIS LORDSHIP: Well, I do not think he had better do that, according to his best information. If he cannot say, then, again it would be confusing unless you relate it to this discussion. I think if you just put it under "roof outlet" samples taken on another date from the above. A. Yes, I could be more specific than that. I could say between August 4th and 7th.

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MR. SLAGHT: If you will write in, at his lordship's suggestion, "taken on dates other than August 3rd."

MR. KEOGH: No, no, August 4th to August 7th.

MR. SLAGHT: Well, I am going to have that in.

HIS LORDSHIP: I will say other than the dates enumerated above, August 4th to 7th. Wouldn't that be correct, because one of them was taken on August 8th?

10 MR. KEOGH: No, but I am talking about the ones above the words August 8th. The witness says the first five samples under the words "roof outlet" he can be more specific and say they were taken from August 4th to August 7th, so I suggest he write those words in under "roof outlet," and then down below he says that the last one was taken on August 8th.

HIS LORDSHIP: Well, I think I am going to get this done in my own way. Just after the words "Samples taking on charging floor," put in the words, "August 3rd."

MR. SLAGHT: Might he add the word "all"? I suppose it is the same thing.

20 HIS LORDSHIP: And "After samples under roof outlet taken between August 4th and August 8th."

THE WITNESS: Should I initial those?

MR. SLAGHT: He may humour me by adding "noon on the 3rd."

HIS LORDSHIP: Well, they are taken between August 4th and August 8th, and that is as near as may be.

30 MR. SLAGHT: Q. Then, Mr. Williams, if there is anything real about the percent. when you took your charging floor samples on one day, August 3rd, and you wait for a series of days, five days, and take samples of stuff that is coming from the roof, the conditions in the cupola might be very different, I suggest. What do you say? A. From my observations and reports of my analyses taken on many different days, they all seem to follow a definite trend and be in line with this report.

Q. Well, in line with this report. Let me point out to you first part of your answer. Take No. 1, under the roof, there were 3.5 parts per million in that, weren't there? A. Yes.

Q. And on No. 6, .5 parts per million? A. This is taken at the roof outlet.

Q. Yes, I took 6. A. Yes, sir.

40 Q. Well, one is seven times as much as the other and that suggests to me that conditions in the cupola were vastly different — seven times apart? A. Well, they do change, yes.

Q. Well, then, why not, if we are to have any comparison useful to the Court as to what is going on down below, have something equally as useful as to what your conical wash was? Why weren't they made as close to simultaneous as possible? A. I might say that the apparatus to take these gas samples was quite

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bulky and heavy and at the time we only had one such apparatus to take gas samples, so that we did confine one day to taking them at the charging floor, and the next day on the roof, to see what kind of job our water-wash tower was doing with respect to taking the solids and the gases out, or washing it, and that is the purpose, I would think, of this report.

Q. That is more economy, is it? A. In what respect?

10 Q. Cheaper; leave a fellow down there and take eight samples from the charging floor. He sticks this rubber tube in there and I suppose it is very hot and he has got to do it quickly, hasn't he? A. No, once the tube is inserted in the cupola, it might take 15 to 20 minutes to run these gas samples.

Q. At all events, economy was not the principal care?

20 HIS LORDSHIP: But, Mr. Williams, what I cannot understand is, you say you had only one tubular arrangement and you could only use it in one place at a time. But when you then took samples at the cupola, why didn't you take a cross-section of one day just as you did down below at every hour in one day instead of spreading it over several days, taking 10.00 o'clock on the 4th, and 11.00 o'clock on the 5th, and 12.00 o'clock on the 6th. Why was it done that way? A. Well, as I mentioned, this apparatus is bulky.

30 Q. Well, if you had had the pipe there, you would have had to keep it there for the day and take a cross-section for that day, instead of taking it up for several days, on different days, to get it at different hours and different days. If you were getting a scientific record of what was going on, what was the object in doing it that way? If there is a reason, I want to know it. If there is no reason, I want to know that, too. That is all. A. I think further evidence will come out covering your point, sir.

Q. You were doing the experiment? A. Yes.

Q. And I want to know why you were doing it in that way. A. Yes. In this particular experiment, we were interested in seeing whether this water-wash tower was doing its job or not in removing these particular gases from the stack. That is, was the water-wash taking these gases out, or was it not?

40 Q. I quite understand that was the purpose of it. What I am asking you is, why did you make sort of spot checks over several days on the roof, when you took consistently several hours of one day in the stack, before the water-wash? A. I don't think there is any reason for it, sir, except that the equipment was quite bulky to take up and down there. We had to climb up a ladder.

Q. Why didn't you take it up and leave it there for that day? I would have thought the fact that it was bulky would be a reason why you would do that in the way I suggest, rather than that you wouldn't do it that way. What did the bulk of it have to do with spreading the tests on the roof over several days, from the 4th of August to the 8th inclusive?

MR. KEOGH: Your lordship appreciates that there are two different stories there. They are not all on the same day.

HIS LORDSHIP: Leave it to this witness. He was doing
 10 the experiment and I want to see if there is any explanation, because I will have to relate the value of the experiment and the evidence to the manner in which it is done, the purpose, and I want to know if there is any explanation for doing it that way.
 A. Yes. Well, I think you bring up a good point, sir, and I believe at the time we did not place too much importance — we were doing these tests at, say, 8.00 o'clock and 10.00 o'clock on a different day, or they were not done on the same day as taken below on the charging floor, so we did not place too much importance on whether we ran a couple of tests on the outside at 8.00 o'clock or
 20 10.00 o'clock, and then a couple of tests on Wednesday, oh, perhaps 11.00 and 1.00 o'clock, or something of that sort.

Q. Yes, but you were making tests at 8.00 o'clock, 10.00 o'clock, 11.00, 1.00, 2.00, 10.00 and 11.00 on different days, and the other tests were 8.00, 9.00, 10.00, 1.00, 1.30, 2.00, 3.00, and 3.30. What does it mean by all the tests at 3.00 o'clock? What would that indicate? In the 7.00 and 8.00 one you say the blast has just started. I wonder if it would be just a test before the blast started and one afterwards? A. Yes, just around that time: I would say that was about it, sir. There is one other point,
 30 sir, I might mention in this connection. We had much more to do than just concern ourselves with running these gas analyses, and it might have been due to pressure of other business. We ran a couple one day and a couple another, between our analyses.

Q. Well, proceed, Mr. Slaght.

MR. SLAGHT: Thank you, my lord.

Q. Now, you made a remark just now, "We were not attaching much particular importance to this." I suggest you were, and I call your attention to Exhibit 10 in this trial, dated September 7th. Oh, no, that was written afterwards, but Mr. Walker
 40 tells us that he had had negotiations with your people to see if he could avoid a lawsuit, and I suggest this began as early as May of 1945. You knew that, didn't you? A. I was aware there was something going on, sir, yes.

Q. Well, something that was likely to be going on in the Court. and while you were making these tests, were you not aware of that? A. I was not too much aware of it at that time, sir, no.

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Q. Well, too much or too little, there was a threatened lawsuit; you knew that, and these tests, I suggest to you, instead of being unimportant ones as you suggested a moment ago, were important because you knew Walker was complaining about his greenhouse facilities, and you wanted to know how your water-wash was taking out the gas and soot? A. That is correct.

Q. And notwithstanding that, instead of going up the next day and making a series of tests right through, you, who had the supervision of this operation, directed that it be from the 4th to the 8th of August, and your workmen carried out your instructions? A. That is correct.

Q. Now, you do concede, don't you, that it would be a more accurate display of what you were after, if you had done your other tests on a series through the day? A. As I mentioned before, I don't think so.

Q. You didn't think so? A. No.

20

Q. You wanted to spread them out, take a test on the charging floor on the 3rd of August and then tests upstairs on the 8th of August when, as you have admitted to me, entirely different conditions did prevail in the cupola. You thought that was the best way to solve it, didn't you? A. I wouldn't say it was the best way. It was the way we did it.

Q. Well, that is pretty frank. I think one of our witnesses told us this whole apparatus you are talking about being so bulky, could be put in a valise. Is that true? A. No, that is not true, sir.

30

Q. Well, then, now, Mr. Williams, I direct you to your Exhibit 119. I will show you mine. His lordship can have the Court exhibit, and leave that with his lordship and I will show you mine. This is a true copy, furnished by your company, and I want you to look at item No. 1, 8.00 a.m., on an unknown date, and you find the roof outlet was giving you 3.5 parts in a million? A. That is correct.

Q. That means that was coming out to fall over on your property, or on the neighbour's? A. Or to pass.

Q. Or to pass over, let me put it? A. That is correct.

40

Q. Now then, I suggest to you that .12 has been demonstrated by experts as a quantity of sulphur dioxide which is injurious to plant life and tree life. What do you say? A. I have nothing to say on that matter, sir. I am not a botanist and don't know the effect of chemicals on plant life.

Q. Then you are not able to deny that to me? A. I am neither able to confirm nor deny it.

Q. So that, in charge of an operation, with the Walker lawsuit pending and for the purposes of finding out how efficient your conical wash was, you never took the trouble to find out what point or quantity per million would injure plants? A. That is correct, sir.

Q. That is correct. And I suppose this is arithmetic, but .12 is just 28 times less than, say, 3.5 parts that were coming out on one of these days; 28 times less than was coming out of your stack. Now, then, Mr. Williams, I want to ask you this, or, pausing there, while you were with the McKinnon's in February, 1941, to October, 1945 — oh, pardon me. May I take it, as chief metallurgist, assistant chief metallurgist, these cupolas were, so to speak, under your supervision? A. That is correct.

Q. Or the operation was under your supervision? A. Yes.

10 Q. And who, do you recall, started the fires, or started the shift operation going, — the name of your workmen, or perhaps they would change? A. We had a night foreman, as I remember it, by the name of Ernie Lyons who took care of the lighting of the cupolas and starting them. There was a night operation to repair the cupolas and light the fires. That went on, oh, all night, until the blast was turned on in the morning.

Q. Well, you being in charge of that operation, — leave out this time in August — from the 3rd to the 8th; forget that. How many times a month, if ever, did you go up and inspect the cupola in operation at the top of the tube? A. Oh, I did go up from time to time and —

Q. Once a month? A. Oh, I would say more often than that.

Q. Twice? A. Probably once or twice a week.

Q. Once or what? A. Once or twice a week.

Q. Well, might there be two weeks interval? A. I wouldn't think so.

Q. I heard you, but might there be two weeks interval, that you didn't do it? A. It is possible, but I was quite active around the whole melting area, and I checked up on nearly every phase of the operation, daily.

Q. Yes, but you are putting it twice a week. I accept that as your best recollection now. Well, you were here and heard the evidence of the conditions of your cupola on March 14th this year, did you not?

MR. KEOGH: No, he was not here.

THE WITNESS: I was not present, sir.

MR. SLAGHT: Oh, you were not here? Well, I may tell you it was found then that the water, instead of coming down in volume from the horizontal pipe outlet — by the way, what was that pipe outlet, some two or two and a half inches diameter? A. After it went over the cone, do you mean?

Q. No, I mean the feed pipe that ran in horizontally and dropped the water on to the cones. A. On top of the cone?

Q. Right. Some one said two and a half inches. A. I believe at that time, sir, we must have had a little different system. As I remember it, it was some kind of a ring with little holes in the pipe to let the water flow.

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Q. Well, can't you tell me what the system was during the experiment? Tell me what the system was. I assumed you knew what you were talking about. What was the system you were using when you made this experimentation in August, 1945?
A. Yes. As I recall it, it was some type of ring that had water flowing around it and these small holes let the water escape and come down over part of this cone and form a water curtain.

Q. Would you call that a nozzle system — a nozzle type?
A. I am not acquainted with the various names.

Q. Now, have we got to leave this with you that, after this experimentation made in threat of a lawsuit, for the purposes you have told me, to find an efficient system, that you cannot tell me what was operating up there? Now, I ask you very seriously not to guess, but to tell me, if you know, or to say you don't know if you don't know?
A. I have already explained, sir, that, as I recall the pipe up there it was a ring with holes in it through which the water flowed over this cone to give a water curtain that trapped the gases and solids from the main blast of the cupola.

20

Q. I see. Well, you have been making circles with your hands. I think this is the first we have heard of this. You suggest there was a circular pipe filled with flowing water that was placed at the top of the cone, so to speak, and had holes in it, and, through those holes and that circular pipe the water was supposed to drop on the cone. Is that your story?
A. Partly at the cone; not right at the top, as I remember it.

HIS LORDSHIP: I think there was some evidence about that, Mr. Slight. As I recollect it, they had this circular pipe, and the water came through a few small holes on to the cone and that there was some trouble with these holes clogging up.

30

MR. SLAGHT: Oh, yes, your lordship is right.

HIS LORDSHIP: And they changed to the system of having the water — changed their pipe at the apex of the cone.

THE WITNESS: That must have been after I left. I don't recall that it came from the apex of the cone.

MR. SLAGHT: You take your own system, because we have got a damage claim. When did you leave — in 1940?
A. October, 1940.

Q. And this system you have described was operating until you left, in October?
A. Yes, as I remember.

40

Q. And it has been suggested in evidence that this slimy water used over again would result in clogging those holes in the exhaust of the water pipe up above and was not a very satisfactory wash?
A. It required more frequent maintenance.

Q. Then you, probably, as an observing metallurgist and in charge of maintenance, would observe that these holes did clog up?
A. I was not in charge of maintenance.

Q. No, but you observed it, you say, twice a week to see if it was running? A. I have said that general area, not particularly to see whether it was running or not, but any time I was there, I did observe the washing tower running and it seemed to be working perfectly well, as far as I could see.

HIS LORDSHIP: Excuse me, then, a second. Was it part of your duties to see that the water curtain was efficiently maintained to trap all the gases that it could trap? A. No.

10 Q. Whose duty would that be? A. I would say that was the foundry maintenance or plant engineer's job. I was only concerned with analyses and running the cupolas and the quantity and quality of the metal coming from them.

MR. SLAGHT: Q. Then, I understood, I may tell you when we started, that you were in supervision over the operation of the cupolas. You have told us no. Then, let me ask you this, and I misunderstood you, that you had gone up and observed this water operation in the cupolas about twice a week. Now you tell me that isn't so. That twice a week you made a general inspection of the foundries. Is that right? A. No. In my visits once or twice a week to that roof area, I would, as a matter of course, observe the water wash tower and any time I was up there it appeared to be working satisfactorily.

Q. Well, I cannot make that assimilate with your answer of a moment ago, that you did not look at this portion of the operation twice a week at all? A. It was not my responsibility to do so.

Q. Well, you have thought differently — did you or did you not do it twice a week, or, as you last put it, that you didn't do that twice a week? A. Yes. I would say I was up in that general area once or twice a week to look at many things about the operation.

Q. I have not asked you about any other things. Are you swearing now you looked at this water operation, the circular tube and the pin holes twice a week or not? A. Any time I was up there, yes, I observed that.

Q. Then, just a few general questions. When you were there in 1945, was the 4,000 pound hammer in operation in the forge house? A. I don't know too much about the operation of the forge shop. I know they had some heavy hammers there.

Q. Oh, now, you are assistant chief metallurgist and you tell me you don't go in the forge shop? A. Very rarely.

Q. Can you tell me whether the 4,000 pound hammer had been installed in 1945? I understand it had been. A. I don't know.

Q. You don't know? A. No.

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Q. Of course you were not there when the big one, the 5,000 pound hammer was installed. What was the weight of the hammers used in the forge shop during 1945? I am only interested in that. A. I haven't the least idea.

Q. Not the least idea? Well, you have an idea that you felt the tremors from the operation of them, have you not? A. Yes, sir.

Q. Quite severe tremors? A. I would say they could be felt, yes.

Q. And I am putting "severe" in. A. I don't know what quality "severe" is, sir.

Q. Well, suppose you are walking outside — we have had some witness who walked outside the forge shop and felt the tremors in their body on the pavement across the road. A. I would say you could feel them.

20

Q. And we had a gentleman here from New York yesterday, who said he walked around the Walker plant on the other side and he continued to feel the tremor from the forge shop on the other side. Is that so? A. Are you referring to walking in front of the Walker's property?

Q. Yes. A. I could not answer that question specifically. I do know that in many spots around McKinnon's you could feel the vibration of the hammers.

Q. Then, put it this way, — I suppose as far away as Walker's place, which was 450 feet, approximately? A. I would think that would be true, sir, yes.

Q. Now, you lived in town, did you, and went to work each day, and on the day shift or the night shift, whatever it was? A. Yes.

30

Q. And you would have an opportunity. We have had a man here who swore that 184 days out of one year, that is approximately half of the working days of one year, there was a southwest wind —

MR. KEOGH: Well, that witness has not given any evidence yet.

HIS LORDSHIP: Mr. Keogh, cross-examination is not limited to the evidence a witness gives in chief; no, I cannot limit the cross-examination.

40

MR. SLAGHT: If my friend will not be impatient, I am not going to ask this gentleman about the wind. I am not going to ask you whether it was a southwest wind or not, because you are not a weather recorder; but if that evidence was true, it would appear that half the time you went to work and came away from work, the wind was blowing from the direction of over the cupolas and the forge shop towards Walker's greenhouses. Now, having

told me that, will you tell me whether, on many occasions during 1945, you observed smoke and fumes going both from the cupolas and the forge shop across the Walker plant? A. I would say that would be true, sir, yes.

10 Q. That is what I think. Would you like to describe the type of fumes from the forge shop? Can you? I mean, tell me just your best opinion, an opinion of what they looked like. They would vary, we appreciate. A. Any fumes I have seen from the forge shop appeared to me to be a sort of a light greyish blue type of smoke rising something like, you might say, out of an automobile that burned oil.

Q. And was kicking out behind too hard? A. Well, it was more — anything I have seen was more easily diffused than that. It was just sort of like a blue smoke.

Q. A blue smoke and grey, drifting over, and I suppose you would expect that from burning oil, the two types of oil you burn there, the crude and the bunker oil? A. Bunker C and fuel oil.

20 Q. You would expect just those fumes from that oil, and those are fumes, you say? A. I would think so, yes, more especially when you start any type of oilburning furnace up, it is inclined to be a little bit smoky or oily.

Q. And those are smelly smells? A. I imagine you could smell them, yes.

Q. Don't imagine. You have got a nose. Didn't you smell them? A. I don't recall smelling those particular fumes, but I recall seeing such blue fumes.

Q. Now to the cupolas. Describing the fumes you saw in 1945, would they be coming from the cupolas? A. Looked more like the steam coming from the cupolas.

30 Q. The what? A. More like steam, a white to grey type of smoke.

Q. White to grey. I think some one said white and sometimes a yellow tinge? A. There might be just a touch of yellow in it sometimes, yes. I think I have seen that.

40 Q. And, as a metallurgist, let me ask you this. Forget for the moment your sulphur dioxide and SO₂ gases — that, when you were putting scrap iron, and pig iron in there, and that was the raw material, you would expect some of the rust from the tops of iron when heated and very hot and blown up with the big blower below, some of those rust particles to escape from the chimney, do all you could to stop them, wouldn't you? A. I would expect so, yes.

Q. And have you ever seen any of the data that collected on the Walker roof during your regime? A. No, sir, I have not.

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Q. You didn't pay any attention to it? A. No.

Q. And let me ask you this. You were good enough to tell me, or to tell my friend, that sulphur dioxide, SO₂ fumes, would come from the coke which was piled in the cupolas? A. Yes.

