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43, 1937

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LEGAL STUDIES

In the Privy Council.

VOL. 2

No. 72 of 1936.

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ON APPEAL

FROM THE COURT OF KING'S BENCH FOR THE PROVINCE OF QUEBEC

BETWEEN

WILLIAM I. BISHOP LIMITED and
THE BANK OF MONTREAL
(Plaintiffs and Cross-Appellants before Court of King's Bench) ... ... *Appellants*

AND

THE JAMES MACLAREN COMPANY LIMITED
(Defendant and Cross-Respondent before Court of King's Bench) ... ... *Respondent*

RECORD OF PROCEEDINGS.

VOLUME 2.—PLAINTIFFS' EVIDENCE (CONTINUED).

BLAKE & REDDEN,
17, Victoria Street, S.W.1,
For the Appellants.

CHARLES RUSSELL & CO.,
37, Norfolk Street,
Strand, W.C.2,
For the Respondent.

43 1937

INDEX

VOLUME I

Vol. I

VOLUME II

PLAINTIFF'S EVIDENCE (continued)

VOLUME III

PLAINTIFF'S EVIDENCE (continued)

Vol. III

DEFENDANT'S EVIDENCE

VOLUME IV

DEFENDANT'S EVIDENCE (continued)

Vol. IV

VOLUME V

DEFENDANT'S EVIDENCE (continued)

PLAINTIFF'S EVIDENCE IN REBUTTAL

VOLUME VI

PART III — EXHIBITS

PLAINTIFF'S EXHIBITS WITH RETURN

PLAINTIFF'S EXHIBIT WITH PARTICULARS

PLAINTIFF'S EXHIBITS AT ENQUETE

DEFENDANT'S EXHIBITS WITH PLEA

DEFENDANT'S EXHIBITS AT ENQUETE

PART IV — JUDGMENT

VOLUME VII

VOLUME OF PHOTOS

PLAINTIFF'S EXHIBITS AT ENQUETE

P-67.—Showing Logs Jammed against cribs, 23rd July 1929.

P-68.—Showing log Jam above cofferdam, 23rd July 1929.

P-69.—Cofferdam before placing closing crib.

P-70.—Cofferdam after closing crib in place.

P.71.—Cofferdam after closing crib in place.

P-72.—Logs Jammed against piers in By-pass.

P-73.—Logs Jammed against piers in By-pass.

P-74.—Logs looking upstream.

P-75.—Cofferdam after sinking centre crib.

P-76.—West end of by-pass showing material classed as earth, 27th July 1929.

P-77.—Cofferdam showing crib pushed out of position by logs, 23rd July 1929.

P-78.—Opening up By-Pass, 8th July 1929.

P-79.—Showing Seamy Rock under Stoney Gates — 15th May 1929.

P-80.—"Hardpan" in Stoney Gate Section Excavation, 6th February 1929.

P-81.—East end of by-pass and derrick working on Excavation in Stoney Gate Section, 18th March 1929.

P-82.—Excavation North end of Stoney Gate Section, 8th April 1929.

P-83.—Showing Seamy Character of Rock Encountered in Excavation, 23rd April 1929.

P-84.—Excavation in Non-Spilling Section, 15th May 1929.

P-85.—Looking South from Pier 13, showing Progress of Excavation, 15th May 1929.

P-86.—Rock Excavation Non-Spilling Section Showing character of rock, 27th July, 1929.

P-87.—West end of by-pass showing material classed as earth, 27th July 1929.

P-88.—Cofferdam after sheeting but before placing toefill.

P-89.—Placing toefill.

P-90.—Placing toefill.

P-91.—Lower cofferdam showing pumps.

P-92.—Four Photos — Views of completed development.

P-105.—Photograph showing location of dam.

P-107.—Photograph taken from right bank of river upstream of dam, 16th Nov. 1929.

P-108.—Cofferdam after placing #1 crib on north side.

P-109.—Cofferdam showing placing #2 crib in centre.

P-113.—Photograph showing damages to bridge and cribs.