Q. That would create SO₂? A. Yes.

Q. I suggest to you pig iron would also create an SO₂ — perhaps in lesser quantities? A. I would not think so, sir.

Q. Would you swear it wouldn't? A. I would swear it would not. I would say our iron in melting would pick up sulphur from the coke. Admittedly there is a small amount of sulphur in pig iron, but it is of a very low order; as I recall it, somewhere around .03, and iron has a tendency to grab or pick up sulphur and it does so in coke to the extent of jumping from .03 up to .1, to .15.

Q. And I suggest that in the specifications of pig iron which you were using, you used there the foundry pig, amongst other pigs? A. Yes.

20

Q. And that your own specifications, of which we have been furnished with a copy, show a percentage of sulphur in the foundry pig iron. What do you say? A. Yes, that is correct.

Q. And you say that that being there, when it was burned so intensely, that there would be no SO₂ result? A. I would not think so.

Q. And what about the factory malleable pig — you used that? A. That would be in the same boat.

Q. Of sulphur pig? A. Yes.

Q. There are so many attractive kinds of pig, you put them in the same boat, do you? A. Yes.

30

Q. Are you serious, that the sulphur content would not form an SO₂ content of gas from the charging floor? A. I would not think so.

Q. Why? You burned sulphur with coke and got it red hot. You do create a gas of some kind, don't you? A. The gas would come mostly from your coke.

Q. Well, I didn't ask you that. I am getting elementary with you now. The burning of the pig iron on top of the live coke creates a gas that goes upward? A. We are not burning pig iron; we are melting it.

40

Q. Well, melting it. When you melt it, did you take the sulphur out of it? A. No, sir. As a matter of fact, you take out the sulphur from the coke, sulphur and carbon.

Q. Well, then, we have got the basis of your theory now. I have helped you give me your reason for it.

HIS LORDSHIP: Are you going to be a little while yet, Mr. Slaght?

MR. SLAGHT: A short time, my lord.

HIS LORDSHIP: Well, 2.15.

—Whereupon Court adjourned until 2.15 p.m.

Thursday afternoon, April 28th, 1949, 2.15 p.m.

CROSS-EXAMINATION OF MR. WILLIAMS
CONTINUED BY MR. SLAGHT:

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Q. Mr. Williams, I gathered this morning that your suggestion, or from such personal examinations as you did make, that the ring and thimble system was working all right? A. Yes, it worked well enough, except that they seemed to have quite a lot of maintenance on it and in poking out these little holes.

10 Q. The holes would get plugged and it would cost money to send a man up there to open it, too; is that what you mean by quite a lot of maintenance? A. Yes.

Q. That again is an economy you wanted to save? A. Yes.

Q. Well, if it were working all right, why did they want to change it? A. I couldn't say, sir. It was not changed during my time there.

Q. You have no knowledge of that? A. No.

20 Q. Perhaps I could not expect you to have first-hand knowledge of it. Now, you made the statement this morning about .03 acid. What does that mean? A. That is a very common procedure in any chemical analysis. You take a sample, a solution, and divide it with an alkali solution of known strength and from that you can determine the acidity of your other solution.

Q. That means that there was acidity to the extent of .03 in the solution? A. Yes.

Q. What was the type of acidity? A. We did not definitely determine that at that time. I would say that it was a mixture of acids, probably a carbonic acid and probably a dilute sulphuric acid, due to the sulphuric acid dissolving in the water, and so forth.

30 Q. The reason I asked you that was to see, and I think you did assent, that in the acid you found there there was sulphuric acid and sulphur dioxide? A. Yes. Sulphur dioxide dissolved in water would form sulphuric acid.

Q. Then, this carbonic acid neutralized the soda-ash? A. No. The soda-ash would neutralize the carbonic acid, which was dissolved in the water and when the carbon deposit dissolves in water it comes carbonic acid, just like SO₂ dissolved in water forms sulphuric acid.

40 Q. Well, the better way to put it is that the soda-ash neutralizes the carbon dioxide? A. And so on.

HIS LORDSHIP: What is the formula for sulphuric acid?

A. H₂SO₄.

Q. What is the formula for carbonic acid? A. H₂CO₃.

MR. SLAGHT: Q. What is the formula you gave to his lordship? A. H₂S₂O₄.

Q. And the other acid? A. H₂C₂O₃, carbonic acid.

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Q. Now, just a word, and I think we will be through, about the quantity of gas that would be emanated, say, per hour, going up the cupola. Take one cupola at a time. I understood there was no fresh air came in at the foot other than that which was blown in by the blowers? A. That would be correct.

Q. So, if we know the capacity at which the blowers are blowing or not, we will get the capacity at which the blower was blowing it out of the chimney? A. Yes.

Q. Perhaps you can help me in this. There were only three cupolas when you were there? A. Yes.

Q. Take your three cupolas. I believe there was one with a capacity of 8,000 cubic feet per minute. Would you verify that for me, — approximately? A. I would have to consult some tables. I would almost guess that might be right; somewhere around there.

Q. Well, I have a reason for believing that, that I cannot put to you under our rules of procedure, but you think that is not out of the way? A. As I remember it, we used to put so many pounds of air per minute in the cupola and it used to vary between
20 300 and 350 pounds per minute.

Q. Well, then, the revolutions per minute from the duct to the cupola, which is 20 inches in diameter, the revolutions per minute, 45-45, does that sound like old times? A. That sounds reasonable.

Q. And then the other two fans had a little larger capacity of 8,700 cubic feet per minute, and then it revolves at 3,560 revolutions, and the ducts to the cupola, they are 20 inches in diameter. Does that sound familiar? A. I would say that was reasonably correct, as I remember.

30 Q. Approximately correct, according to your recollection?
A. Yes.

Q. We may have somebody from the defendant company who will give us the exact capacity. Now, that means — take the lesser one, 8,000 cubic feet per minute with those revolutions of over 4,000 revolutions per minute, can I put it in a layman's language, that that is a terrific draught being forced up the cupola? A. Correct.

40 Q. And would I be fair to suggest to you that, as you told me this morning, there being some iron rust particles in the cupola resulting from the melting of the irons, we have discussed that there are in your opinion, I think you told me this morning, and I should not ask you over again, if you did, but I want to be sure that there is iron rust particles in some degree or other leaving the stack of the cupola. A. Yes; that was even more evident before the water-wash was on; it was kind of a brownish red colour would then go out of there.

Q. Would you think the water-washing did something to help that? A. I believe that at times there is just a sort of a white, grey smoke, with no signs of colour, but I am quite sure I have seen just a slight yellowish tinge from time to time.

Q. Well, you estimate the water-wash would help some, both with regard to the gas and also the solid particles, if they were there? A. Yes.

Q. But you do agree with me that gas would go out to some extent and solid particles to some extent? A. Very fine particles.

10 Q. Yes, of course, but those can be carried in the air six or seven hundred feet, I suppose. Is that so? A. Yes.

Q. Now, just a word more and then I think we are through. You have been in the forge house, although sparingly, you told me? A. Yes, just a few visits over there.

Q. As the description we heard of the forge house, there was in your time, and I believe up to to-day, no device of any kind whatever to attempt to send the fumes from the forge house out over your own plant, or the neighbours'; no device whatever to lessen the volume of the fumes that left the forge house? A. I don't recall any and I don't think I am in a position to say "yes" or "no" on that question, because it was not my territory or my problem, particularly.

Q. Oh, but I mean, an assistant metallurgical officer in charge of the plant, do you know of any such device in the forge house to lessen the smoke nuisance on your neighbours? A. I did not know of any.

Q. Well, may I put in that I think you would know of one, if there were one there? A. I might, but just as I have not been back for three and a half years now, I just don't recall that.

30 Q. Well, I appreciate that, and I want to be fair with you. Now, the amount of oils you have for fuel, I think you told me this morning would make a smelly and fummy residue which would escape through vents in the forge house, and you told us about seeing it in the air going over Walker's? A. That is correct.

Q. Why didn't the firm, or why didn't you as metallurgist, with a view of lessening the damage to your neighbours, devise a soot reduction scheme, or a conical scheme, or a chimney scheme, to lessen the malodorous and offensive residue that would leave the forge house in its operations? A. Well, my opinion was never asked on that subject.

40 Q. That is the only reason you could give me? Had it been asked — well, perhaps that is too hypothetical. But I suggest those complaints coming from Walker 600 feet away, and your forge shop 450 feet, which you were aware of, had you put in some devices, it might have lessened the nuisance to Walker, obviously

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to some extent, I suggest? Would you say that it might have lessened the nuisance — never mind how much, or how little?

A. That is true.

Q. That is correct? A. That is correct.

Q. That is all, thanks.

MR. KEOGH: No questions.

—Witness excused.

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DR. DOUGLAS SAVILE, sworn,

EXAMINED BY MR. KEOGH:

Q. Dr. Savile, you are an associate plant pathologist in the Division of Botany and Plant Pathology in the Dominion Department of Agricultural, at the Central Experimental Farm, Ottawa. Is that correct? A. Yes.

Q. And what university course did you take and what degrees do you hold? A. I hold a Bachelor of Science in Agriculture from McDonald College, McGill University; Master of Science from McGill University in plant pathology; and doctor of philosophy in botany and mycology from the University of Michigan.

20 Q. And you have practised your profession as a plant pathologist chiefly, how many years, doctor? A. More or less continuously since my graduation with a bachelor's degree in 1933, but with time out for graduate training and a year and a half in the Air Force.

Q. And on or about the 18th of June, 1948, were you handed by Dr. Morris Katz, at Ottawa, three or four gladiolus plants? A. Yes.

Q. And were you handed the whole plants, that is including the roots, and the corms? A. Oh, yes, the plants were intact.

30 Q. And will you describe briefly the appearance of the roots, first of all? A. The roots were very poorly developed and shrivelled.

Q. And what was the colour and appearance of the foliage of those plants? A. The foliage showed a rather uniform yellowish discolouration. There was no actual killing, but the green colour had largely disappeared.

HIS LORDSHIP: Well, now, we have not any evidence about certain plants that were handed to Dr. Katz. I would like to relate my mind to where they came from, or what.

40 MR. KEOGH: Well, I will undertake to call Dr. Katz to prove that they came from McKinnon's plots, a few days before.

HIS LORDSHIP: But where were they taken from? I want to relate my mind to the importance —

MR. KEOGH: The pots in front of the butane tank, which is approximately in front of the forge shop, on the west side of Ontario Street.

Q. Then, you made an examination —

MR. SLAGHT: No way this evidence would be admissible except for my friend's undertaking that he gave in the other matters, so I assume we have his undertaking that this will be given, or this evidence will be stricken out.

10 MR. KEOGH: Ordinarily, my lord, I would not call this witness at this stage, but he is pledged to leave for the Arctic very soon on a defence problem for the Government, and he is obliged to leave next week.

Q. Then, doctor, you made an examination of these gladioli plants to determine what condition was affecting them, did you?

A. Yes.

Q. And with what condition were they affected? A. They were affected by the disease known as fusarium crelos.

20 Q. Is that a soil-borne or an air-borne disease? A. That is normally a soil-borne disease, but it is caused by fungus and, like most fungi, it forms spores which may be blown in the wind, but the fungus causes most of its damage through the fact that it will persist year after year in the soil. But it is originally introduced into the soil normally by the planting of affected gladioli corms.

MR. SLAGHT: I am sorry. I didn't get that.

THE WITNESS: It may be originally introduced into the soil by planting the diseased gladioli corms and once it is in the soil it may persist from — for several years.

30 MR. KEOGH: Q. Corms, are they popularly known as bulbs? A. Yes.

Q. And what are the control measures for that disease? A. The most important single measure is to use a long rotation as they term it in agriculture; in other words, do not plant gladioli in the same plot in successive years. If possible, do not go back and plant that gladioli in that one particular piece of ground in about five years.

40 Q. That is one measure. Is there any other method? A. There are some resistant varieties that can be grown fairly successfully, even in highly contaminated soil but, like all diseases, of course, you should plant only completely sound corms, coming from plants that showed no disease the previous year. Any plants that go yellow early in the season or die down prematurely should be thrown out, and only corms from normally green plants

should go into storage and then, in that way, you do not put out bulbs the following spring which may be diseased, without seeing it. One of the difficulties of this disease is that sometimes there are no symptoms in the bulb.

Q. It is hard to detect, in other words? A. Yes.

Q. Then, did you examine the corms or bulbs in those plants for any other disease, or condition? A. Yes. There were traces of scab on some of the corms but present in a small amount and any foliage symptoms of that disease I did not think really affected the picture.

10

Q. What does the fusarium, or, what is the effect of fusarium crelos disease on the foliage of the plant as the growing season advances? A. The main effect just is this yellow discolouration. It eventually — there may be a premature dying down of the leaves, but that will be a sort of an indirect effect. Usually by that time the roots have disappeared and the plant cannot get moisture and it just shrivels up as though from drought; but the direct effect of the disease is just this yellowing.

20

Q. And did you examine these plants to see whether or not there was any sign of any fume or smoke injury? A. There was no sign of any fume injury in the sense that I understand injury caused by sulphur dioxide.

MR. SLAGHT: I did not catch that last.

THE WITNESS: There was no damage caused by sulphur dioxide.

MR. KEOGH: Was there any damage that you saw on these bulbs or plants caused by any other kind of gas? A. No.

30

Q. Then, on the 10th of September, 1947, were you handed some specimens of gladiolus leaf — I suppose I should say gladioli leaves, by Dr. G. A. Ledingham, who, I believe, was then on the staff of the Department, at Ottawa? A. Yes, I did receive specimens from Dr. Ledingham.

HIS LORDSHIP: The 10th of September, 1947? A. I should correct your question to the extent that he was on the staff of the National Research Council.

40

MR. KEOGH: Yes. I beg your pardon. Then, my lord, I give the same undertaking with respect to Dr. Ledingham. I will call him to establish that these specimens came from the McKinnon test plot, that is on Carlton Street, at the test house. And did you examine the specimens of gladioli handed to you by Dr. Ledingham, to see what was wrong with them? A. Yes. These specimens were examined jointly by Dr. F. L. Drayton, of our division, and by myself, and was diagnosed —

Q. Just excuse me one minute. Drayton is your superior, or an associate? A. Yes, he is my superior. He is Associate Dominion Botanist.

Q. And you say you examined them jointly with Dr. Drayton? A. Yes.

Q. I do not want you to tell us anything whatever about what Dr. Drayton said or did, but just what you did and what your diagnosis was? A. I diagnosed it as a bacterial blight, caused by a bacterial organism, xanthomonas gummisudans.

10 Q. And was there anything on the leaves themselves to support that diagnosis? A. Yes. I then examined the leaves under the microscope and found small droplets of a gummy exudate in which bacteria were present.

Q. And that gummy exudate is one of the characteristics of that bacterial disease? A. Yes; that is ordinarily the clinging diagnostic symptom.

Q. Then, will you describe the lesions, first of all, on the specimens that you saw? A. The lesions were —

Q. And, by the way, I should ask you, those specimens were unfortunately not preserved, were they? A. I do not believe they were. I cannot be sure whether Dr. Ledingham kept them.

20 Q. And I believe also, unfortunately, the specimens sent to Dr. Katz were not preserved either? A. No.

Q. In any event I suppose they would be pretty well dried up now if they had been preserved? A. Well, the bacterial blight ones might have been in fair condition, but the fusarium yellow ones would not show anything. They just look like a dead gladiolus plant, with the colour gone out of them. There are no clear markings that would mean anything on the dried plant.

30 Q. Then, to get back to the Dr. Ledingham specimens, will you describe the appearance, or the markings of lesions on the leaves? A. The lesions, the ones that were just starting to form, they are mostly rather water-soaked and sort of a purplish brown symptoms around the edge and, in the later stages, the ones near the decks of the leaf, that is the older part of the leaf, the tissue is mostly dead and kind of bleached out to a dull yellowish brown, varying sometimes into a dark or purplish brown, but the symptom that is most characteristic of this disease and on which my diagnosis was first based, apart from the gummy exudate, was the fact that the ends of these lesions were often square. The disease is rather sharply found, temporarily at least above the leaf veins and your lesions tend to be rather rectangular.

40 Q. And eventually, as that disease progresses, what effect does it have on the gladioli leaf? A. Well, all the upper parts of the leaf is commonly killed; sometimes the entire leaf is killed to the base, and then it just becomes a kind of bleached brownish colour.

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Q. And at what time of the growing season does that bacterial disease usually appear? A. It is usually worst quite early in the season; it depends a lot on the earth. If you get moist, rather cool, rainy weather throughout the summer time, why it may keep growing actively throughout the summer but, generally, when you get hot, rather dry weather, its progress is very much slowed down so that in the average year I think perhaps you would say that the first month or two of the growing period, you would see the most severe symptoms and the most rapid spread of it.

Q. And have you records of that disease, in your department at Ottawa, from other places in Ontario. A. Yes. We have records of it from Kitchener, London, Brantford, Simcoe and Ottawa.

Q. Then, I wish to show you Exhibit No. 91, which was filed, I believe, by Mr. Jarvis. Will you look at that exhibit, please. I believe you saw it during the noon hour, did you not? A. Yes.

20

Q. What, in your opinion as a plant pathologist, is the cause of the injury to those specimens on Exhibit 91? A. I do not think the specimen warrants an absolutely positive diagnosis. It is too far gone. It can be seen from the upper part of the leaves here that a lot of the tissue has been dead for a considerable time. It is overgrown with secondary moles, which have discoloured it.

Q. We are told it was taken on July 7th, 1947. When you say "too far gone," do you mean it is too old? Is that what you mean? A. Well, — 1948 is on the label.

30

Q. Oh, yes. We are told it was taken on July 7th, 1948. I am just wanting to get from you what you mean by "too far gone"? A. Well, there has been — it has been damaged for a considerable time, because the discolouration, due to non-parasitic fungi going on the dead tissue, they rather cloud the original picture from the base.

MR. SLAGHT: The witness having said the specimen does not warrant diagnosis, I don't think it is open —

HIS LORDSHIP: I will hear what the witness has to say. It is for me to weigh the value of it.

40

THE WITNESS: I think I said positive diagnosis, but from the basal parts of the dead tissue and the square-cut appearance of the lines running down between some of the veins, I think it is most likely it was this bacterial blight we have just been mentioning.

Q. That is? A. *Xanthomonas gummisudans*.

MR. KEOGH: Q. Do you see any evidence on the specimen Exhibit No. 91 of any fume or gas damage? A. No. I think it

most important that the leaves could be completely killed at the top and show no discolouration, that is only the cortical areas bleached, on the dead veins down in the lower part of the leaf.

Q. Then, I show you Exhibit No. 74, picked on June 18th, 1947, which you have already seen, also filed, I believe, by Mr. Jarvis.

HIS LORDSHIP: Is that the date, June 18th, 1947?

10 MR. KEOGH: Oh, I am sorry, my lord. What, in your opinion as a plant pathologist, is the cause of the injury to these glad-
 ioli leaves? A. Excuse me a moment. I did not examine this one before. I must have missed it. I am practically certain that is the bacterial blight xanthomonas. Without a bacterial examination, it would be almost impossible to say with certainty, but it has all the clinical symptoms of it.

Q. And do you see any evidence on that Exhibit No. 74 of gas or fume damage? A. No. I would say not, for the same reason as in the other specimen, — for the most part the lower parts of the leaves are quite normal.

Q. Your witness.

20 CROSS-EXAMINED BY MR. SLAGHT:

Q. Then, doctor, have you had experience in bleaches caused by SO₂? A. Yes, I have a certain amount of experience in it. I am not a specialist in it, but at one time or another I have seen examples of such injury.

Q. How long ago? A. At various times. The most — the worst I have seen was in our own greenhouse at Ottawa, one year when the furnace was giving trouble and we had to use heating stoves right in the greenhouse in the autumn during the frosty weather, and the stoves did not work very well.

30 Q. That is interesting. And what kind of government furnace was throwing off SO₂? What was the fault? A. This was not a furnace at all. It was just a little stove right in the greenhouse, just a temporary thing, with a stovepipe going up through the roof.

Q. And the fault was what? A. The fault was coal of some kind. I couldn't say what.

40 Q. Well, would that SO₂, the blight, or something, was that under your supervision? A. No, it was not under my supervision, but the stove-pipes were not properly put up and one of them fell down during the night and the whole place was just full of smoke. It was an enormous concentration of SO₂.

Q. And you found some plants injured the next morning? A. Well, yes, the injury had started by the morning and, in the course of some days there were the usual symptoms, you see with sulphur dioxide, the discharge on the bleaches between the veins of all the plants.

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Q. Is that your experience with SO₂? A. I have seen a good many other specimens collected by different people investigating smelter fume injury in the Sudbury area and the Trail area.

Q. Did you pick any of these specimens yourself, or is it on hearsay from somebody else as to where they had come from?

A. No, I have not collected any of these myself.

Q. So the stove incident is the gist of your personal experience, where you took the samples? A. Yes.

10 Q. We have been told that the bleach from SO₂ appears suddenly after the exposure to the sulphur dioxide gas. That is, that it is almost over-night, the blight that appears after one or two treatments of sulphur dioxide. Would you agree with that?
A. I think that is right, in my limited experience.

Q. You think that is a correct statement. Mr. Jarvis told us that. And I assume you won't tell me that either of these that you mentioned procure an overnight condition such as you say you found on these plants? A. No.

20 Q. In other words, no need to pursue it any longer, but the process of disease is a slow one? A. These terms are relative. I could not possibly —

Q. Well, you would not expect much for two or three weeks, off a diseased plant? A. Oh, if the conditions were right, some diseases can spread like wildfire in less than a week. I mean, if you are going to talk about a few hours, less than a day, then I would agree with you: but there is no one period you can say, "This is too long," or "This is too short." After all, there are many hundreds of diseases of plants, as you will realize; in fact, a good many thousands, and you cannot possibly generalize.

30 HIS LORDSHIP: Let us just deal with the disease that you diagnosed as affecting these gladioli. That is all I am concerned with now, with your view on that. This disease that you say these samples that have been shown to you, — that has affected these samples that have been shown to you, would that occur overnight?
A. Not overnight, no.

40 Q. And if a man who was trained and experienced in plant life, a botanist like yourself, was watching from time to time, he would be able to see the development of it? A. Yes, of course, and be sure of the length of time that its development had taken.
It would require almost daily observation, because if you get one week of not too hot weather with abundant moisture, that bacterial blight can completely overrun a field, particularly of a susceptible variety.

MR. SLAGHT: And you know nothing personally about the source of either of these samples? A. No. I was told.

Q. You only went by what you were told? We don't want that. They were taken to you? A. Where they were brought from —

Q. And how many leaves were in the second sample, or how many in the first or in the second — A. There were several plants in the first.

Q. Plants in the first? A. Yes.

10 HIS LORDSHIP: When you are referring to the first sample, I suppose you are referring to the sample of June, 1948? A. Yes.

MR. SLAGHT: Q. How many plants were there in that one? A. There were several; three or four, anyway. There may have been a few more. I don't recollect.

Q. And how many in the second sample of 1947? A. That was not a whole plant, as I recollect. I think that was individual leaves. There were several. I did not keep notes of the exact number.

20 Q. So you did not have a single whole plant for your second diagnosis? A. I had whole leaves.

Q. But, do you agree with me, you had not a whole plant? A. Yes.

Q. And are you able to tell me how many leaves? A. No. I said there were several, — about six would be a fair approximation, I believe.

Q. How many? A. Probably about six.

Q. Well, you don't remember? A. I don't remember exactly. I did not count them and make a note.

30 Q. And you give an example, based on your own knowledge — I do not want things you have been told, where the disease became apparent, such as you suggested was apparent here, within a week? A. Yes. You are referring now to this bacterial blight, are you?

Q. Yes. A. Yes, the way it had developed in the course of — from the first symptoms that we could be sure of in our own nursery plantings at Ottawa, the way it had developed in several varieties, there, pretty well in the course of about a week; I cannot give you to a day.

40 Q. Oh, yes, doctor, but that is not what I asked you. You saw some symptoms, and then, watching those symptoms after a week it developed into a blight? A. No — it developed into more than a blight.

Q. Well, into more than a blight? A. Yes, the plants were almost destroyed.

Q. Then, let me put it this way. You used the expression from the first symptoms, then, in about a week developed into

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something you say now is more than a blight, — something perceivable? A. When I saw the beginning.

Q. Now, how long before you first saw the symptom was that plant diseased? A. I could not say.

Q. Of course you couldn't say. You did not know how long, before you saw these symptoms that were down at Ottawa, these plants may or may not have been diseased? A. No. I could set a fair minimum period for some of that injury, because it is overgrown by fungi, which could not possibly develop in less than two weeks.

Q. And I am interested in this first specimen shown as your Exhibit No. 91, which I think we heard was taken in July, 1948, less than a year ago? A. Yes.

Q. And you told me, or rather told my friend that the specimen does not warrant any positive diagnosis. Do you stick to that? A. I do not think those were my words.

Q. Well, you repeated the words that you had said, "no positive diagnosis." You called our attention to the fact — A. I think I said "absolutely positive." There is no such thing as an absolutely certain identification of disease like that without a bacterial examination, but for a clinical diagnosis, yes.

20

Q. Well, did you make a bacterial examination? A. Of this one, no. I have just seen it in Court.

Q. And you have not made a bacterial examination of either of these exhibits in Court? A. No. I just saw them a few minutes ago.

30

Q. And what did you say just now, — there is no certainty about a diagnosis on these two samples unless you do or had an opportunity of making a bacterial diagnosis. Is that true? A. That would be the average identification. A clinical diagnosis for a disease of that sort is ordinarily considered a normal requirement, just as a physician, he does not isolate the virus with the child, as chickenpox; he identifies it by the symptoms.

Q. Well, you used the statement just now, which was very broad. See if I can repeat what your statement is; that there is no certainty about a clinical diagnosis unless it is accompanied by a bacterial diagnosis. No certainty. Is that right? A. Yes.

Q. So if you have no certainty, you are right on this; you are right that there is no certainty about it? A. Yes.

40

Q. Well, that is very fair, and the suggested disease in six leaves, in specimen No. 2 and 3 bulbs, in specimen 31, might have been induced by fungi of that type having been blown into the plant, carried by the wind? A. No. As far as the yellows is concerned, those plants could only have grown either from infected bulbs, or from growing in contaminated soil, because, for the disease to have reached that stage, it would have required infection

early in the season; could not become established by spores, just blown in recently. It is slow in developing.

Q. Well, I suggest you told my friend when he asked you what condition affected them, you said fusarium yellows, and you said normally borne disease, or may be blown in by the wind, or by planting bulbs. Did you say that? A. Yes. That is one way in which the fungus can become distributed, from spores blown by the wind, but it could not develop suddenly. That fungus can live and grow in fungus matter in the soil.

10 Q. I understand you. If fungus had been blown across and lodged in the soil and then fertilized, or — A. Next year, it might have caused such a disease.

Q. Next year it might show up? A. Yes.

Q. So, if that be so, do you know whether these were taken inside or outside? We have not heard from the gentleman who took them. Have you any knowledge of that, hearsay? A. I was told that they came from an outdoor place at the McKinnon Industries plots.

20 Q. Which would be exposed to fungi, which might be wind-borne? A. Yes.

Q. Then, I take it you are telling the Court, — well, in your view, you are telling the Court that it is possible that the year before, by wind-borne fungus, the soil in which Mr. Walker may have planted these gladioli in the years they were lifted, might have been impregnated as far away as the year before? A. I am afraid that is over my head. I do not even know they were grown by Mr. Walker.

30 Q. Oh, you didn't know? A. I understood they were grown by the McKinnon Industries. That is only hearsay, anyhow, and I am not allowed to give that.

Q. Well, then, I was going to say, that eases my mind, but it does not my suggestion. Then, as far as you are concerned, by hearsay, you were told these were grown by the McKinnon's, here? A. That is my recollection. Other witnesses will identify the origin of the plants.

Q. Who will? A. Other witnesses I presume will identify the origin of the plants.

Q. Who did you understand was their florist expert that grew these bad, diseased plants? A. I could not say.

40 Q. Now, doctor, you made the statement that you did not think a positive diagnosis could be made on the first exhibit No. 91, which was taken in July, 1948, because it was too far gone. Did you say that? A. Yes. I think those were my words.

Q. And then, listening to your evidence, I thought you were pretty positive in your statement of Exhibit No. 74, which was taken in June, 1947, that it was of bacterial origin, were you? A. Yes.

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Q. And it was not too far gone? A. No. There was not the same degree of secondary discolouration.

Q. How do you account for that if they were both diseased; if one is a year later than the other and yet younger, one has greater discolouration? A. I think you are under a misapprehension perhaps as to the exact meaning as to secondary discolouration. Now, secondary discolouration in the field, before those specimens were taken and dried. You dry a specimen suddenly and there is no appreciable change will take place in the course of years. There may be a little discolouration, but it won't become overgrown with moles or anything and seriously change the picture.

Q. Have you ever been in Mr. Walker's greenhouse? A. No.

Q. Where do the first symptoms of these diseases appear?
A. Which disease? The bacterial blight?

20

Q. Yes. Take that? A. It would depend a great deal on the circumstances — generally near the tops of the leaves of the young plants. It would depend on whether there were diseased corms planted, or whether it blew in from perhaps adjacent plots or adjacent rows of diseased plants. If it was just a scattering of diseased plants in the row, then those plants would show it first and you would usually get the first symptom, a purplish or water-soaked lesions near the top and then that would produce a core which would be spread by rain to adjacent plants.

Q. That is all.

30

HIS LORDSHIP: Doctor, I wonder if you can help me with this problem. I always like, if possible, to relate the evidence to the particular circumstances of a case and not be hypothetical, if I can avoid it. Evidence has been given that Mr. Jarvis, a gentleman of some wide experience — I don't know whether you know him or not? A. No, I have not had the pleasure.

40

Q. In the same field as you are a specialist in, was keeping a rather watchful eye over the district for some time, running into two or three years, and testified that at the time when this Exhibit 91 was taken, that he found a burning, and other witnesses said that occurred overnight, and that that was the night when there was a severe burn. Then, Mr. Jarvis collected samples from the district of leaves. There is Exhibit 95, which is apricot leaves; Exhibit 94 is day lillies; 93 garlic; 92 peony; 90B grapes, 90A grapes; and 89 ferns and 89B a fern; 88 peach; 87 plum. Now, assuming that these were honestly collected as representative of a condition that had appeared in the district overnight, would that affect your opinion as to the gladioli, — as to the cause of the gladioli condition? A. No, I do not think so.

Q. You think that, if all these discolourations occurred in the district overnight, you still would believe that it was disease on them all? A. I cannot believe that that would have occurred overnight. Some of these symptoms look old and some comparatively recent.

Q. No. I say if that occurred overnight? A. Oh, if that did occur overnight, yes, it would suggest some explanation like fume injury.

10 Q. Well, I am dealing with the evidence. It is for me to say whether I believe the evidence, but I want to get your opinion on it, because I have to judge on the evidence. If one believes that this is a condition that became manifest overnight, these discolourations occurring on plum trees, peach trees, on the garlic and the barley, what about the gladioli? Would that affect your opinion if that actually happened? Would that affect your opinion about it, as to the cause of the injury to the gladioli? A. No.

Q. You would still stand by the gladioli? A. Yes.

Q. Now, are you saying definitely that you did diagnose that as a disease? A. Yes.

20 Q. Because I understood before that you said you could not make a positive diagnosis as it developed, to be positive in the meantime? A. Well, it may sound rather Irish, but there are degrees of positiveness.

Q. After all, I have to come to a positive decision some time, and I want to know what it is. A. This, certainly, I believe is bacterial blight, but the fact there are these other discolourations up here make it very hard to say whether that is the whole explanation. But that did plainly happen a considerable time before, because I know from experience that these gradual weatherings of the soil, the overgrowth by moles, that causes these little discolourations, that that definitely would not occur overnight or anything like that; it would probably be a matter of weeks.

Q. Now, I want to take just what you say now is your positive opinion about that exhibit. A. Yes. I diagnose it as a blight.

Q. Give me your positive opinion about that exhibit. A. You mean all these?

Q. No, no. Just that one gladioli. A. Bacterial blight.

Q. You say that that is the cause of the whole of the trouble? A. Certainly the cause of the majority of the trouble. What might have happened up here, weeks before, where it is all overgrown now, is impossible for anyone to say, — the tips of the leaves.

40 Q. Now, I want to know another thing. How difficult is it to diagnose bacterial blight? A. Judging by the specimens we have had sent in from growers and, to a lesser extent, from other plant pathologists in our outside laboratories, — most people have difficulty in distinguishing it.

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- Q. No, but I mean for a trained botanist like yourself?
- A. It is fairly easy once you have seen the variation in the sym-
tome. They may occur under different conditions.
- Q. Well, I mean, a botanist going to this test plot as they
are growing. I can easily imagine it is not a very fair thing to put
to you on a sheet of paper, something that has been picked years
before. A. Yes. Any one experienced with all the manifesta-
tions of that bacterial blight growing in a plot where it was
present to my mind I do not think should have any great difficulty
in diagnosing it. Single plants, even when they are still alive,
taken away from their surroundings, do not always give a fair
picture.
- Q. Well, how does one go about it? You see, it is a strange
field to me altogether, and if you were called to go to a plot where
the grower was worried about discolouration in his gladioli, on
going to the plot or visiting it occasionally, you would not have any
difficulty in diagnosing a bacterial blight? A. If there was a
considerable amount of it, I do not think I would ever have any
difficulty. If it was just beginning on a few plants, it might be
difficult, if not impossible.
- Q. Well, let me see that photograph, the one showing the
photograph of the plot. Have you seen it? A. No, I have not
seen it. A diagnosis from a photograph might be a very difficult
matter.
- Q. No, I am not suggesting that but, I mean if it showed you
the condition it is showing? A. I might get some clue from a
photograph.
- Q. Here is Exhibit 27 and Exhibit No. 26. I am not asking
you to diagnose or give an opinion from the photograph, but if it
were showing as much as the light shading on the leaves shows in
that photograph, would you have any difficulty in diagnosing it
as bacterial blight? A. No. I think that almost always if de-
velopment had gone that far, with that amount of leaf involved
as is involved by something here, it should be possible to diagnose.
- Q. Well, I do not mean possible. A. I mean it should be
positively diagnosable.
- Q. Should there be any difficulty in a trained botanist?
- A. No trained botanist or pathologist who was thoroughly fam-
iliar with this disease, but there are many plant pathologists in
our own service who have never seen the disease to recognize it,
and I would not expect them, working with other types of plants
and various diseases, to identify it.
- Q. I think that is all, doctor. Thank you very much.
- A. Thank you.

—Witness excused.

GERALD J. GAUKROGER, sworn,

EXAMINED BY MR. KEOGH:

Q. Mr. Gaukroger, what is your profession? A. My occupation is chief metallurgist at Canadian Industries Limited.

Q. St. Catharines? A. That is right.

Q. And how long have you been holding that position there?

A. I have held the position of chief metallurgist since 1943.

Q. You took a university course, did you? A. That is correct.

10 Q. And what course did you take? A. I attended Toronto University and took the Bachelor of Science degree there; a Bachelor's degree there.

Q. You have a Bachelor's degree? A. In chemistry, and also a professional member of the Chemical Institute of Canada.

Q. And when did you graduate with that degree from Toronto University? A. 1933.

20 Q. Now then, you were asked recently — we will start with the recent ones first and probably go back. You were asked recently to make some analysis of sulphur dioxide at the cupolas of the McKinnon Industries Limited, were you? A. That is correct.

Q. On the 18th of April, 1949, did you make some analysis of sulphur dioxide from samples of air taken at the charging floor, and at the roof outlet, simultaneously or at the same time? A. Yes, I did.

Q. At McKinnon Industries? A. Yes.

Q. Such analysis being for sulphur dioxide? A. That is correct.

30 Q. I have a set here I want to give to my friend, and I would like a minute to get it. A. May I refresh my memory, if I have that?

HIS LORDSHIP: You should start a refresher course for the members of the Bar. In the preparation of a case, when they prepare a document for their brief, if there was an extra copy for the Court, it would be very useful. It is so convenient to have copies to make notes on and that sort of thing, that do not form part of the record of the Court and is useful more as notes of the Judge.

MR. KEOGH: Thank you. I will try and keep that in mind, my lord.

40 HIS LORDSHIP: It has been done sometimes and it always makes a case so much easier.

MR. KEOGH: Well, you have a report of an analysis of that type, which you made on April 18th, 1949, have you? A. That is correct, yes, I have.

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Q. Then you had, as I understand it, three men working under your supervision taking these tests referred to in this report of April 18th? A. That is right. I was with them the majority of the time, myself.

Q. And you had two sets of test equipment, had you?
A. That is right.

Q. One set at the charging floor of the cupola? A. That is correct.

Q. And another set up on top of the cupola stacks, up above the roof? A. That is right.

Q. And you arranged before any of these samples were taken that these men who were sampling below and above would synchronize their charges, I understand? A. That is right.

Q. And then you arranged that samples of the air, both inside the cupola at the charging floor and at the outlet of the stacks above the water scrubbers, would be taken simultaneously at certain appointed times under your personal supervision, as shown in this report? A. That is right.

20 Q. And then you analyzed those samples with the results shown in this report? A. That is correct.

Q. May I have that report marked as an exhibit, my lord?

HIS LORDSHIP: Yes. Exhibit No. 121.

—EXHIBIT No. 121: Gaukroger's analysis April 18, 1949.

MR. KEOGH: And I will hand it up to your lordship, because Mr. Slight has a copy. Have you, by any chance, an extra copy of this report that his lordship may mark up? A. That was the 18th we were discussing?

30 Q. Yes. We are just dealing with the 18th for the minute. If you have an extra copy, will you be kind enough to give it to his lordship so that he may make notes and you can refer to the exhibit. Did you give his lordship a copy?

HIS LORDSHIP: Yes, thank you.

THE WITNESS: I gave his lordship one for the 18th.

MR. KEOGH: Now, may I have the Court exhibit, which is Exhibit 121, and which is the report of the 18th?

HIS LORDSHIP: Yes.

40 MR. KEOGH: Have you an additional copy of the 18th? Don't look for it now, because this is the Court exhibit which you can refer to, and when I want to ask you a couple of questions, his lordship has a copy and my friend has a copy. Now, I am not going into all the details of this, but the result of these tests as shown at the charging floor at the hour of 11.00 to 11.21 a.m. on the 18th, was 24 parts per million of sulphur dioxide? A. That is right.

Q. And, at the same time, the test at the roof outlet, above the water scrubbers, was nine parts per million of sulphur dioxide? A. That is correct.