DEFENDANT'S EXHIBITS AT ENQUETE

D-11.—Photograph showing north shore of river.

D-12.—Photograph of travelling derrick and Orange peel for by-pass.

D-13.—Photograph of river where dam was to be built.

D-14.—Photograph showing condition of by-pass, 22nd August 1929.

D-15.—Photograph showing by-pass looking downstream.

D-16.—Photograph showing cofferdam at lower end of by-pass.

D-17.—Photograph showing shore crib on south shore.

D-18.—Photograph showing suspension bridge and south shore crib.

D-19.—Photograph showing north shore crib and bridge downstream.

D-20.—Photograph showing cribs and beginning of sheeting taken from downstream, also showing sloping sheeting.

D-21.—Photograph showing sheeting from upstream and Slanting.

D-22.—Photograph taken from downstream showing beginning of downstream crib not completed, also upstream crib, and crib No. 3.

D-23.—Photograph showing all the cribs in exhibit No. 4.

D-24.—Photograph showing same view from closer range.

D-25.—Photograph showing two abuttment piers with sheeting and bridge.

D-26.—Photograph showing upper cofferdam from downstream partly unwatered ,etc.

D-27.—Photograph showing same thing, from a slightly greater distance.

D-28.—Photograph looking from upstream showing pile of loose rock.

D-29.—Photograph showing view from upstream.

VOLUME VIII

VOLUME OF PLANS

PLAINTIFF'S EXHIBITS AT ENQUETE

P-2.—Contract Plans — B 2444 (Topography at site of Dam) and B 2571 (General Plan).

P-22.—Same as P-2.

P-24.—Progress schedule.

P-26.—Plan Quebec Streams Commission. — General Plan downstream view.

P-27.—Plan showing comparison with contract drawing.

P-37.—Plan cofferdam, cribs, sheeting and steel piling, 10th Dec. 1929.

P-38.—Plan profile sheet piling, 11th Dec. 1929

P-39.—General layout plan.

P-95.—Chart showing effect of water level by placing of crib.

P-96.—Details of quantity of concrete poured in 1929 and 1930.

P-97.—Cross sections of river bed showing over-burden.

P-98.—Chart showing water levels inside enclosed space between upstream cofferdam and lower stream cofferdam.

P-99.—Progress schedule showing actual dates when each block of concrete, separately coloured, was poured.

P-100.—Cross section plan.

P-101.—Plan of cross sections of by-pass proper.

P-103.—Blue print of exhibit D-10 — composite plan February 1932 and February 1933.

P-110.—Quebec Stream Commission plan produced by witness Reiffenstein showing general lay-out.

P-111.—Plotted notes of witness Reiffenstein showing depth to which lower sheets were inserted.

P-112.—Plotted field notes showing soundings taken by witness Reiffenstein.

P-121.—Sketch showing where work was done which is not now claimed for and which was put in original claim.

DEFENDANT'S EXHIBITS AT ENQUETE

D-5.—Progress Schedule.

D-9.—Sketch indicating bottom of steel sheet piling and Stratton's levels.

D-10.—Plan showing steel sheet piling, wood sheeting, cribs, piers, line of dam, lower sheeting, levels, appearing on B-2444, and also cofferdam.

D-33.—Diagram showing periods of operation and periods when work was closed down.

D-34.—Copy of plan B-2444 showing extent of work at end of November and same for December.

D-38.—Six sheets — Cross-Sections (from Quebec Streams Commission).

D-39.—Plan of Cofferdams and Steel sheet piling.

D-40.—Plan of Flume and opening through Lower Coffer-dam.

D-41.—Sketch produced by witness Dubreuil.

DEPOSITION OF HARRY A. LINDSKOG

A witness examined on behalf of the Plaintiff.

On this twentieth day of February, in the year of Our Lord, one thousand nine hundred and thirty three personally came and appeared Harry A. Lindskog, of the Town of Caroline, in the Province of Alberta, Construction Superintendent, aged 45 years, a witness produced and examined on behalf of the Plaintiff, who, being duly sworn, deposes as follows:—

Examined by Mr. Forsyth, K. C., of Counsel for Plaintiff.—

Q.—You were employed by the Bishop Company, the Plaintiff in this Action, as Superintendent on their works at Cedar Rapids?