Q. Then at —

HIS LORDSHIP: Just excuse me. I want to keep myself straight on this. Just a moment.

MR. KEOGH: I am sorry, my lord.

10 HIS LORDSHIP: I have got them set up in different ways, in different exhibits, and I want to keep my mind clear on the meaning of them. I am looking at Exhibit 119. The first item on that shows that at 8.00 a.m. eight parts per million, and while the first item on yours is 24 parts per million, that represents the same measurement, does it? A. It is the same measurement. That is expressed as parts per million.

Q. That is, there was more SO₂ in the sample that you took on April 18th than there had been in the sample that the witness took in 1945? A. That is right.

20 MR. KEOGH: And the 8.00 a.m. would be when the combustion was starting in the cupola, would it not be? A. Not necessarily, no.

Q. Well, at any rate, there would have been more combustion by 11.00 than 8.00, I should think?

HIS LORDSHIP: Well, I just wondered. The highest one shown by the previous witnesses was 18 parts per million, and that is when the blast had just started and on your table there are all, 24, 25, 14 and 19, but it is just, I suppose, dependent on the conditions of the blast. and so on? A. Or, though 24 parts sounds like a lot, it is an extremely small quantity.

30 Q. I am only dealing now relatively with the two statements. Is there any reason why there should be a difference? A. Yes, I can offer an explanation.

Q. Yes? A. This particular cupola that I am referring to here, was the cylinder iron cupola.

Q. Was what? A. Used for melting cylinder iron and in the other report that you referred to, I do not know whether it was that cupola or some one of the other cupolas. Now, if it were one of the other cupolas, for instance, if it was one of the malleable cupolas, less coke is used in that particular furnace, which might again account for the difference.

40 Q. Well, it may probably develop as we go along. We will have our intermission now, and we will take ten minutes.

—Intermission.

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—On resuming:

MR. KEOGH: Q. Then, Mr. Gaukroger, the other findings at the time shown in Exhibit No. 21, as to sulphur dioxide, that is, for the cylinder iron cupola, appear in the first paragraph of your report Exhibit 121? A. That is correct, yes.

Q. And the balance of the report is a setting out of the mechanics and method and the analyses you performed? A. That is right.

Q. Then, I wish to go to your next report of April 19th, 1949, the following day, and on that day you again made an analysis of air at the cupola stacks simultaneously at the charging floor and at the roof outlet in the manner previously described for the analysis and sampling of the previous day? A. Yes.

Q. And you have a report on that? A. Yes, I have.

Q. Is that right? A. Yes.

Q. And that report correctly sets out the result of your analyses in that regard, does it? A. That is right.

Q. And you have it and have extracted for his lordship, have you — I have already given my friend a copy? A. I hope I have.
20 Just a minute.

MR. SLAGHT: It is in two series, the ones I have.

MR. KEOGH: Well, the next one is the water-wash. I have not come to that.

THE WITNESS: Yes, I have an extra copy.

Q. Then, give two copies to his lordship and we will mark one as an exhibit and hand it back.

HIS LORDSHIP: This is not the same cupola? A. No, sir.

—EXHIBIT No. 122: Gaukroger's analysis April 19, 1949.

MR. KEOGH: And this exhibit No. 122, I want to ask you
30 two or three questions about it. I observe that the first sampling was taken at the charging floor at between 7.30 and 7.50 a.m.? A. We were just discussing the malleable cupola and I think you have gone down to another report.

HIS LORDSHIP: This is 11.10 to 11.30.

MR. KEOGH: Oh, I beg your pardon. I am looking at the wrong page; 11.10 to 11.30, yes, and at the charging floor, and your analysis of that showed 13 parts per million of sulphur dioxide.

MR. SLAGHT: May I interrupt to ask is the one marked as
40 Exhibit 122, the one starting at 11.10?

MR. KEOGH: The one headed with the words "Malleable Iron" at the top, and then your analyses of sample of air at the roof of the cupola stacks, taken at the same time and the same date. That is, the sample was taken at the same time on the same date and your analyses of that sample showed two parts per million of sulphur dioxide? A. That is right.

Q. And then your analyses for the other samples at the times and places shown in this report Exhibit No. 122, are correctly set forth therein? A. That is right.

Q. And then the balance of your report is again setting out your method of analysis and the mechanics of your chemical tests? A. Yes.

HIS LORDSHIP: May I just ask you something about these as we go along. The sample taken at 11.10 shows 13 parts per million on the charging floor, at the roof of that two parts per million. That would mean that the water curtain had caught 11 parts per million on that sample? A. That is right.

Q. Well, then, you go to the one at 1.20, which shows six parts per million on the charging floor, and five parts per million on the roof outlet? A. Yes.

Q. The water curtain there only caught one part per million? A. Yes.

Q. What would be the explanation of that? A. It could be, sir, that depending on the speed of the cupola furnace at that time.

Q. What do you mean by that, now? A. Well, if you are melting ten tons an hour, for instance, instead of five tons an hour, you would be automatically putting through twice as much air volume as you would if you were melting five tons, and that therefore if you are melting twice as fast, that water-wash system would have to absorb that much more sulphur dioxide.

Q. Yes, but wouldn't you expect to have twice as much on the charging floor if you are putting it through twice as fast? A. No, not necessarily, no. I am speaking of the amount there, so that supposing you put through 50,000 cubic feet of air at ten parts per million and 50 — and only 25 cubic feet of air at the same parts per million. you are actually putting through twice as much air in one case as you are the other, even though the gas analyses is the same.

Q. Well, approach it in a different way. In the one case 11/30 of the gas appears to have been caught in the water curtain, while in the other case only 1/6 of the gas was caught in the water curtain? A. That is right.

Q. Now, would it be that the efficiency of the water curtain varies at different times? A. I could not say. I have not watched it sufficiently well to say that, your lordship.

Q. I see. Well, it is just one of those things that may or may not mean anything at all. I wanted to get your explanation as we go along. A. You understand, too, that in the chemical analyses of this kind, your chemical error — I cannot say exactly what it would be. It would be plus or minus one part in a million. I cannot say as to that.

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HIS LORDSHIP: Well, proceed, Mr. Keogh.

MR. KEOGH: Thank you, my lord.

Q. Then, you made another report, as I understand, about the soft iron cupola on the same date, April 19th, 1949 — a similar report? A. That is right.

Q. Have you got two copies of the soft iron cupola, of April 19th, 1949? Now, have you in front of you two copies of your report of a similar analysis for the soft iron cupola on the same date? A. Yes.

Q. And was the same procedure followed in connection with the air samples on which you based your analysis of sulphur dioxide gas in that report? A. That is right.

20 Q. And does that report correctly set forth your analysis of the times of the sampling? A. Yes, it does.

—EXHIBIT No. 123: Gaukroger's analysis soft iron cupola 19th April, 1949.

Q. Then, without going into all of the report, I notice that your first time of sampling in Exhibit No. 123 is 7.30 to 7.50 a.m., and the analysis of the charging floor sample at that time showed six parts per million of sulphur dioxide? A. Yes.

Q. And the analysis of the roof outlet sample at the same time showed one part per million? A. That is right.

30 Q. And then the other figures are shown? A. Yes.

Q. And the balance of your report similarly sets out the method of analyses and the mechanics which you followed in making up this report? A. That is right.

Q. Then, I believe on April 22nd, 1949, you made an analysis for sulphur dioxide of the water-wash system in connection with the cupolas? That is, the water in the settling tank and the overflow water and the effect of the soda-ash and so on? A. That is right.

40 Q. And have you made up a report of this analysis of April 22nd, 1949? A. Yes, I have.

Q. And how did you obtain the samples for those analyses? Did you get them yourself, or were they brought to you? A. I got them myself, personally.

Q. At the times stated and places in this report which you have in front of you, and which has not yet been marked? A. That is right.

Q. And does this report of April 22nd, 1949, which you have in front of you, correctly set forth your analyses and sample times and locations and all the other data regarding these analyses? A. That is right.

—EXHIBIT No. 124: Gaukroger's analysis water wash system April 22nd, 1949.

THE WITNESS: I would like to correct an impression I might have given the Court. You asked me did I personally take those samples, and I misunderstood you. I did personally take the samples from the wash tank but I supervised the other samples.

Q. You supervised the taking of the samples from the overflow? A. That is right.

Q. And they were taken under your instructions at the times set forth in Exhibit 124? A. Yes, that is right.

10 Q. Now, I wish to hand you Exhibit 124 and wish to ask you a few questions about that. Your table on the first page of Exhibit 124 shows that your analysis of the sample at the overflow, which sample was taken at 7.00 a.m., showed 20 parts per million sulphur dioxide? A. Yes.

HIS LORDSHIP: Now, just a moment. That is related to the quantity of water. That is, in a million parts of water, 20 of them are sulphur dioxide? A. That is right, yes.

MR. SLAGHT: What does "overflow" mean?

20 MR. KEOGH: I am just asking him. Will you explain what you mean by "overflow"? A. Yes. The water from the three cupolas is passed into a tank holding approximately 5,000 gallons and there is an overflow pipe leading from this tank, that is carried down into the sewage system of the plant and the water from the tank overflows down this pipe. Now, the reason that it does overflow is that there is three hundred gallons of fresh water per hour put into that tank, per hour, through the cooling coils of the transformer.

Q. And then, I suppose by the same token, there is 300 gallons of water per hour allowed to overflow out of the system? A. That is right, yes.

30 Q. And do you know the head or rate at which that 300 gallons — well, never mind. I don't suppose it makes much difference. But there is 300 gallons per hour?

MR. SLAGHT: Would all three cupolas be running into that tank? A. Yes.

MR. KEOGH: And then the tank referred to in your report is this large settling tank of 5,000 gallons? A. That is right.

Q. Are there baffle plates in that settling tank? A. Yes, there are.

40 Q. Are there any filters in it? A. Yes, there is one filter. Q. Is that where it leaves to go back in the pumps again? A. Yes; it is just before the water is pumped back and we circulate it around the system.

Q. Then, I am not sure if I had the result for the first analysis, at 7.00, for the tank. According to your report here, it was 21 parts per million of sulphur dioxide? A. At the tank, yes.

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Q. And then the other analyses for the other samples are set out in detail? A. That is right.

Q. And then the times of the starting and stopping of the three blowers are set out next? A. Yes.

Q. That is the malleable iron, the cylinder iron and the soft iron cupola. They are correctly set out there, are they? A. That is right.

Q. And then, from your analyses, you said that you calculated that 1.368 points of sulphur dioxide were disposed of through the overflow. When you used the word "disposed of" just what do you mean? A. Well, that is it; went down the sewer and was lost.

Q. Was carried away? A. Carried away, yes.

Q. And then you say at 5.00 p.m. the tank contained approximately 5,000 gallons with a certain decimal of SO₂, and then you go on "this amounts to 2.35 pounds SO₂, or 373 litres"? A. Yes.

Q. And set out the conclusion that the total volume of SO₂ absorbed in the water-washer was therefore 590 litres? A. That is right.

Q. Then, on the second page of Exhibit 124, you set out your analysis of the solid matter, and first of all your calculation of the solid matter there, I suppose a qualitative analysis of the water in the water-wash system, that may not be correct chemical language, but you went through the same process, as the result of which you calculated the amount of solid matter in the water-wash system? A. That is right.

Q. And the details of the process are found at the top of page 2 of Exhibit 124, and the result of that process was as set out there, that the calculation came to 2340 pounds of solid matter, or solid material, collected in a day — in one day's operation by the cupola water-wash system? A. Yes.

Q. Then, you analyze that solid matter as next set out in your report and from that analysis you obtain a calculation that there was 16.89 pounds of SO₂ in the solid matter? A. Yes.

Q. So that adding together the 1.386 pounds from the overflow, and the 2.35 pounds from the tank water, and the 16.89 pounds from the solid matter or dry material, we have a total, if my arithmetic is correct, of 20.60 pounds of sulphur dioxide removed by all branches of the water-wash system, according to your calculation, in each day's operation? A. Yes, that is right.

Q. Now, does that take in an account of the sulphur dioxide that may have been absorbed in or entered into the slag in the cupola? A. No. That calculation does not include a quantity like that.

Q. And I understand that you have no report of an analysis of the slag: but did you recently make an analysis of the sulphur content of the slag? A. Yes, two days ago.

Q. This will not be the same date as this report, and it may not be 100% accurate; it will only be an approximation. When did you make this analysis of the slag? A. The 26th of April.

Q. Four days after Exhibit No. 124? A. Yes.

Q. And, on that day, you analyzed, I understand, three samples of slag from each cupola? A. No, one sample from each cupola.

10 Q. Oh, one sample of slag from each of the three cupolas?
A. Yes.

Q. That is, the three cupolas already referred to, the malleable iron, cylinder iron and soft iron? A. Yes.

Q. And what was the result of your analyses of that slag for each of those three cupolas, as to sulphur dioxide content? A. On the cylinder iron cupola it was .42%; on the soft iron cupola, it was .43%; and on the malleable iron cupola it was .22%, expressed as sulphur dioxide.

20 Q. And have you made any analyses from the standpoint of sulphur dioxide of any of the metal melted in the cupolas, or have you not? A. Yes, we do continually. The analyses of the metal varies between .08% and, I would say .16%; .08 to .16, in the metal itself. That is done continually.

Q. Then, the balance of your report of April 22nd, Exhibit 124, as I understand it, sets out the method of analyses and the mechanics and the chemical reactions that you made? A. That is right.

Q. Were you chief metallurgist —

HIS LORDSHIP: You are through with 124, are you?

30 MR. KEOGH: Yes, my lord.

HIS LORDSHIP: I have a question or two I want to ask. First, is there any explanation as to why the SO₂ content of the water, both in the tank and the overflow, should vary to such an extent? A. You refer —

Q. For instance, at 7.00 a.m. it was 20% and at 4.00 p.m., 100 parts per million. A. Yes. The reason for that, your lordship, is that at the beginning of the day that tank is filled with fresh water and, as the day goes on, you are putting —

40 Q. You say filled with fresh water? A. Filled with fresh water before the day's operation starts.

Q. If it is filled with fresh water, there would not be any SO₂ in it? A. That is right, but that cupola has been operating for approximately an hour before the first analysis was made.

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Q. Oh, I see. Well, then, you get on to at 4.00 p.m. it is 100, and at 5.00 p.m. it is 45. A. Well, as the day went on there was more sulphur dioxide put into that tank and then it built up to a certain extent, but at 4.00 o'clock the melting operations for the day were finished, but the water-wash system still continued to operate at 5.00 p.m., and there was 300 gallons per hour running into that tank after 4.00 o'clock, after the cupolas were shut off.

Q. Why would it jump from 39 to 100, in an hour? A. I see your point. The only explanation I can offer there is that towards 4.00 o'clock the cupola is melting down, that is, the charge is of the type of incandescent coke and, the cupola gradually going down, and when it is almost finished melting out, it is almost all incandescent coke in there and we slow down the blast, and I think the explanation is that there is more sulphur dioxide picked up at that particular time from the coke.

Q. Well, then, you say the water-wash system stopped at 5.00 p.m.? A. Yes.

Q. What do you mean by that? A. The circulation pumps were stopped.

20

Q. Would there be no water curtain after 5.00 o'clock?
A. That is right.

Q. Would there still be gas being given off? A. No, sir.

Q. None at all? A. No, sir. There is no gas given off after 4.00 p.m. At 4.00 p.m. these furnaces' bottoms are dropped and any residual incandescent coke that is left in is dropped right on the floor underneath.

Q. Well, then, when does it start again? A. It is started again the malleable cupola — you mean the water-wash system? I have the times here for this particular day.

30

Q. Oh, yes, I see. One at 5.15, the other at 3.40. Were there only two in operation on this particular day? A. No, sir, there were three.

Q. I have not got the time when the other started.

MR. KEOGH: Your lordship will notice one line says "cylinder" and "soft."

HIS LORDSHIP: Yes. All right.

MR. KEOGH: Q. Then, were you the chief metallurgist when Mr. Williams was there as assistant chief metallurgist?
A. Yes.

40

Q. And you heard his evidence? You were in Court and heard his evidence given this morning about why the soda-ash was introduced into the cupola water-wash system? A. Yes.

Q. Do you agree or disagree with that? A. I agree that the soda-ash was put in there to prevent the corrosion of the nozzles.

Q. And he gave me the quantity that he estimated — the daily quantity, I think it was from three to five hundred pounds of soda-ash during the day, depending upon the day's acidity. Do you agree with that? A. Yes, I do. We are still using approximately those amounts.

Q. Then, during melting operations, has each cupola water-wash a circulating pump? A. Yes, it has.

Q. For each cupola? A. Yes.

10 Q. And is there a warning light flashed on, a switch connected to a light on each system? A. Yes.

Q. And what is the purpose of that little system? A. That is to indicate — if the water should stop running, this light will show us when it stops running, and we can immediately take corrective action.

Q. And have you ever seen that light flash on to show that the water had stopped running, while you were around there? A. No, I have never seen an instance of it.

20 Q. Then, how often is the sludge, or, as you call it in your report, Exhibit 124, dry material, removed from the settling tank, the 5,000 gallon tank we have referred to? A. I can give that to you only from hearsay. I did not supervise that, myself.

Q. Well, I don't want that. If you do not know, I can get it from another witness. I just want to put a statement to you, that, I am instructed, was made by Mr. Beaumont in the witness box, that sulphur dioxide from coke combustion would not come into contact with the slag within the McKinnon cupolas. Do you agree or do you disagree with that statement? A. It definitely does.

Q. First of all, do you agree or disagree with Mr. Beaumont's statement? A. I disagree with that statement.

30 Q. Now, make whatever explanation you wish to make. A. The analyses of the slag, by actual analysis of the slag always shows some degree of sulphur content in the slag, and a large part of that slag originates as lime constant and in lime constant there is only an extremely small quantity of sulphur and the sulphur content of the pig iron or the steel is very, very small; it is generally in the neighbourhood of .03%, and that sulphur content of the pig iron and the steel goes into the cast iron itself, it does not go into the slag.

40 Q. And what about the contact part of the statement, that sulphur dioxide from coke would no come into contact with the slag? A. Well, there is the bed of incandescent coke approximately 60 inches in our cupolas, 60 inches from the bottom. If there is a bed of 60 inches of incandescent coke in towards the bottom, not exactly at the bottom, but a little piece from Bottom, wind is blown in on this incandescent coke and the metal starts to melt towards the top of this 60 inches of incandescent coke and drips right down through the coke.

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Q. And is caught in some kind of basin at the bottom?
A. That is right. It is caught in a bath at the bottom.

Q. So you have this molten metal as it is melting, dripping down through this incandescent coke? A. That is right. It is in intimate contact with the coke.

Q. Then, on March 22nd, 1949, you took samples of snow, I understand, at the vicinity of Dunn's greenhouses and also at the rear, or to the north side of the Walker's greenhouses? A. That is right.

Q. And have you a report, and you made an analysis of the test and sent samples that you personally took at those places on that date? A. Yes, I have.

Q. You took the samples personally? A. Yes, I took the samples personally.

Q. And I believe you have put them into these four flasks that I have here? A. Yes, I did.

Q. What is the name of those flasks? A. Erlinmeyer flasks.

Q. Have you — A. I only have one copy.

20

Q. Well, then, I have another copy which is the only one I have, which I can give to his lordship.

HIS LORDSHIP: Well, we need a copy for the Court.

MR. KEOGH: Well, this copy the witness produces will be marked in a minute, when I ask him a couple more questions.

HIS LORDSHIP: Probably let Mr. Slaght have it.

MR. KEOGH: I assume this report was correctly made up from your analyses of your samples personally taken by you on that date? A. That is quite right.

30

Q. And the analyses, and date, and the other information shown in this report are true and correct and complete? A. Yes.
—EXHIBIT No. 125: Snow samples taken near Dunn's and Walker's.

Q. And attached to this report which you have handed to me is a sketch showing where you took the samples with relation to the north end or rear of Mr. Walker's greenhouse premises? A. Yes.

Q. And, as stated in the front of the report, they were taken on the north side of Manchester Avenue, behind the rear of Mr. Walker's premises? A. Yes.

40

HIS LORDSHIP: Q. You said you made an analysis of it. We have been using that term rather loosely. Did you analyze it to find its total content, or analyze it for — A. Just certain constituents.

Q. Well, that —

MR. KEOGH: Just for ash, I understand.

HIS LORDSHIP: You see, some of these reports are going to be very confusing, because they are headed "Results of Analyses," and I have found that statement indicates an analysis when it is not as a matter of fact. If you analyze for ash, that is one thing; if you analyze for iron, it is quite another thing. You did not analyze for iron? A. No, sir.

10 Q. Nor any other constituent part except ash? Is that correct? A. Ash and combustible matter.

Q. What do you mean by combustible matter? A. That is matter that would be driven off when heating something to a high temperature.

Q. Well, what would be that analysis? A. It might be some hydrocarbons, volatile hydrocarbons.

Q. Or, it is solid in the form you analyzed it? A. It was originally solid, yes.

Q. It is what we might call soot, I suppose? A. Yes, it could be.

20 Q. And not meaning that to be technical at all? A. Yes; soot would be all right.

Q. And would there be any carbon in it? A. Yes, there could be.

Q. However, there is no analysis for iron? A. No, sir.

MR. KEOGH: Q. Then, you have not a copy of that report, Exhibit 125, in front of you, but perhaps I may show you the ash analysis on the second page of it and, without giving me a lot of figures, can you tell me generally and briefly what, if anything, it shows as to ash as to the samples taken at the rear of Mr. Walker's premises, and the samples taken at Mr. Dunn's premises?
30 A. Well, the first two samples —

Q. In other words, just which has the most ash? That is all I want to know. A. The two samples taken in the rear of Mr. Walker's residence show the most ash.

Q. And which has the most combustible matter? A. I beg pardon. The two samples taken from behind Mr. Walker's property show the least ash. That is what I should have said.

40 Q. And which set of samples has the least combustible matter? A. The least combustible matter taken from the two samples taken from behind Mr. Walker's property.

Q. Now, then, I hand you four flasks, each numbered "1, 2, 3 and 4," and are they the remainder of the samples 1, 2, 3 and 4, referred to in your report, No. 125, saving only such portion of the samples as was used up in those analyses for ash? A. That is right. They were the remaining portions.

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Q. May we mark those as one exhibit, my lord?

HIS LORDSHIP: Yes.

—EXHIBIT No. 126: A, B, C and D, 4 flasks with snow samples.

MR. KEOGH: Q. Now, A comes from where? You have the report in front of you. Flask No. 1 is what sample? A. Is from Dunn's.

Q. And that corresponds to your sample No. 1 in Exhibit 125? A. Yes, that is right. No. 2 sample is from Dunn's; No. 3 sample is from Manchester Street behind Walker's.

Q. And No. 4 sample is from where? A. No. 4 sample is on the same spot behind the Walker place.

Q. Now, Exhibit 125 refers to sample No. 5. What happened to it? A. 5 was dust removed from some ash leaves and there was not sufficient dust left to analyze.

Q. The analysis used up in No. 5 was the ash leaves from Dunn's? Is that right? A. That is right.

Q. Now, I hand you four photographs. I should ask you this first. By the way, when you personally took these samples of the dirt and snow, — the dirt on top of the snow with the snow, and put it into these four flasks, Exhibits 126 A, B, C and D, was there a photographer by the name of Mr. J. O. Dundas with you? A. Yes, there was.

Q. And before you scraped up the snow for each of those samples, did he take a photograph of it? A. Yes, he did.

Q. And were you there when he took the photograph? A. Yes, I was present.

Q. I hand you four photographs and I will go over them in detail in a minute, are those the four photographs that were taken by Mr. Dundas of the snow where you scooped up a sample, before you scooped it up? A. Yes, sir, they are.

Q. Then, two or three of them have amounts put down on them and one, I believe, has no amount. What is the reason for that? A. Well, we did not think of it; I don't think Mr. Dundas thought of it till after.

MR. SLAGHT: I would only be interested in three, then.

MR. KEOGH: Well, we will deal with that first, then. What was the reason for the ones with the amounts put down? Is that— A. Well, it was to show the relative sizes of the particles of dirt in relation with something that is definitely known.

Q. Well, then, taking them in the order in which your report deals with them, Exhibit 125, samples 1, 2, 3 and 4 —

HIS LORDSHIP: You had better file those photographs as exhibits.

MR. KEOGH: Yes, I was going to ask him which one was sample 1, and so on.

HIS LORDSHIP: Well, they are marked "1, 2, 3 and 4." Does that correspond with the "1, 2, 3 and 4" on the flasks? A. Yes, it does.

HIS LORDSHIP: Then, they will be Exhibits 127 A, B, C and D.

MR. KEOGH: Corresponding to the numbers "1, 2, 3 and 4" on the photographs? A. Yes.

—EXHIBIT No. 127: A, B, C and D. 4 photos taken by Dundas of similar snow as used in samples.

10 Q. Then, were you present in Court when Mr. Longhurst gave his evidence about submitting filter papers and tubes of silica gel from the dust collecting apparatus to you, for testing in your laboratory? A. Yes, I was.

Q. And did you receive those articles from Mr. Longhurst from time to time? A. Yes, I did.

Q. And did you or your assistants, under your supervision, analyze those filter papers and specimens of silica gel that were brought to you or to your laboratory, by Mr. Longhurst? A. Yes.

20 HIS LORDSHIP: Now, there again you are using the broad term.

THE WITNESS: I have done the odd one, my lord, but the majority of them were done under my supervision.

HIS LORDSHIP: Well, you did not do the analysis yourself? A. No.

Q. But what analysis was done, what were they analyzed for? A. They were analyzed for total dust and organic matter, soluble organic matter and photo electric cell.

Q. I do not know. Is that a chemical analysis? A. It is merely to show the relative density of the dust on the filter paper.

30 Q. I see. And you have a form in front of you, a specimen of one of these analyses of that filter paper and silica gel, from the dust collecting equipment, and one of the dust used, have you? A. Yes, I have.

Q. And that is an actual specimen? A. Yes.

Q. Well, I do not know how the witness can give evidence on an analysis done by some other person. He cannot be cross-examined on it.

MR. KEOGH: Well, I was going to ask him.

HIS LORDSHIP: He says he did not make them.

40 THE WITNESS: I have made some when they were first set up, your lordship, and the rest of them were performed under my supervision.

MR. SLAGHT: Did he make this one?

MR. KEOGH: Q. Did you make the one you are reading from in front of you? A. No.

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Q. Have you got one here that you did make, yourself?
A. No, I don't think I have; I mean, I could not swear to it.

Q. You have a couple of boxes of these in the next room?
A. Yes.

Q. Could you find very quickly one that you did make your-
self? A. No, because these are typewritten and it was a con-
siderable time ago when I did them.

Q. How many technicians have you in your laboratory,
under your supervision? A. Approximately 25.

MR. SLAGHT: I have no objection to his rooting around the
boxes and putting it in Monday morning, if it pleases.

HIS LORDSHIP: If he finds one that he made himself.

MR. KEOGH: We will let it go at that and between now and
Monday morning get one out of the boxes that you made yourself
and, with my friend's consent, we may possibly be able to mark
it as an exhibit, on Monday morning. Did you deliver the analyses
of the dust, this other organic matter and solubles to Mr. Long-
hurst, from time to time? A. Yes.

20

Q. You did? A. Yes.

Q. And those are the analyses that he referred to this morn-
ing as getting from your laboratory, from time to time? A. That
is correct.

HIS LORDSHIP: But these are the analyses you did other
than yourself? A. Yes.

Q. All you did was hand over the papers? A. That is
right; turned the paper back to him.

30

MR. KEOGH: And is there anything on each of these an-
alyses, apart from Robinson's handwriting, is there anything else
on them which would indicate in any way which one of the twenty
odd assistants in your laboratory made that particular dust an-
alysis? A. You mean is there anything on this particular one
that would indicate any specific person?

Q. Yes? A. No, there is not. This is a typewritten copy.

Q. Apart from somebody being able to recognize anything?
A. No. This is typed. I have some original ones in writing.

40

Q. Is it possible for you, at this date, to tell from these
analyses themselves who, which one of your assistants, made each
one of them? A. Yes. There are only two people did these,
chiefly one person but, at the most, two people ever did these an-
alyses in the laboratory.

Q. And what are their names? A. Albert Davey and Stan-
ley Klimek, and possibly a third one, Alec. Deroche.

Q. And are they all still with your laboratory and with the
company? A. Yes, they are.

Q. Your witness.

CROSS-EXAMINED BY MR. SLAGHT:

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Q. Mr. Gaukroger, before I discuss with you what was coming out of the mouth of the cupola chimneys in which I am chiefly interested, I want to ask you a few general questions. I take it you would agree with Mr. Williams — were you here when he testified? A. Yes, I was.

Q. Who told me that at all times there was a certain amount of iron in small particles coming out of the chimneys. Would you agree with that? A. It is possible, yes.

10 Q. And that, at all times, there was a certain amount of SO₂, sulphur dioxide, in varying quantities? A. Coming out of the cupola stacks?

Q. Coming out of the cupola stacks? A. Yes.

Q. Which you could not catch or save? A. You mean, you could not catch in the water-wash system entirely?

Q. Well, you didn't catch, then. Never mind if you could. A. A certain quantity, yes.

20 Q. Now, I put it to you that twelve, or, rather, .12, — I do not want to have any doubt about this, — decimal 12 parts in a million may be detrimental to plants and flowers? A. I don't know.

Q. You don't know. Well, that is another blanket. You don't know about that? A. No.

Q. Well, perhaps you are not a florist. And we do have from your exhibits, — I will just be brief with this, if I can, — I will take Exhibit 121, and the first item it shows on the charging floor that there were 24 parts in a million? A. Yes.

Q. Of SO₂, and then, when you get up to the roof, the outlet, there were only nine parts in a million? A. Yes.

30 Q. So you caught 15/24 and you did not catch 9/24. That is the way that works out? A. Yes.

Q. Then, his lordship pointed out to you that, on April 19th, Exhibit 123, the fourth item there on the charging floor, you started off with six parts to a million. No, his lordship did not point this out — I pointed this out to you. You start with six parts to a million and you caught at the outlet, or there were at the outlet four you did not catch? A. No, the other way around.

HIS LORDSHIP: I think you have that wrong, have you not?

40 MR. SLAGHT: I was looking at the fourth item down.

HIS LORDSHIP: Exhibit 122?

MR. SLAGHT: I have gone to 123, my lord.

HIS LORDSHIP: Oh, yes.

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MR. SLAGHT: I want to get an idea of the proportion you were not catching sometimes. Start with six down below, where there are six parts in a million of SO₂ and at the outlet there were still two parts going out the chimney and you caught four parts, so you caught 66 2/3 of the SO₂ and there escaped you 33 1/3% of the SO₂? A. Yes.

Q. Now then, I want to go to the one his lordship did call your attention to, that is on Exhibit 122, dated April 19th, and the third item on the charging floor you find there are six parts to the million? A. That is right.

Q. And there escaped on you, through the chimney, five parts to the million? A. That is right.

Q. So, if my arithmetic is right, out of what you were trying to catch, you caught 16 2/3%, and there went out of the chimney in spite of you 88 1/3%? A. Yes.

Q. Now, you were asked how do you explain that and you made some remark, and I am not clear what you meant, that there might be one point chemical variation. What do you mean by that? A. Well, there is always a certain amount of error in any chemical analysis.

20

Q. Oh, I see, — that, whoever made this analysis — well, that was yourself? A. Yes.

Q. And you might have made an error of one point? A. There might be an error of one part per million in your actual work.

Q. Well, I grant you that. A. There might be one point difference.

Q. There might be one point difference in other analyses you have put in here, one point in a million? A. It is possible.

30

Q. Give you the benefit of error and reduce those five that got away from you to four. That means that out of six parts on the charging floor, you only caught two and four of them got away from you; 66 2/3 of SO₂ that was going up that chimney, got away from you? A. Yes.

Q. Now, this is a few days you have given us, and may I put it to you that you are not able to say that that sort of thing was not going on for the last three years? A. It is possible.

Q. In other words the SO₂ starting up the chimney, — of the coke for three years at times 66% of what started at the charging floor below got out of the chimney? A. I cannot argue against you, sir.

40

Q. I thank you for that. That is a very fair answer. You could not argue against me when I suggest that. Now, that being so, and that SO₂ is an evil thing for the neighbours, that is a pretty weak system you have got there, isn't it, the cone system? A. If that were actually so, yes, it would be.

Q. Well, you are not able to suggest that it is not actually so? A. Well, by taking those analyses as a whole, — that is, you have picked out one instance of that, that is not representative.

Q. All right, I picked out more than one. I picked out two, and in one case you say that 66 1/3% and 33 1/3 got away on you. In the other case you saved 33 1/3% and 66 2/3% got away from you. Now, I suggest that might be happening throughout the period since 1945, which I am interested in, and you are unable to argue with me, as you put it? A. It is possible that
10 would occur, sir, at times.

Q. Well, if that was occurring, say, at times, do you suggest that that much SO₂ could have — take this last one, four parts in a million, and I am instructed that .12 is damaging and four parts in a million would be 32 times .12, and that that might very easily be doing some damage to Mr. Walker's plants. What do you say? A. I don't know.

Q. You again don't know.

HIS LORDSHIP: Of course, Mr. Slaght, I think you are comparing two things that are not quite comparable. The concentration of SO₂ at Mr. Walker's greenhouses would be quite different from the concentration in the cupola.
20

MR. SLAGHT: Might be, my lord.

HIS LORDSHIP: They would be diffused in the air.

MR. SLAGHT: Yes. I am going to ask him about that, but let me ask you this. When the smoke comes out of the chimney, does it sometimes swirl? A. It is possible.

Q. And then if a light wind were carrying it over Walker and if it kept going all day for nine hours of the cupola operation, let us say a shift, and had swirled some, it might condense or diffuse, as his lordship indicates, — I suppose more likely diffuse as the Court indicates than to condense: but supposing this kept up with those four parts in a million going out of the chimney in this extreme case, and that keeps up for nine hours, even with diffusion, the Walker plants would get an awful dose of SO₂, wouldn't they? A. I would say not, no.
30

Q. Why not? A. It would still be diffused in the steel from the dilute form.

Q. Well, we will see about that. And when Williams was there, he said they were using a circular tube part way down the cone, with pinholes or holes for the water to sprinkle out. Do you remember that? A. I never saw it at that time, myself. I knew it was in operation, but I did not inspect the unit, myself.
40

Q. Well, you were chief metallurgist, though? A. That is right.

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Q. And, when Williams left, who went on in his job, — his assistant? A. We have no assistant metallurgist by that particular title. We have assistants, but not an assistant metallurgist.

Q. Well, then, when Williams left you were chief metallurgist still? A. That is right.

Q. And you did not fill his place with a man called, as Williams was, an assistant metallurgist? A. No.

Q. Well then, after Williams left, somebody changed this around and took out the circular pipe part way down the cone, and substituted a tap at the top, which is your present system.

HIS LORDSHIP: It is hardly a tap.

MR. SLAGHT: No, not a tap, a piece of pipe through which the water enters. Is that right? A. Yes. I saw it once.

Q. You have seen it once, as chief metallurgist? A. That is, glanced at it.

Q. Glanced at it once? A. Yes.

Q. And how many years ago was that? A. That was quite recently; about two weeks ago.

20 Q. You were not there on the 14th of March with my people, were you? A. No, I was not.

Q. And then, where did you see it there the once you have seen it? A. You were referring to where the water enters at the top of the cone?

Q. That is right: comes in through one or two pipes. Do you know whether it comes in through one pipe and then drops placidly on the apex, or whether it comes through two pipes? A. I would say from the brief glance I had of it the other day, it comes directly through the cone.

30 Q. Now, can you tell me how it gets there, because we have had criticism that you did not put enough water to do much good in there, and that the Ford people did originally put three times as much water. Did you ever consider that at all? A. No, I did not.

Q. Well, who is there in your organization that we can get to tell us something about it, who is charged with the responsibility of seeing that that cone, in the first place, is efficient and, in the second place, is maintained in good condition? A. I would suggest the plant engineer, or the foundry maintenance supervision.

40 Q. You suggest the plant engineer. What is his name?
A. Mr. McAuley:

Q. And your superintendent of maintenance. What is his name? A. Of the foundry, Mr. Campbell.

Q. And you cannot say, you not being the boss? A. I have been up there several times, but I have not paid much attention to the top of that cone.

Q. And do you know of any regulations that make it necessary for anybody in there to inspect that, once a week, or at any time? A. I know nothing about that.

Q. Now then, you have seen this tank down below? You have spoken of it, of course, as a 5,000 gallon tank? A. Yes.

Q. And into that, I think you told me when I interrupted you there, that all three cupolas discharge their washed water into that one tank? A. Yes.

10 Q. And you re-use that water over and over again except that you freshen it by a supply of new water. How often per day? I gathered from you it is once in 24 hours? A. Once in 24 hours that tank has fresh water added to it, but also there is approximately 300 gallons per hour entering it from the cooling coils to a transformer. I mean, I cannot and I do not want to mislead you. That information has been given me by the plant engineer. Now, I cannot say if it is 300 or 500, but I understand it is 300 gallons.

20 Q. You don't know of your own knowledge whether any goes in per hour? A. I have seen it go in.

Q. Well, that is fair of you again to point that out, to keep us straight in that regard. Now, Mr. Williams said I was not unfair when I said that owing to the sludge and stuff that went into that water, that it had a slimy look. Would you agree with that? A. I mean, I would say it had a dark look. I have not felt it to see if it is slimy, but you could see small particles floating in there.

30 Q. Well, let me ask you this, washing over again, using a water with particles in it, through your system, and I want to get from somebody when you changed it, because we are asking damages in 1945. Certainly was not changed up to Williams' departure in October, 1945, was it? A. No, I do not believe so.

Q. When did you change that? A. I cannot tell you exactly.

Q. Who do you think could tell me that? A. The plant engineer can tell you that.

40 Q. Well, we have his name. Then, do you agree — you were chief metallurgist there perhaps at the time, but do you agree that the reason that system was changed, whenever it was changed, was because it was not working efficiently because the dirty water used over again had the habit of plugging the little pinholes? A. I do not know the true reason why the system was changed. It has been given me that —

Q. Well, never mind what has been given you, if you don't know? A. I don't know the exact reason.

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Q. Williams said that up to his time — and I was wondering if you could help me as to later, and how long. Well, I am only interested from January 1st, 1945, to October, 1945. Why did you carry on that long re-using water which was dirty in part and which clogged the pinholes? Why did you carry that on, instead of changing it early in January, to help your neighbours get less dirt? A. I cannot answer that question.