A.—Yes.

Q.—When did you start work there?

A.—About January 15th, 1929.

Q.—Who preceded you on the work?

A.—Mr. Ian Crawford, and Mr. Andy Leroux.

Q.—Did you know Crawford?

A.—I knew them both.

Q.—Had you worked with them before?

A.—They had both worked for me on three or four big jobs before.

Q.—What have you to say about their competency ?

A.—Mr. Leroux is a first class general carpenter foreman. He always gave me satisfaction.

Mr. Ian Crawford was assistant night foreman or superintendent on the construction of Beaupré Mill; later on, General foreman on Limoilou Mill. Before that he was general labor foreman at River Bend Paper Mill.

They were both good men.

Q.—And, was Crawford satisfactory in that capacity?

A.—Very.

Q.—How many men had Crawford had charge of on those jobs you mention?

A.—It varied. He had possibly 200 men at Beaupré, and probably 250 or 300 at Limoilou.

Q.—Limoilou is the Anglo Canadian Pulp & Paper Company mill?

A.—Yes.

Q.—And, the River Bend job was Price Brothers?

A.—Yes.

Q.—How long did you stay at the Cedar dam?

A.—Continuously until some time in April, 1930.

Q.—Was the work finished when you left there?

A.—Practically. There was the gatehouse, and a few odds and ends. In construction idiom, the contract was finished.

Q.—Before you went to that job what experience had you had in work of this kind?

A.—I have a list of my experience here. Probably eight or ten jobs before that.

Q.—You were at Limoilou, River Bend, and Beaupré, as you have told us?

A.—Yes. Those were paper mills. I am speaking of hydro electric construction now.

Q.—Just tell me some of them that you remember.

A.—The Rapid an dam, in Minnesota, U. S.

Q.—What size project was that?

A.—50,000 to 55,000 horsepower. I was General Superintendent there.

Then, Coon Rapids dam, across the Mississippi River ; 150,000 horsepower.

Keokuk Dam, 300,000 horsepower.

Q.—What was your position on the Coon Rapids dam?

A.—Assistant Superintendent, and General Foreman; and later on in charge of the cofferdam and everything connected with the powerhouse.

At Keokuk Dam, I was Assistant Day Superintendent, and General Inspector later on.

Bonnington Falls, British Columbia; General Carpenter Foreman — and as General Carpenter Foreman I placed most of the cribs there.

Q.—That was for the unwatering?
A.—Yes.

Then, Elko Dam and tunnel, in British Columbia, across the Elk River.

The St. Johns, Newfoundland, drydock — cofferdam, and general superintendent.

I was General Superintendent at Elko.

There are quite a few more.

Q.—How long have you been on that kind of work?
A.—Since I was fifteen years of age.
Q.—I note that you were at the University of Minnesota for three years, ending in 1907?
A.—Beginning in 1907.
Q.—What were you doing there? Engineering work?
A.—I took the Engineering Course. I am not a graduate engineer, but I took three years.
Q.—Then you had some ten years of experience in railway work, between 1905 and 1915? at various times?
A.—Yes.
Q.—I note that you were with the A. Guthrie Company, Incorporated, as an estimating engineer, in 1919. What type of work did that company do?
A.—We estimated half a dozen jobs. One was a bridge at Soo Falls, South Dakota, across the Soo River. That involved cofferdams for the piers. The other was the Aiken viaduct, which involved cofferdams and so on, for piers also.

Then we estimated on dirt work, such as stripping operations, on Masaba Iron Range.

Q.—In 1921 you were with the Milwaukee Light Power & Traction Company. Was that construction work?
A.—Yes.

That was all construction work.

Q.—In 1930 you were on the Slave Falls Power Development. What size development was that ?
A.—I think it is 80,000 horsepower.

Q.—Was that an unwatering project, and the construction of a dam?

A.—Yes. The normal type of hydro electric work.