Q. And then when the new system was put in, they took the circular pipe out and they put this little — at least this pipe than ran up above the apex. Can you tell the diameter of the pipe above the apex, that is now there? A. No, I cannot tell you exactly.

HIS LORDSHIP: Will you be some time with this witness, Mr. Slaght?

MR. SLAGHT: Yes, I will be a little while.

HIS LORDSHIP: There is just one question I want to ask before it goes out of my mind. Mr. Williams would be acting, I suppose, as your assistant, when he made the analysis that is shown in Exhibit No. 119? A. Yes, he was, sir.

20

Q. That was in 1945 when he made an examination of the gas at the charging floor and at the roof outlet above the water curtain? A. Yes, sir.

Q. Was there ever any analysis made again between August, 1945, and April, 1949, to ascertain— A. Yes, I did make—

Q. Just wait — of a similar character, to ascertain whether the water curtain was effectively taking out the sulphur dioxide? A. Yes. I ran some myself, your lordship.

30

Q. When was your analysis? A. I could not tell you exactly. I did not keep the copies. I was going to, and then decided to run them simultaneously, and destroyed the copies.

Q. Well, when was that? A. That would be about a month ago.

Q. You made one about a month ago? A. Yes.

Q. And you destroyed the results of that? A. Yes, that is right.

Q. But that was rather for the preparation for this trial, I take it? A. That is right.

40

Q. You made preparation, but I am taking it for the matter of information as to the manner in which your plant was operating, with a view to ascertaining whether there was any gas, or more gas passing off than ought to be. You did not make any checks between 1945 and — A. No, not to my knowledge.

Q. Between 1945 and, we will say, March, 1949? A. No, not to my knowledge.

Q. Did you own a machine, or the equipment that was required to make those analyses? A. I beg pardon, sir?

Q. Did the plant have in its possession the equipment required to make those analyses? A. Oh, yes.

Q. From 1945 on? A. Yes, we could have done, yes.

Q. Well, we will continue with your cross-examination on Monday.

We will adjourn until 11.15 on Monday morning, May 2nd, 1949.

—Whereupon Court adjourned until Monday, May 2nd, 1949.

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Monday, May 2nd, 1949, 11.25 a.m.

10 CROSS-EXAMINATION OF MR. GAUKROGER CONTINUED
BY MR. SLAGHT:

HIS LORDSHIP: Mr. Keogh?

MR. KEOGH: With the permission of my friend, Mr. Slaght, I would like to interrupt the cross-examination of the witness and ask Mr. Gaukroger to deal with two points, one of which was raised in chief, that he was to produce the dust analyses that he made.

HIS LORDSHIP: Yes.

20 MR. KEOGH: Q. Mr. Gaukroger, it was suggested during your examination-in-chief that you produce one of these analyses of dust that you made yourself, personally. Have you one of those analyses forms with you now? A. Yes, I have.

Q. And will you produce it, please? You have, I believe, made since three additional copies, so that you now have four copies? A. That is right.

Q. Produce the whole four copies, will you, please, and give me one copy, the original, and I will hand it to the Registrar and there will be a copy for his lordship and a copy for my friends.

30 —EXHIBIT No. 128: Gaukroger's analysis of dust July 3rd, 1946.

Q. Now, this Exhibit 128, a form of analysis of dust, which I see bears your signature and you say was made by you personally? A. That is right.

Q. And it refers to 59 paper, 11.45 a.m. July 3rd, 1946, to 7.30 a.m. July 4th, 1946. What does that mean? First of all, where did you get that information? A. That information was given to me by Mr. Longhurst.

40 Q. Mr. Longhurst, I understand, handed you the filter paper and the silica gel tube with the slip of paper attached to them, giving this information at the time? A. That is right.

Q. And also the information on the next line above, the temperatures, and so on? A. That information was also supplied by Mr. Longhurst at the same time.

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- Q. On the same slip attached? A. Yes.
- Q. And then the last three entries on this Exhibit 128 are the results of your work, are they? A. That is right, yes.
- Q. And it shows total dust in organic matter, .0129 grams. Will you explain briefly what you did to get that result? A. Yes. This filter paper is previously weighed and is given to Mr. Longhurst, who puts it in his piece of equipment and takes it back over to the recording device previously described, and it is put in there for a certain length of time.
- 10 Q. Well, at any rate, it comes back to you a day or so later, does it? A. That is right.
- Q. And then it is weighed again? A. It is re-weighed, yes.
- Q. And the difference between the weights is this top figure? A. That is right.
- Q. Then, the next figure in there, "28 soluble organic matter, .0067 grams." Who arrived at that figure? A. The silica gel is emptied by Mr. Longhurst into what we call a thimble. This thimble is made of similar paper to the filter paper.
- 20 Q. A thimble of filter paper? A. That is the term for this particular piece of paper. He empties that silica gel into this thimble and we take that thimble containing the silica gel, along with this previous paper and put it in an S.O.X. extractor.
- Q. Now, you said along with the previous paper. The previous paper is the filter paper we have just been talking about? A. That is right.
- Q. And you put the two of them in this extractor? A. Yes, and the soluble organic matter is determined by the use of this extractor.
- 30 Q. And before you put the filter paper in the extractor, is there anything else done with the filter paper? A. Yes, that is right. There is. On the photo-electric cell determination, a piece of the paper is cut out of the filter paper, of the centre of it, and it is placed in this photo-electric cell, lying on the standard blank. There is a P.L. down on this paper here, and that refers to the blank, that is the piece of clean filter paper, and the instrument is standardized on this clean piece of filter paper.
- Q. You get two readings from the photo-electric cell, one on the piece of dirty filter paper and one on the piece of clean filter paper, and the P.L. is on the clean one and the "S" is on the dirty — A. That is the candlepower.
- 40 Q. And that is the third item on your analysis, Exhibit 128. Now, you made an analysis representing both exhibits, did you? A. Yes.
- Q. And you made it correctly and to the best of your ability? A. That is right.

Q. And you correctly and completely recorded in the last four items on Exhibit 128, the result of that analysis and the procedure which you have just outlined? A. Yes.

Q. And you made, I understood you to say, a list of some others, but the majority, the rest of them were made mostly by Mr. Davey, and a few by Mr. Klimek and Mr. DeRoche? A. That is correct.

Q. And they are here and we are going to call them. And you instructed them as to the same procedure to be followed?

10 A. Yes.

Q. And did you get your instructions about this procedure from — whom? A. Dr. Katz.

Q. And were the other men with you when Dr. Katz gave those instructions? A. Yes.

Q. And outside of the other three individual analyses made by these other three men that they are going to produce, and identify, have you brought to Court all the records of dust analyses from 1945 to 1949? A. Yes.

20 Q. And you have them in their own envelopes? A. Yes.

Q. And you have put them where? A. In this room, here.

Q. Where they are available to my friend? A. Yes.

Q. One other point.

HIS LORDSHIP: You are through with these, are you?

MR. KEOGH: Yes, I am through with them.

HIS LORDSHIP: I just want to ask one or two questions so I may understand it better. You call this a dust analysis?

THE WITNESS: Total of dust and organics analysis.

Q. You said something I could not hear. A. Well, the one there is the total dust.

30 Q. No, but you called this sheet the dust analysis? A. Yes.

Q. That is what counsel has referred to? A. Yes.

Q. Is it a dust analysis? A. Yes, it is.

Q. Is it a complete analysis of the dust? A. It would not be a complete analysis of all the constituents, no.

Q. That is what I want to know. Does it show all the constituents of the dust? A. No.

Q. Were you or your men asked by Dr. Katz to make an analysis that showed the constituents of the dust? A. No, sir.

40 Q. Now, I want to know what it does show. What do you mean by the total dust and organic matter? Now, that is the total matter that was deposited on the filter paper while it was exposed? A. That is right, sir.

Q. What I would like to know is what was that matter? You did not make any analysis to ascertain that? A. No, sir, not to break it down.

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Q. Well, what was your analysis directed to? A. In order to indicate how much dust was collected on that piece of paper.

Q. Well, nothing more than indicating what was collected?

A. That is right. It is the total quantity of material collected on that paper.

Q. The total quantity of material collected on it? A. Yes.

Q. Well, how does the second line assist us? The first line would tell us the total quantity of material collected. What is the second line? A. The second line indicates the soluble organic matter that is not caught in that first line in that first filter paper. You understand, that there is a certain material would go past that filter paper and be collected in this silica gel that is behind it.

Q. So you would really add those two together to get the total dust that was collected? Is that correct? A. No, sir. You would merely add those two. Those two ends are added together to get the soluble matter and the collected dust and organic matter is the first one there, and the silica gel —

Q. Oh, just a minute. I still do not understand it. The first one gives you the total dust and organic matter? A. Yes.

20

Q. If some of it passed through the filter paper and was caught in the silica gel, it would not be shown on the first one?

A. Oh, I understand what you mean now. Oh, yes. Those two would be added; you add them both together.

Q. To get the total quantity. First you get what is caught in the filter and then what is caught in the silica gel, to get the total?

A. Yes, that is right.

Q. Then that would just give you the total grams? A. Yes.

30

Q. Well, that is not an analysis at all. That is merely a computation of a total quantity. I want to get away from the use of this word "analysis" in this case, if I can, where it isn't an analysis. What is enumerated on that now, is really not an analysis at all? A. I believe the truly technical meaning of "analysis" would refer to the determination of each particular element, — that would be correct.

Q. I am not talking about the technical meaning. I am talking about plain English. To be fair, is this an analysis at all? It shows that you have gone out and held a bucket and caught some large thing in a bucket. You wouldn't call that an analysis, would You? A. Not necessarily, no, sir.

40

Q. Well, you catch it on a filter paper and silica gel. That just shows the total quantity? A. The total quantity of material that was caught, yes.

Q. Then, we come to the last line and see what that is. What are you testing for there? A. We are determining the relative amount of candlepower being absorbed by this filter paper con-

taining the dust. The "S" refers to the piece of filter paper containing the dust, and the "P.L." for the blank, that is the perfectly clean filter paper, and the piece of equipment is standardized on that piece of filter paper.

Q. That is the machine used? A. Yes, standardized on that clean piece of filter paper and the other is compared to it.

Q. Well, then, that would show what? A. The lower "S" figure — the lower that "S" figure the dirtier you might say the filter paper is.

10 Q. So that just means how dirty the filter paper got? A. That is right.

Q. So that after all then it is not an analysis at all. There is nothing analyzed by this process. A. No, that is right.

Q. All right.

MR. KEOGH: I suppose that was my fault for using the word "analysis," not knowing much about it.

HIS LORDSHIP: Oh, I think it has been used before.

MR. SLAGHT: The witness used it plentifully.

20 MR. KEOGH: Then, we have one other point, Exhibit 124, which you filed in chief, was your chemical computation of certain items relating to sulphur dioxide and relating to the water-wash system in the cupola. Now, you told my friend, I believe, or maybe it was his lordship, that you made your analysis or computation of the sulphur dioxide removed by the overflow in that system on the basis that some one had told you that it was 300 gallons an hour? A. Yes, on the overflow.

Q. Now, over the week-end, at my request, did you measure the settling tank, yourself? A. Yes, I did.

30 Q. And did you get the cubical contents of it, or volume? A. Yes.

Q. And what was the volume? A. The volume in cubic feet was 884 cubic feet, and in gallons would be 5,481.

Q. And the 5,000 figure that you mentioned previously, was something somebody told you, but now you have measured it yourself and it is 5,481 gallons in the settling tank? A. Yes.

40 Q. Then, there will be evidence on this point later on but, on the assumption that that tank of 5,481 gallons is filled by the overflow going into it in 45 minutes, have you made a correction in your computation which you wish to add to Exhibit 124? A. Yes. The sulphur dioxide then disposed of through the overflow, on the assumption that the 5,481 gallons emptied from it in 45 minutes, the sulphur dioxide disposed of would be 33.12 points, rather than the previous figure of 1.368 points.

MR. SLAGHT: Give me the correction of the previous figure, please.

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MR. KEOGH: We will give you the whole thing. You have four copies of this, have you not? A. Yes.

Q. Which I suggest might be called Exhibit 124 (a).

HIS LORDSHIP: You say you had given a figure of what, 1.368, and there is a very wide discrepancy? A. The previous figure I gave of the sulphur dioxide that was disposed of by the overflow, the previous figure was 1.368 points.

MR. KEOGH: But the witness now makes a new figure on the basis that the overflow fills that tank in 45 minutes.

MR. SLAGHT: Who is he?

MR. KEOGH: Mr. Gaukroger now makes a new basis on the basis of 45 minutes, of which there will be evidence.

HIS LORDSHIP: There seems to be a serious discrepancy some place.

THE WITNESS: There is an enormous difference in the amount of water.

MR. KEOGH: 45 minutes for 5,400, it is over 111 gallons a minute, which is a lot more than —

HIS LORDSHIP: Yes, but the evidence before us was there was 300 gallons per hour put in the tank, of fresh water.

20

MR. KEOGH: He said somebody had told him that. Now, —

HIS LORDSHIP: Well, that was the evidence we had, anyhow, and now you say there is 5,481 gallons of fresh water put in the tank every 45 minutes? A. That is right.

Q. Well, was that going on always, or is that something new? A. No, that has been going on always.

Q. That would mean the tank actually holds 5,481 gallons, doesn't it? A. Yes, it only holds that, sir.

30

Q. But it is all completely replenished every 45 minutes?
A. Yes, and that works out at 700 gallons per hour instead of 300.

Q. Well, if you are preparing calculations for this trial and the difference is as far-reaching as that — A. I had to assume on that pump, because I had no means of determining that, myself; that particular part I had to get the information given me.

Q. Well, I can understand a difference of about 100 gallons or so, but when you get a difference of 5,100 gallons, it is a great deal.

40

MR. KEOGH: Yes, it is quite a large discrepancy. I perhaps should have had the witness make the measurement himself.

HIS LORDSHIP: Well, I should have thought the information on which he acted would be much more reliable.

MR. KEOGH: I do not know whether they have actually done it yet or not, but I suggested that this correction should be made. Will this be marked Exhibit 124 (a)?

HIS LORDSHIP: Yes.

—EXHIBIT No. 124 (a): Gaukroger's analysis with correction of figures appearing on Exhibit 124.

MR. KEOGH: Those were the two points I wished to clear up before my friend continued his cross-examination.

HIS LORDSHIP: Well, proceed, Mr. Slaght, with the cross-examination. There is something I want to ask, but it may be cleared up before you get through.

CROSS-EXAMINATION CONTINUED BY MR. SLAGHT:

Q. Thank you, my lord. Just a word on your evidence this morning. You made what I call a dust catcher's job through your machines catching dust? A. That is a very loose word.

10 Q. Well, what is wrong with it? You didn't do anything else but catch it and measure it? A. I measured the amount of dust on a piece of filter paper.

Q. If there was any, you caught it. All right. Now, you got your instructions from Dr. Katz? A. Yes.

Q. How long ago? A. Originally in 1946, but he comes down and visits us periodically. He has been down on many occasions between 1946 and the present time.

20 Q. Well, you mean on many occasions Katz would come in and get the dust and measure it; he did not take an analysis. Why would he repeat that to you? A. He made no such statement to me.

Q. Then, when you were asked to catch the dust and measure it, wasn't the word "analyses" used between you? You have used it here a good deal. A. It might have been; I couldn't say.

Q. Well, then, if it were, wouldn't you surely say to Katz, "Well, is this any good, unless I analyze it for you to see what it is?" Didn't you say something like that to him? A. Would you mind repeating that, please?

30 Q. Didn't you say to Katz, when getting your instructions you say many times, "Well, don't you want me to really analyze that, or do you just want me to catch it?" A. I don't recall saying anything like that. I was merely carrying out his instructions.

Q. I see. Then I will have to take it this way, that, if you did not make that clear, Katz made it very clear to you not to analyze the product? A. That is right, for nothing else but what he specifically asked for.

Q. Well, he only asked for the weight of the dust, didn't he? A. That is right and these other two things mentioned.

40 Q. And made it clear you were not to analyze it. Then, on your correction here, Exhibit 124, embodied in 124 (a), how came that you came forward last week and gave us these as proper figures? Somebody mislead you? A. Well, I could not personally check that water, how much water there was going into that tank, and I had to use the estimation on somebody else's figures on that particular thing. I could not personally check it.

Q. Now, let me get that. So last week, when you told us 300 gallons an hour went in, you didn't know anything about it yourself. Some one told you that. Is that it? A. Yes, I stated that

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in Court on Friday.

Q. Now, this morning, when you are telling us 5,481 went in in 45 minutes, are you telling us what somebody else told you?

A. That is right. That is an estimation.

Q. Now, I cannot cross-examine you on this figure, because you don't know anything about it except what somebody told you?

A. Well, the only thing about it is that I checked the tank personally.

Q. But that has got nothing to do with when it is refilled?

10 A. No.

Q. So when you are giving us this figure now, you don't know, yourself, whether or not it is right or wrong, but it is purely hearsay. Is that right? A. Yes.

HIS LORDSHIP: Now, would you tell me who it was who told you it was 300? A. Yes, I believe I obtained that information from Mr. McAuley.

Q. Who is Mr. McAuley? A. Plant engineer.

Q. And who told you that it was 5,400 and some odd? A. That determination was made by a plumber.

20 Q. Who was he? A. His name is Horne; J. Horne.

MR. SLAGHT: Horne, you say, a plumber? A. Yes.

Q. Well, he would know what he found on the day he made the examination, which is over the week-end? A. Yes.

Q. He was not the man that gave Mr. McAuley the information, when Mr. McAuley gave it to you? A. You mean the 300 gallons?

Q. Yes? A. No, he did not give that information. He made this last check.

30 Q. Your information of 300 for the purposes of your computation that was involved in Exhibit 124, came from Mr. McAuley, the plant engineer? A. Yes.

Q. I see.

MR. KEOGH: I think, your lordship, just to have it right. your lordship mentioned two things, I think, the determination of 5,481 in 45 minutes, and I think it is 45 minutes, that is by the plumber Horne. The witness in his statement says that he himself measured the tank and computed the gallons of 5,481, as you see in Exhibit 124 (a).

40 MR. SLAGHT: Oh, no, no. He just told me he did not know. He told me he didn't know anything about it, whether it was right or wrong.

HIS LORDSHIP: Well, it is unfortunate that we had an exhibit filed in Court that was so unreliable. That is all I can say. Proceed, Mr. Slaght.

MR. SLAGHT: Q. Let me see if you would agree with this, Mr. Gaukroger. My friend just made a statement now that you, yourself, measured actually the contents of that tank at 5,481.

You just told me you didn't. Now, which is right? A. I measured the tank. I didn't take the water, myself, no.

Q. No. That is what I thought. So this again is pure hearsay also on your part, when you put that figure in? A. That is right, I think, but assuming that figure is correct.

Q. Yes, assume that everybody told you it is correct.

MR. KEOGH: What figure?

THE WITNESS: The figure I am assuming is that it took 45 minutes to completely fill that tank. That is the only figure I am assuming. I know that 5,481 is correct, because I measured it myself.

MR. SLAGHT: Well, you say that is the measurement of the tank, is it? A. Yes, that is the volume of the tank.

Q. The volume, the holdings of the tank? A. Yes.

Q. But the time it took to fill it, which is all important, you don't know anything about it? A. No, I do not.

Q. Now, this plumber did this job since Thursday last? A. Yes, I believe so.

Q. And, up until then, you had been told through the years, by McAuley, that there is 300 gallons an hour going into that tank? A. No, I had not been told that, not through the years.

Q. Well, when? A. It was very recently I asked him that, —within the last two or three weeks, I would say.

Q. And you asked him, I assume, what was the practice, that is over the period that the tank had been refilled, you asked McAuley what was our practice as to refilling it, and some three weeks ago he told you the practice was 300 gallons per hour?

A. He mentioned the figure 300 gallons per hour. I was asking how much fresh water went into it.

HIS LORDSHIP: The witness is trying to say something.

THE WITNESS: And he mentioned the figure of 300 gallons per hour, when I asked him that.

MR. SLAGHT: How long has McAuley been there? A. At the plant?

Q. Yes? A. Over 20 years.

Q. Oh, yes; longer than you have? A. Yes.

Q. So when you asked that question for the purpose of making the computation for this trial, McAuley gave you 300 gallons per hour as the refilling amount? A. He gave it to me over the telephone. It is possible I may have misunderstood it, or something.

Q. Oh, you mean to say he told you 300, and you put down 5,481. Is that your story? A. No, that is not my story, no.

HIS LORDSHIP: Just as to any mistake, will you indicate to me in Exhibit No. 124 just where that calculation was made on the basis of 300 gallons of fresh water? A. This is the figure and there is the correction here.

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Q. I see. That is from the above figure, it is calculated that 1.368 points of SO₂ were disposed of through the overflow? A. Yes. Well, I calculated that the water-wash system ran 12 hours approximately, and on the basis of 300 gallons an hour, that would amount to 3,600 gallons through the course of a day. Then I found 3,600 gallons, and the average figure of this and I took the average figure of this and multiplied by the 3,600 and calculated to see the dioxide content.

Q. Well, this report was made to Mr. McAuley, then, I see at the top? A. Yes.

Q. At the top, "Copy for Mr. McAuley." A. Yes.

Q. Well, proceed, Mr. Slaght.

MR. SLAGHT: Q. Thank you, my lord. Did you give Mr. Cook, who is the general manager, any information about the emptying or the refilling of the tank before he was examined for discovery? A. No, I don't believe I did, no.

20

Q. Then, we will go back to some other matters of Friday or Thursday, and I want to ask you this. I am told that four workmen have been working on Saturday in these cupolas at some job, working quite hard all day. Do you know about that? A. No, it is possible. They are not under my supervision.

Q. You don't know anything about what they were doing? A. No.

Q. And then I want to have you give me some facts. I think perhaps we are pretty well agreed on the cupolas. They are how tall? A. I beg pardon?

Q. How tall are the cupolas? A. I would say approximately — this is just an approximate figure, you understand, — from the ground floor I would say probably 65 feet to 75 feet.

30

Q. And the diameter of each of the four is what? A. What do you mean by "diameter"?

Q. Of the outlet? A. The outlet from where?

Q. Into the sky? A. Well, those cupolas are lined to 60 inches diameter lining. That is the lining. The diameter in the melting area of the cupola at the top, that might be slightly larger than that. I cannot say definitely.

40

Q. Well, then, near the top, there is a lining which restricts the outlet at one stage passing through them to a 60 inch diameter? A. No, that is not the way. What we call the charging floor and the bottom of the cupola, that is about half way to the bottom, it is 60 inches. Now, the top half might be slightly larger than 60 inches.

Q. Well, that is what I want to get at. So we can be safe in saying there was a 60 inch diameter volume going out to the outside? A. Yes, you would be safe there.

Q. And I want you to tell me how much coke per shift each cupola uses, and I understand a shift to be nine hours in your set-up. Am I right about the nine hours? A. Yes. That is what we are operating now.

Q. Approximately what tonnage of coke do you burn in a nine-hour shift in each? A. Each cupola?

Q. Yes. A. That will be an approximate figure, because the daily tonnages are not always identical.

10 Q. I quite understand that. A. In the cylinder iron cupola, it would be approximately 12 to 15 tons of coke.

Q. Well, I will take $13\frac{1}{2}$ as an average, if you like, on that. Would that be fair? A. Well, I said 12 to 15. That is just an approximation. I could not get any closer than that. That is as close as I can estimate.

Q. Well, I will take an average of $13\frac{1}{2}$ as an approximate average, in your view? A. Yes.

Q. And that is in nine hours? A. That is right.

Q. Then, three of them? A. No. You cannot multiply that figure by three. You asked me for each cupola.

20 HIS LORDSHIP: They vary, as I understand? A. Yes, that is right, sir. In the malleable iron cupola it would be, let me see, now, approximately seven to nine tons. That is as close as I could estimate now.

MR. SLAGHT: And what is the next? A. On what we call the soft iron cupola would be 10 to 12 tons.

Q. Well, take 11. I make that $32\frac{1}{2}$ per shift that the three cupolas use in tonnage of coke? A. Yes.

30 Q. And if they ran for 150 days a year with the wind blowing towards Walker, there would be 150 times $32\frac{1}{2}$? A. Yes, if you took them as averages that they were actually —

Q. Well, if they are not — if you do not think they are correct — A. Those are as close as I can give them to you.

40 Q. I understand they are approximate, and that is good enough for me. You see, the reason I take 150 is that we have men who have told us that you average about 184 days a year with the wind blowing to Walker's, and you would not work all the year. You might work 300 days a year, so I have taken half of the days with the wind blowing Walkerwise, and used 150. Now, will you do the same with me on the scrap iron and the pig iron. Need you separate them, or do they go in together sometimes? A. I would not be prepared, just out of my head, to give you the pig iron and scrap iron. They are just too much an approximation, because there is three kinds of pig iron and we use them in varying quantities. Any approximation I would give you here, might be very, very, wide of the mark and —

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Q. Can you get them during the lunch hour? A. No. It would take too long a time.

Q. Well, maybe the records I suggest that were furnished to us with these figures in. Are you telling me it would take too long to get those records at lunch hour? A. I can get certain records, yes.

Q. That are there, in your place? I should like you to be kind enough to bring me a record — I don't care about separate kinds of pig iron, of the total pig iron average per day, per cupola shift, and a similar total of the scrap iron, or if you want to combine the two, I am satisfied with that. A. If you wanted these figures, our accounting department would be in a better position to give you more accurate figures than I am, myself.

Q. Yes, but you are the metallurgical chief there, and I want those from you. We might not have the accounting department. Would you mind getting them for me, and have them for me after lunch? A. Yes. What is it you want, so I will be accurate?

Q. I want per shift, per cupola, the consumption of pig iron and of scrap iron, and that includes scrap steel, all the stuff that you were putting in there with your scrap steel. All the stuff you were putting in there with your nine hour shift, per period. A. Approximately.

Q. On the average shift. And then go over to the forge shop, — how much bunker and crude oil — how many gallons per shift do you burn over there? A. I have no idea.

Q. Well, will you get that for me? A. That does not come within my sphere of work at all at McKinnon's. You understand getting those figures, I have nothing to do with the fuel oil whatsoever.

MR. KEOGH: There will be evidence later on from some one who has personal knowledge of that.

MR. SLAGHT: Well, if that is so —

HIS LORDSHIP: Yes: much more satisfactory to get it.

MR. SLAGHT: I will be happy to desist trying to get this part from him, but I did not know whether they would have anybody or not to give us the total tonnages. We will wait for the witness, and I am relying on my friend's undertaking that he is going to call some one who will be able to give us these figures.

Q. When did you start with the company? A. In 1940.

Q. And you were not there in 1937 and 1938, then, I think you have said? A. I was there a short while in — yes, I was there in 1938, yes.

Q. Then, I want to know. A. When I said 1940, that is continuous employment. I was employed there in 1938 and left there about a year and a half and came back in 1940.

Q. What I want to ask you about is this. Was it in 1937 or 1938 they changed over from air furnaces to the cupola type of furnace and built the forge shop? A. When I was there in 1938, the foundry as it is at the present was there. I could not tell you when the change was made.

10 Q. You could not tell us how long before. We will get that from somebody else, and the forge shop was there too, perhaps, was it? A. Well, in 1938 I was in a chemical capacity and I do not think I was over in the forge shop, to tell the truth.

Q. You don't know. Now, tell me this. In an air furnace — you do not use the air furnace system in order to get gray iron? A. Do you mind repeating that question, please?

Q. I suggest, when you want to get gray iron as a result of melting iron, you use the cupola system? A. Yes, that is correct.

20 Q. And the old air furnace system was not available, or useful for giving you the produce of gray iron. It gave you malleable iron? A. That is what it is generally used for.

Q. So that the first production of gray iron that you know of would come from the cupola system when it was installed? A. Yes.

Q. And the cupolas do produce both gray iron and malleable iron? A. Yes, they do.

HIS LORDSHIP: Can you tell me what the difference is? A. Well, the chief difference between malleable iron and gray iron, your lordship, is that gray iron has considerably higher carbon silica content than malleable iron. That is the chemical analysis and then, of course, there are different physical properties. Malleable iron is quite ductile, whereas gray iron is quite brittle in comparison with it.

30

Q. Well, is gray iron used in the manufacture of steel? A. No, sir.

Q. It is not? A. No.

Q. It is cast iron? A. Yes. They do use pig iron from the blast furnace, in part. Of course, in manufacturing steel, they do not ordinarily start with gray iron.

40 Q. What do you mean by malleable iron? A. Well, malleable iron is an iron that, for instance, has good shock resistance. If you had a casting and you gave it a very heavy blow with a hammer, it would not crack very easily. It would bend rather than crack: whereas the gray iron casting, if you gave it a very heavy blow, it would be more apt to shatter.

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Q. But do they manufacture steel at all? A. We manufacture no steel.

Q. These are just then for malleable castings, or gray iron castings? A. That is correct.

MR. SLAGHT: Q. Can you give me figures on the blower rate? You use the blower in each cupola, or would those better come from the witness Mr. Keogh refers to? A. I believe the blower capacity, if you are referring to the maximum blower capacity, the units, it would be better to wait for a later witness. I can give you our operating pressures that we actually operate at.

Q. All right. Give me what you know of the operating pressure and, Mr. Keogh, may I depend upon the witness to give me the blower rate?

MR. KEOGH: Yes.

MR. SLAGHT: Thank you. Give us the operating pressure. A. We measure the pressure in the cupola in ounces, and the maximum pressure that we are able to operate would be 24 ounces in any one of those cupolas. That is the maximum pressure.

20 Q. 24 ounces what? A. Pressure.

Q. Pressure of what? A. 24 ounces per square inch pressure. I am sorry.

Q. That is what I want. Then, can you give me the revolutions per minute of the fans in the cupola? A. No, I cannot give you that.

Q. We will get that from your friend, I suppose? A. When I said 24 ounces maximum pressure, that is the absolute maximum we could operate the cupola at, but we are generally being in the range of 10 ounces to 18.

30 Q. Now, I wish you would look at, with me, Exhibits 121 and 118 for just a moment, for comparison purposes and if you would hand this to his lordship, Mr. Registrar. Now, 118 is an exhibit prepared by Mr. Williams, whom we had with us. Were you here when Williams testified? A. Yes, I was.

Q. You heard Williams. And that is 118 and it purported to give us before the water-wash and after the water-wash, as you will see.

HIS LORDSHIP: Excuse me just a minute, Mr. Slaght.

40 MR. SLAGHT: You realize perhaps that Williams did his sampling back in 1945, Exhibit 118 is marked July 5th, 1945? A. Yes.

Q. You are aware of that? A. Yes.

Q. And I want you now to look at Exhibit No. 121 which is a sworn product and it is dated April 18th and these are the results taken on April 18th, according to the statement, and I want

you to look at the before and after figures on these two exhibits. Now, before the wash, on Williams, 1945, the parts in a million were 1.6, 2.9, 2.3, 1.8 and so on, at that rate. Is that right? A. Yes.

Q. Never more than two parts and a fraction to the million. In other words, never as much as three parts to the million. Is that right? A. Yes.

Q. And look now at Exhibit 121, when you go in there a few days ago, you find that from your charging floor, SO₂ is coming off at the rate of 24, 25, 14 and 19 parts to the million? A. Yes.

Q. How do you account for that gross discrepancy? A. Well, you may not be comparing the two cupolas. In my report I stated which particular cupola I analyzed. At least, I determined the sulphur dioxide content for, and his report does not state which cupola he determined it on. There may be a variable there, because each cupola does not use quite the same amount of coke, and these sulphur dioxide contents quite possibly would vary quite quickly from one part of the day to the other, depending on the operating conditions.

Q. Of course, we see they did vary, but are you suggesting to the Court that the great discrepancy I have called your attention to between 1945 and 1949 is due to the possibility that the cupola that Williams tested on might not be the cupola you tested on? A. Yes, that is so. It might not be the same cupola. You are taking the highest results I obtained, and you are comparing that with his lowest results.

HIS LORDSHIP: Have you any information as to what cupola Williams made his test on? Did that come out in evidence, Mr. Keogh, do you remember?

MR. KEOGH: No, I do not think it did, my lord. I probably got just an estimate from him, as far as I can remember. I don't think it did.

MR. SLAGHT: Now, I suggest to you one thing, you are using different coke now than you were using in 1945? A. We are using — buying coke from the same company.

Q. But on different specifications, as to its quality? A. What do you mean by "quality"?

Q. Well, its content? A. Chemical content?

Q. In other words, the coke you are using now is inferior coke in the matter of emission of gases and SO₂ sulphur content?

A. The chemical content is very similar to what it was in 1945.

Q. Will you say the specifications have not been changed?

A. We have not changed our specifications, the specifications on the chemical analyses. The chemical analysis is very similar. Some of the physical characteristics are certainly changed, sir, but the coke is not as firm as it used to be.

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Q. I am not interested in the sort. Take another look at Exhibit 121 and your first figure between 11.00 o'clock and 11.21, where you get 24 parts in a million at the charging floor, you get nine parts in a million at the roof outlet? A. Yes.

Q. Now, looking at Mr. Williams' figures, at the roof outlet in 1945, I see they run around .24, .45, .33, .88, .93, .88, and there is not a roof outlet analysis as high as one part in a million, is there? A. No.

Q. How do you account for the fact that you find you are letting out of that chimney nine parts in a million, in the particular roof outlet which is just the same size and the cupola, when you never let out, if this analysis is reliable of Williams', when you never let out as high as one part? A. That nine parts per million was made on a very short period between 11.00 a.m. and 11.21, that is over a 20 minute period, and for a short period like this, it is certainly not possible because in the next period you have entirely different conditions inside the cupola; they are constantly changing.

Q. Let me put it to you this way. There could be a period of that kind every day that you roast? A. It is possible, yes.

Q. And it might go over Walker actually when the wind is blowing? A. If it came out as nine parts per million, it certainly would not go to Walker's as nine parts per million.

Q. No, I did not mean that. Perhaps my question was not framed properly. If it came out as nine parts per million, subsequently carried by wind over Walker's, it would presumably be less than nine parts per million when it reached his greenhouse? A. Yes.

Q. But I am interested to know how a man could come here in 1945 and not get as high as one part per million coming out of the tops of the chimneys, and you find any other day, nine parts per million coming out of the tops of the chimneys? A. That is right.

Q. Have you any explanation to make as to that, because I suggest to you that your fuel conditions are different now and your whole charging system different in volume, or else Williams' analysis is erroneous. Have you any comment you would like to make on that grave difference of 900% more this year than in 1945?

A. The only statement I can make is that those analyses were taken over extremely short periods of time and a furnace like a cupola furnace, conditions are changing continually. In ten minutes you might get nine parts per million and the next ten minutes it might drop down to one part per million.

Q. Mr. Katz, the master mind, now, talking of your analyses, did he instruct you to take this recent analysis? A. No. Dr. Katz, no, he didn't.

Q. Did he instruct you to take the one you destroyed? A. No.

Q. And you, having just told me that on different days it might be different, would you like to say why your company deliberately refrained, from August, 1945, until March or April of 1949, from taking any other tests, but bringing to Court only two which are four years apart? Can you make any suggestion for that course of conduct by your company? A. Yes. What I was going to say there was that sulphur dioxide tests have been run continually during that time just outside the company property, on the Warren Pink property. These sulphur dioxide tests have been run continually.

Q. On the test plot? A. Yes.

HIS LORDSHIP: Now, I asked you that same question on Thursday afternoon, and you did not give me that reply. You are the metallurgist. Why do you say that was the reason to-day? A. It did not occur to me then.

Q. Oh, it is not a question, witness, surely, of occurring to you, as to what is a good argument. I was asking you why it had not been done, and you were not able to give me any explanation on Thursday. A. Well, the tests run in 1945 were made by request.

MR. SLAGHT: Q. By whom? A. Of the laboratory at that time.

Q. You were in charge of the laboratory? A. Yes.

Q. You had requested them at that time? A. No. I was requested to have them run at that time.

Q. Who requested you? A. I cannot — I don't remember now, but I know we did not do them on our own volition. We do not ordinarily run that sort of test in our ordinary production work, you understand.

HIS LORDSHIP: You do not normally; why don't you? A. Well, because we run analyses on our iron continually — pig iron.

Q. I am not concerned about the analyses of your iron in this case. I am concerned about what steps you took to protect others from injury, and my question is directed to that point when I say, why did you not run tests for the purpose of informing yourselves so that you would know what escape of gas there was that might do injury to others? A. Well, the management — I cannot say specifically who on the management asked us at that time in 1945, to run them, but it was the management would ask to run them.

HIS LORDSHIP: Proceed, Mr. Slaght.

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MR. SLAGHT: Q. Whose duty is it to keep the escape of gas out of the cupolas to the minimum? A. I would say that would come under the plant engineer.

Q. Would it not come under you — your duties? A. No, sir.

Q. As a metallurgist? A. No, sir. Dust control and gas control around the whole plant is under the plant engineer.

Q. So that you only made your reports when requested?

A. That is right, yes.

10 Q. Then, may I ask you why you did not make a series of tests when you were making them for the preparation of Exhibit 121, instead of making the one which was destroyed, and then you made another, and that is all, was it? A. I ran that actually on one day. There was a whole day of analyses, but they were between two different cupolas, but there was a whole day there, and then another half a day.

Q. Well, have you got those records? A. Those are here, your lordship. They have already been given in.

20 Q. Well, is that what is included in 121, 122 and 123? Is that what you are referring to? A. One is for a separate cupola.

HIS LORDSHIP: Yes, I know those are the results of each cupola for a day, but I was wondering why you say there is such a wide variation, and you explain the earlier tests that there may be a very wide variation between days? A. Yes, even between a half hour period. Now, that particular cupola, that shows a higher concentration before the water-wash, your lordship. We used more coke in that.

Q. More coke, that is the centre one, is it not? A. Yes, than we did in the other two.

30 Q. That is the centre cupola, is it not? A. No, it is the one at the end.

Q. Is that the one you call the cylinder iron? A. No, that would be No. 4 cupola. We only operate three together, but it is called No. 4. We have a spare cupola.

Q. Well, you are the man that would be called on to make these tests, in the ordinary course? A. Yes.

Q. And you are the man that can explain why you were not called on. I am not concerned with the procuring of evidence for a case. A. No, I understand that.

40 Q. I am concerned with whether you are taking steps to ascertain whether your operation is efficient or not for the protection of others. A. We only performed those tests under request, your lordship.

HIS LORDSHIP: All right. I understand.

MR. SLAGHT: Now, we will take a glance at the map, Exhibit No. 11. I think Exhibit 1 is just the same. Do you identify the location of your test plot shown south of Carlton Street, down here? A. Where is Ontario?