Q,—In 1931 you were on Bermuda Railway construction, as General Superintendent. That was Railway work?

A.—That was railroad work, but it is not the type of railroad work as we understand it here in Canada. We were going across the bays and so on of that little island right along, and there surely was cofferdaming and caisson work, etc., on that.

Q.—Will you file this list of your experience in construction work, as Exhibit P-66?

A.—Yes.

Q.—When you arrived at Cedar Rapids, what was the state of the job?

A.—When I arrived at Cedar with Major McEwen there was one travelling derrick working in the by-pass.

Q.—At excavation?

A.—Yes.

Then there was a good size gang of carpenters making temporary buildings, cement sheds, camps, and so on ; and some equipment was in, and the bypass was excavated close to the site of the dam. There was a footbridge up, and there was lumber being sawn.

As far as they could work at that time, it was progressing very well.

Q.—You speak of excavation of the by-pass. Had that excavation been carried on from the lower end of the by-pass channel up to the end of the dam?

A.—Not completely, but that had been the general procedure.

Q.—What did you do when you first went there?

A.—I made myself acquainted with the job, looked over the various things, got an idea of what I thought was necessary — what she looked like. I then went into conference with Major McEwen, as to how we could organize and proceed.

Q.—What did you do about equipment at that time?

A.—That was one of the things I took up with Major McEwen. We had a big quantity of cement to haul in, and the hauling superintendent, Mr. Kelly, was shooting in more cement than

anything else. I impressed on Major McEwen the necessity of getting equipment in right away. We went over the list of equipment we had, and he called up Mr. Kelly and ordered him to start hauling equipment. I spoke to the Major about getting some extra equipment. I looked over his list, and it looked O. K. to me, except that I wanted more boilers, and we made arrangements for them, and in, say, a week, we did not receive as much as I wanted of the equipment. I could not get any action from Kelly over the telephone, so I took a trip down to Gracefield, and laid the law down to him, and we got the equipment.

Q.—How many more boilers did you ask for?

A.—Two.

Q.—Did you get them?

A.—Yes.

Q.—And, with the addition of those boilers what was your opinion as to the adequacy of the equipment provided for the work ?

A.—Ample. That means the only thing we could go by was the Engineer's quantities. As far as the Engineer's quantities were concerned, what I ordered then was ample — plenty.

Q.—How many boilers were there before you asked for the extra two?

A.—Two, I think.

Q.—So, you had four instead of two?

A.—The total numbers of boilers that Major McEwen's estimate called for was not there. I think, if I am not mistaken, he showed three boilers. I asked for two more, to have plenty spare power.

Q.—During the whole course of the work were you provided with equipment as and when you required it at any time?

A.—Yes, whenever I asked for it the Head Office was pretty good that way. They gave me what I asked for as soon as they possibly could.

Q.—You told us that when you arrived there they were excavating in the by-pass. Did you have occasion to observe the nature of the material that was being excavated there?

A.—Surely.

Q.—Will you look at the plan B-2444, which is part of Exhibit P-2. You observe the red lines superimposed on it, running from 1 to 2, and 3 to 4, which Major McEwen says indicate the north and south banks of the by-pass. Looking from 2 to 4 up the plan, will you tell us about how far the excavation had progressed when you arrived on the job?

A.—Some place up in here — close to where the dam site crossed the axis of the by-pass.

Q.—That is to say near that part of the line X-Y which traverses the by-pass?

A.—Yes. Near that line.

If I am not mistaken, the derrick was sitting on the line of the dam, or very close to it.

Q.—That would be on the line X-Y?

A.—Yes.

Q.—Did you observe the nature of the material that was present where the derrick was excavating?

A.—Yes. My duties as a superintendent naturally would make me look into that.

We were then in hardpan.

Q.—Would you tell His Lordship the nature of the material, starting at the ground surface and going down? How did you find it ?

A.—As far as the upper material of the surface was concerned, I did not see that excavated.

Q.—Could you see the face?

A.—I could see on the banks, and if it was anything like it was on the banks I would say there would be about 5 feet good digging — dirt.