Q. Here is Ontario Street, out here, and here is the Canadian Warren Pink. A. Yes, that should be it, yes.

Q. You are here. Now then, the cupola over there. Now then, the wind would have to be blowing in a somewhat different flight to catch your test plot machines from what it would be if it were going over Walker's, wouldn't it? A. Oh, a slightly different angle, yes.

Q. Then, we come up to the forge shop. There is a very different angle, that would be, to get down here to your test plot. Just look at it with the eye — than would be the angle if the wind was blowing from the forge shop over Walker's? A. Yes, but those gases would separate very, very quickly, from the source of the cupola. They just wouldn't go straight out like that. They would separate immediately following the cupola stacks.

Q. Well, that depends on the wind, doesn't it? A. Yes, generally, it would.

Q. What I am pointing out to you is that if you refrain from taking cupola stack tests on the days when the wind would definitely blow over Walker, you are unable to give the Court the quantity of SO₂ coming out of the cupola with the wind blowing towards Walker, when your test plant machine over there might or might not be getting any of the stuff coming out of the cupola that day. When you put forward now the fact that because you were taking other tests, you refrained from these, I point out to you that there would be a far greater value to these tests, if you gave them to us, on days that a southwest wind went over Walker than there would be from your test machine on that day. Don't you think that is a fair comment? A. I do not. I think the test machine would be far more accurate, myself.

Q. Bearing in mind what I have pointed out to you as the presises, that is your evidence, is it? A. Yes.

Q. Then, let me have Exhibit No. 10, please. You were aware, back in 1945, that Walker was complaining of nuisance from your plant? A. I was not aware of it — well, I should not say that. I cannot tell you exactly when I was aware that there was some difference between us, Walker's and McKinnon's. I cannot tell you the exact date.

Q. And were you unaware of Mr. Percy Edwards' trips over to the Walker place on behalf of your company, and then coming back and making recommendations for the Whiting system to the company, as he told us, which were rejected? Are you telling us that the chief metallurgist, during that period, was not consulted at all? All done behind your back? A. I never knew

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of Mr. Edward's visits to the Walker property. I was not made aware of it.

Q. Well, you were chief metallurgist? A. That is right.

Q. And it was a metallurgical problem primarily, wasn't it? A. No. I wouldn't say it was. I would say it was an engineering problem, if I wanted to be more accurate.

Q. At all events, it was kept secret from you, what was going on? And what about the change, when was the change made from what was going on under Reginald Williams up till October, 1945, which was a pipe with little pinholes in it, to bring the water in that way. When was that changed over to another system? A. I could not tell you.

Q. Well, can you find that out for me, or will another witness be able to tell me that?

MR. KEOGH: We will have a witness on that point as well.

MR. SLAGHT: Well, then, I don't need to trouble you to get it at lunch, because all I want to make sure is that it gets into this record. And you tell us you didn't know whether he complained in September, 1945? A. What do you mean, complained?

20 By an impending lawsuit, or something of that nature?

Q. Well, I will read it to you. I think we can shorten it:

"As we told you over the telephone yesterday, we intend to issue a writ for damages and injunction. We could not effectively claim an injunction during the war period, but now that the war is over there is no reason why we could not get an injunction.

30 "We regret the fact very much, and this letter is written for that purpose, that although we have co-operated to every extent with you, you did not co-operate in the last week when it was arranged that your Mr. Cook and your counsel could meet either at our office or at your office to inspect some photographs we have showing the damage done, in fact we had no word from your office whatever.

"Therefore there is nothing else to do but to proceed by way of lawsuit, and we will have to abide by the judge's report."

Are you telling us, witness — A. What was the date of that?

40 MR. SLAGHT: That is September 7th, 1945. A. I had heard of rumours, but nothing had been stated definitely that long back.

Q. Then, do I take it that at no time from headquarters or from Katz, did you get any instructions to go over to Walker's to see if he was putting up a real claim or otherwise, nor any instructions to try and cut down the injuries, matters that escaped from the outlet of your cupolas and forge shop, no instructions to try and cut that down to stop hurting Walker? A. You asked two questions there. I had no instructions to visit Mr. Walker's

property and, as far as cutting down on sulphur dioxide, that would not come within my supervisory duties whatsoever. I had been called in by Dr. Katz, making these determinations and discussing with Mr. Cook the sulphur dioxide tests.

Q. Well, these happened in 1946, didn't they? A. Which ones — these tests?

Q. Yes? A. Yes, in 1946.

HIS LORDSHIP: Can you tell me this? Were your conferences with Dr. Katz conferences that were designed to the preparation of evidence for a lawsuit, or were they conferences that were designed for the purpose of seeing if you could minimize any possible injury that might occur? A. The only conference I had with Dr. Katz, your lordship, was actually making these determinations, the method to be used and instructions. We did not discuss —

Q. Did you understand they were to be used for evidence in a lawsuit? A. I don't know whether I was told that, but I presumed they might be.

Q. Well, that is the same thing. A. Yes.

MR. SLAGHT: Will you look at Exhibits 124 and 122 for a moment. Exhibit 124 which appears on April 22nd on the cupola water-wash system and there you were starting —

HIS LORDSHIP: Which one are you referring to, Mr. Slaght?

MR. SLAGHT: Exhibit 124, my lord. Have you a copy of that in front of you, witness?

THE WITNESS: Yes, I have. What is it you want to know?

MR. SLAGHT: Got the one of April 20th? A. April 22nd I have here, and the 19th and the 18th.

Q. I want the one of April 20th. I have given you the wrong exhibit, perhaps. Have you got the report of April 20th? A. No, I don't see it, if I have. What is the report about?

Q. It is a report about before and after, and you start in one of these 5.15 in the morning. A. Oh, that is on April 22nd I believe you are referring to.

Q. April 22nd? Well, then, I will give you that, and is that the starting time? A. "Malleable iron cupola blower starts at 5.15 a.m.

Q. That is on the blower you started to make tests. Then, when we come to your Exhibit 122, on April 19th, what time did you start your blower sampling there? A. Well, on the malleable cupola, I cannot tell you exactly, but I would say it is probably — it started some time as the time is in the record.

HIS LORDSHIP: Just a moment. On April 22nd? A. The time is not recorded on April 18th and 19th, what time the blower started. It is only recorded on April 22nd.

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MR. SLAGHT: Then, is this the fact, that, when the fires first start, the coke fires first start, there is much more smoke comes out the chimney for the first three-quarters of an hour? A. I don't believe there should be. There is the same amount of coke there in the bed of the cupola when you start as 9.00 o'clock in the morning; same height. We have to keep it a certain height.

Q. Oh, yes. You know this, don't you, that it is dependent on how your combustion is progressing, and the burning process is progressing, as to how much escapes out of the chimney and, in the early 40 minutes, combustion has not got in full swing, so more smoke comes out the chimney. Is that not true? A. No. that is not true.

Q. That is not true? A. No.

Q. Then, let me ask you this. You have been there for eight years. You have repeatedly seen smoke going from the cupolas in the direction of Walker's? We have heard that for half a year the wind blows that way. A. I don't know whether the wind blows half a year.

Q. I am asking, have you seen smoke from your cupolas going over Walker's? A. I have seen a light coloured smoke coming out of the cupola stacks.

Q. But I add to that "going over Walker's place"? A. Going over the greenhouses, you mean?

Q. Yes? A. I very seldom go down Carlton.

Q. Well, going in that direction. Mr. Williams told us he saw it going over Walker's place, going in that direction. A. He said that?

Q. Now you say you saw it going in that direction? A. I have seen smoke coming out of the cupola stacks, but when I saw it, I have not paid any particular attention which way it was blowing.

Q. Now, on the forge shop, have you seen smoke coming out of there? A. Yes, I have seen, a light coloured smoke at times, yes.

Q. With a yellow tinge to it? A. I couldn't tell you what colour it was. It was not too dark at the times I have seen it, but I have not paid too much attention to it.

Q. Have you seen it in the early start of the forge shop, when it has been real dark? A. What time would that be?

Q. That would be whatever time you start, because you burn oil in there, don't you, bunker oil, and crude oil? A. I usually don't go out that way in the morning, until about 9.00 or 10.00 o'clock, and it is quite likely I would see it very early in the morning.

Q. Now, you are arguing. I suggest you see smoke which you have described, at all events, coming out of the forge shop, practically every day? A. I am not in the forge shop every day.

Q. You would not need to be in it to see it coming out. A. I am not even beside it every day.

Q. Well, then, are you saying you have never seen smoke coming — A. No, I am not saying that. I have seen smoke coming out but I haven't paid too much attention to it.

10 Q. Well, I don't care whether you know which way it was coming from, because we have evidence now that you burned for fuel, bunker and crude oil in the forge shop? A. That is what I am told. I have nothing to do with that operation, myself.

Q. And, as metallurgist, I ask you whether when the fires are lighted in bunker oil and crude oil, is it not the fact that until combustion gets more effective and a higher combustion that, in the starting up of a shop like that, we may expect heavier fumes to come out? A. Well, I think a combustion engineer would answer that question better than I could, but I do know sometimes that fire, when you first start it, is apt to give more smoke.

20 Q. I am speaking not of a fire, this fire. A. I mean an oil fire.

Q. Yes, with the bunker oil. Then, you agree with me that that may happen. Now, there are no smoke devices in the forge shop at all, are there? A. What do you mean by "smoke devices"?

Q. Devices intended or expected to control the issue of blowing smoke and gases upon your neighbour? A. Through the ventilators there, I believe I have seen, but I don't know of any water-wash system. There might be one there, but I have not seen it.

30 Q. I see. And, as head metallurgist, taking these samples, having the machines running over there, you tell us that there are no smoke consuming devices in the forge shop whatever? A. No, I could not tell you positively. I have nothing to do with the ventilation of the forge shop.

Q. And there are smoke consuming devices, are there not? A. I couldn't tell you one way or the other.

Q. You have never heard of the Whiting device? A. The what?

40 Q. The Whiting device for cupolas? A. I have heard of the Whiting device for cupolas, yes.

Q. And for other chimneys? A. I do not know they make a lot of diversified equipment like that, but I have not heard of one for chimneys, no.

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Q. Will you tell me why there are no chimneys from the forge shop? A. No, I could not tell you.

Q. I am nearly through now. That is all, thank you.

HIS LORDSHIP: Any re-examination?

MR. KEOGH: No, no re-examination.

HIS LORDSHIP: We will not start another witness before lunch.

—Witness excused.

—Court adjourned until 2.15 p.m.

10

Monday, May 2nd, 1949, 2.15 p.m.

ALBERT DAVEY, sworn,

EXAMINED BY MR. KEOGH:

Q. Mr. Davey, you are a laboratory technician employed in the metallurgical laboratory of the McKinnon Industries Limited? A. Yes.

Q. And I understand you made a number of these test computations or calculations that Mr. Gaukroger spoke about this morning? A. That is right.

Q. You were in Court this morning? A. Yes.

20

Q. Will you produce a specimen of one of the computation sheets that you personally made up? A. (Produced.)

—EXHIBIT No. 129: Sample computation made by Davey.

Q. That is similar in form to the others which you made up in connection with these test computations? A. Yes.

Q. And perhaps my friend won't mind if I lead a little bit?

MR. SLAGHT: May I ask this. I would like my friend to, where the witness is speaking from hearsay, to so indicate, because I would want to then object to its reception. I mean, this morning I was rather surprised at the result.

30

HIS LORDSHIP: This witness has said he made the computation himself and that this is a specimen sample.

MR. SLAGHT: I thought he said somebody handed him this.

MR. KEOGH: Oh, no. He made them all himself.

Q. And your signature appears on the bottom of it? A. Yes.

Q. And that is a specimen of the similar test computation sheets that you made up in accordance with the procedure outlined by Mr. Gaukroger this morning? A. Yes.

40

Q. And did you make those up truly and completely from the results of your own personal calculations and computations? A. Yes.

Q. And they correctly set forth those results, do they? A. Yes.

Q. That is all.

CROSS-EXAMINED BY MR. SLAGHT:

Q. My friend said your personal computation and so on. Take the first item, "Temperature, degrees, 85.5." Where did you get that temperature? A. That information was on the sheet when I received it.

Q. Wait a minute. Some one handed you the sheet? A. Yes.

Q. You did not take the sheets off the machine? A. No.

10 Q. And from a sheet that some one handed you, I suppose of your own knowledge, you don't know where the sheet came from? A. I got the sheet from Eric Longhurst.

Q. And then, getting the sheet from Eric, you looked at the sheet which you had not made and then you put down something to make up this computation for us. Is that it? A. The information across the top there was typed in. This is the information here that I worked on, where my signature is here.

20 Q. Now I understand. The five items across the top show what, do you say — handed to you and which you have not first-hand knowledge of and then you, as computator, went to work and got the total dust and organic matter, .85? A. That is right.

Q. And do you know what the total is made up of? A. The dust and the organic matter that was collected on the filter paper.

Q. And do you know the relative proportions of the two? A. Well, that is the information as I got it and put it on the sheet.

Q. No, but .0085 is a composite figure, including two specific types of material? A. That is right.

Q. And do you know how much of one or how much of the other is included? A. No, there is two there.

30 Q. You could not separate them for me? A. This here is the total organic matter from that filter paper and the silica gel.

Q. Now, wait. "This here" does not mean anything. You are pointing me to .0085 grams. Now, that is made up of two types of material. Tell me again what they are? A. Dust and organic matter.

Q. And how much dust and how much organic matter in that total? A. .0085.

Q. In the total, but I mean how much of each in the total? A. I don't know.

40 Q. You don't know whether it is 10%, 90% or 25%? A. I followed Dr. Katz' instructions.

Q. Don't tell me what you followed. I say you don't know anything about that? A. No, sir.

Q. Well, did Dr. Katz have a hand in this with you and Longhurst? A. I followed Dr. Katz' instructions on any —

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Q. And his instructions were not to have to separate the two, but to put the total? A. Yes.

Q. Then "soluble or organic matter .0062." Is that one type of matter? A. It is the soluble organic matter separated from the dust.

Q. And what do you mean by "organic matter"? You don't know, you don't know. I suppose it is all one matter that you weighed or estimated? A. It is material that is extracted from the silica gel with the Sockley Extractor.

10 Q. And you are careful to use the word "material," because it may be a half a dozen types of stuff that got in there? A. Well, it is organic matter that is in.

Q. Well, I know, but organic matter is a pretty big order. That would take in lots of the surface of the earth, wouldn't it? A. Yes.

Q. You don't know how many different types of earth life or plant life, or organic matter is in that item? A. No, sir.

Q. I thought you would tell me. Now, I am interested in this photo-electric cell. What does that mean to us translated? 20 A. It is the amount of light that passes through the filter paper.

Q. It is the amount of light that passes through the filter paper. Well, is that what the word photo-electric cell means? A. No, that is the instrument used to determine it.

Q. Yes. That's better. Well, the "B.L.65," means what? A. Blank. We used the new filter paper and got a reading on that clean filter paper and we have set the machine at 65.

Q. Oh, that is the standard you set it at? A. Yes.

Q. Now, 65 is blank when you have started with the new filter paper? Before you started your test, then, something goes 30 on or through the filter paper? A. Yes.

Q. What? A. That particular filter paper is collecting the dust.

Q. What about the organic matter? A. That is on the filter paper, too.

Q. Well, telling me how the filter paper gives dust or organic matter blank, which is 65, means nothing except the standard you put there, and what does "S.55" mean? A. That is the amount of light that passed through the filter paper with the dust and organic matter I had.

40 Q. So that if that much light went through, then, there were 10 points out of the 65 that was not light and was dirt. Is that it? A. Well, it is the amount of light that was able to get through that amount of dust.

Q. Well, how much dust did you start with? I thought you started with a clean paper. A. Well, for the blank, we used a clean paper.

Q. Well, did you start with a paper with dust on? A. The paper that Eric Longhurst brings over to the lab., we run that through the same procedure that we do the blank.

Q. Now, having run the blank paper what is used to run the blank paper through when there is no dust on it, though you put down 65 instead of putting 100? A. To set the machine at standard, — we set a definite amount each time.

10 Q. Well, what does the "S.55" mean? Now, tell us as though we didn't know anything about this type of business. You have got "S.55". Just tell us in your own way. I am not at all unfriendly with you. I think you are trying to help us. Tell us in your own way what those mean, the "S.55" and the "blank 65." A. Well, with a new filter paper, there is light gets through the filter paper and gives you a reading at 65 on the instrument.

Q. With new, clean filter paper, with no dust at all? A. We get a reading of 65.

Q. That means that all the light under 65 is what is getting through the clean filter paper? A. That is what the instrument reads in candlepower, 65.

20 Q. 65 candlepower?

HIS LORDSHIP: Oh, I think I understand the witness. It is a mechanical reading that you get?

THE WITNESS: From a source of light.

Q. The light passing through the blank filter paper gives the reading of 65, then when the dust and organic matter is collected on it, the light passing through gives a reading of 55. It shows that .65ths of the light is shut off by the — A. Dust.

Q. By the dust and organic matter? A. Yes.

MR. SLAGHT: Thank you, my lord.

30 Q. Now, that would be about 15%, then. Now, I show you one that went in this morning and, in this reading, this is Exhibit 128, and the 65 standard starts and that was "S.25." A. Yes.

Q. That would mean that 40% —

HIS LORDSHIP: 40/65's.

MR. SLAGHT: — got through.

HIS LORDSHIP: No, was cut off.

THE WITNESS: Yes.

40 MR. SLAGHT: So on this Exhibit 128, your test shows that 40/65's, which would be about 60% of the light was cut off because of the impurities and dust lodged on the filter paper that you tested? A. That is right.

Q. Yes.

*In the
Supreme
Court
of Ontario
No. 34
Defendant's
Evidence
Albert
Davey
Cross-Ex-
amination
2nd May,
1949
Continued*

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HIS LORDSHIP: Now, there are some questions I want to ask about this, so that I may understand it. The first column is temperature. I can understand that. The next column is "press M.B." What does that mean? A. Well, that information was on the red sheet that came to me. This lower part is the particular work that I work on.

Q. Well, do you know what "press M.B." means? A. No, sir.

Q. Well, in this metric column, you don't know that that means, 3.87? A. Well, I think it has something to do with the machine that they collected the dust with.

Q. Some setting up the machine? A. Yes, the amount of inches of mercury in the column.

Q. The next is "Time. N.T., hours." What does that mean? A. The time the sample was in the machine.

Q. How many hours in the machine? A. Yes.

Q. That sample was 19.75 hours, and what does the cumulative total 3840 mean? A. That is the total cubic feet of air that was passed through that filter paper.

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Q. Then, the next one we have was only in 4.5 hours, and there is 7,000 or 700 cubic feet passed over. Is that correct? A. That is right.

Q. Do you know anything about the operation of this machine? A. No, sir.

Q. I do not know whether my calculations are correct or not, but in one instance it works out 19 cubic feet. I do not know whether I have got the right calculation as a unit, but they do not seem to work out if the air was passing through the same rate on each one. You don't know anything about that? A. Well,

30

Dr. Katz —

Q. He should explain that. Well, we will know before long about it. Any further questions?

MR. SLAGHT: No, my lord.

HIS LORDSHIP: Oh, excuse me. Will the last witness come back. Were you making similar calculations for each day during the strike? A. No, sir.

Q. There were none made during the strike? A. No, sir.

Q. Is there any reason why they should not have been made? A. Well, I was not working, myself.

40

Q. Were you on strike? A. Yes, sir.

Q. I see. All right.

—Witness excused.