Q.—Would "sand and loam" describe it?

A.—I am using a construction term when I say "dirt". That means earth. It does not mean any hard material by any means.

The rest of it, what we were in, and what I could see farther downstream on the by-pass banks, was hardpan

Q.—We have had some definition of "hardpan". What would be your definition of it?

A.—Well, I am not a geologist, but any time a two and one half ton peel cannot take out material without extra help of some kind, well, it is not earth : it is either rock, or hardpan.

Q.—What have you to say about this two and one half ton peel? How did it get along with this material?

A.—Not so good. We had to drill, and shoot. Drilling in anything but solid rock, with a jack-hammer, or tools for rock drilling, is a mighty hard proposition. The drill will bind, and so on, and it will cost you two or three times more to drill. Then, when you shoot, the stuff is just not like hard rock : she just goes up in a little pot hole. You do not get any action on your powder. You do not get any footage on your drills. It is a mean proposition, unless you have very very heavy equipment. Hardpan can be taken out with big shovels, but they want to be good big husky shovels.

Q.—Had some of the hardpan been taken out before you got there? I mean, that you had been told about?

A.—Yes : I had been told.

Q.—Could you observe the nature of the material that had been excavated from the faces of the banks?

A.—Surely.

Q.—Will you look at the plan. You will see there are certain test pits : No. 1, No. 2, No. 3, and No. 4. Will you tell us what was observable in reference to Nos. 1 and 2 ?

A.—The banks here show a slope ; well, to start with, the banks did not have a slope ; they were practically perpendicular.

Q.—Vertical banks?

A.—Vertical banks. That is a sign of pretty hard material.

If there was a test pit at No. 4, I can swear that it would show hardpan through there.

Q.—That is No. 4, and No. 3?

A.—Yes. I can swear to that. I know.

Q.—Why do you know?

A.—I was there, and saw it. I saw what we did., — the way we butchered up that poor old peel with what we had to contend with.

Q.—What did you see when you got upstream of the dam, back at the location of the spillways 4 and 5?

A.—A lot of boulders. We left a bank there.

You must understand when we excavated the by-pass, and turned the derrick and went north, excavating the line of dam, we left part of the upstream part of the by-pass unexcavated. Then when we came back and excavated that, 5 or 6 feet fair-

ly loose material. Then we got into this same old story — hard hard material — hardpan. We could not excavate it the full width. We excavated what we thought would be necessary to pass the summer flow of the river, because in front of the southern line of the pass we ran on to a ledge of rock sticking out, so we let that go.

By Mr. Geoffrion:—

Q.—Where was that ledge of rock? Above the dyke?

A.—Above the southern spillway opening in the Stony Gates, on the south side.

Q.—Above the dyke?

A.—Upstream from the dam.

We had to narrow the by-pass channel to about 35 or 40 feet, and later on we went and excavated it to the proper width to pass the fall flow of the river. That meant we had to shoot that rock, and fight our way through all that stuff. We did not want to spend a bit more than we could help in that kind of material.

By Mr. Forsyth, continuing,—

Q.—You will recognize the plan Exhibit P-37 as being a plan of a cofferdam in the river section of the work. I understand this was put down during the time you were on the job?

A.—Yes.

Q.—When you were preparing to construct the upstream cofferdam, to unwater the river section of the work, will you tell us whether you made any previous examination of the elevation plan B-2444 of Exhibit P-2?

A.—Yes. Quite a while before we built our coffers and started the operation of cofferdaming we went thoroughly into this plan, and we were told repeatedly "Ledge".

Q.—What does the plan itself show in the location of the cofferdam?

A.—It shows ledge.

Q.—The upstream cofferdam shows ledge?

A.—Yes.

Q.—Did you have any discussion with any of the engineering men there : Mr. O'Shea, or anyone else?

A.—I think so. I am very certain that I had Mc-Intosh explain to me that "L" meant "Ledge", and so on. He said he was not there when it was sounded, and so on. They all gave me to believe that they were pretty certain it was ledge. I went ahead, before we started building our cribs, to check up the soundings. Wherever it showed ledge, we came very close to their elevation, and we sounded with rods, and it sounded like rock. Naturally, when they checked up fairly close up where the cofferdam was going, and I saw "Ledge" on the plan, why, O. K. I did not believe it was up to me to disprove the plan.

Q.—You built the cribs?

A.—I built the cribs from our soundings.

Beforehand we had built the two shore cribs, early in the spring, while the water was low, and sheeted them down tight, and went at it in the usual procedure.

Q.—Do the dates shown on the plan for the placing of the shore cribs, namely the north side March 27th, 1929, and the south side March 18th, 1929, represent the dates on which those cribs were placed?

A.—Yes.

We kept track when we did our various work, and I am certain it is taken from that.

Q.—I notice the cribs in the stream — the ones which went actually into the water — are numbered.

A.—Yes.

Q.—And, they are apparently numbered in the order in which they were placed?

A.—Yes.

Q.—Crib No. 1 was placed on June 15th, 1929. Crib No. 2 was placed on July 16th, 1929. Crib No. 3 was placed on July 22nd, 1929. Crib No. 4 was placed on August 3rd, 1929. Crib No. 5 was placed on August 10th, 1929.

A.—Yes. That was the closing crib.

Q.—No. 4 was the closing crib?

A.—No. 4.

Q.—Why was No. 5 put in?

A.—No. 3 was pushed 15 feet or better downstream by a jam of logs. It was put right down. We had no option. There was a God awful mess of logs in front — a jam. We have photographs of that.

There was no possibility or hope of pulling her back in position. She was loaded enough that she was settled on the bottom. We could not pull her even downstream. I was worried at the time because she pushed down so far, and I did not know how it was going to affect my excavation for the dam site.

There was only one thing to do, and that was to fill her up some more, and leave her there, and take chances on building something in front.

Q.—So, No. 5 was built in front of No. 3 because of that reason?

A.—Yes.

Q.—Before No. 4 was put in how far had you got along with the by-pass? Before the closing?

A.—The by-pass was excavated on an average of 35 or 40 feet. I say 35 or 40 feet, but she probably averaged more than 35 or 40 feet.

Q.—In width ?

A.—Yes.

But, there was a ledge of rock sticking out at one place, which was about 35 feet. The rest was good and wide before we placed the cribs.

Q.—And, what depth?

A.—99, 98, or something like that. Low enough that water started to go through it.

Q.—Would it carry the summer flow of the river?

A.—Yes.

Q.—Was the aperture left when No. 4 crib was not in sufficient in width, and did you have sufficient depth of water through, to enable logs to be passed through it?

A.—There was a good 30 feet. It was running very fast. There must have been at least 15 feet of water. In fact it was three times, or better, the width of the log sluices as provided in the dam proper.

Q.—In other words, that opening was at least three times as wide as the openings which are there now for driving logs?

A.—Yes.

Q.—And, you had about 15 feet of water?

A.—About that.

HARRY A. LINDSKOG (for Plaintiff) Examination in chief.

Q.—After crib No. 4 was put in, what have you to say about the opportunity for passing logs through the by-pass ? Would you have room enough, and water enough?

A.—It would give you never less than 30 feet in width, I would say, and never less than about at least three feet of water, and probably five feet of water. Probably 5 feet of water would be more correct.

Q.—Will you tell His Lordship what happened with reference to those logs coming down the river?

A.—That was a continuous source of worry and trouble all the time we put those cribs in. I kept writing letters to the Maclaren Company, to Mr. O'Shea, and to my own Company, that whatever had to be done, or who had to do it, we could not keep on doing the way we were doing. I placed booms to guide them into this opening. Mr. Coyle told me on one occasion before he started letting logs down there, in words to this effect : "We will let them out so that it is not going to bother you any". But, they certainly raised the dickens with our cofferdams.

The way they let the logs out from Lac à Sable, the logs would come in masses, at about between 10 and 12 o'clock at night. We had men there to guide them. We had booms trying to do all this all the time.

I protested to the Maclaren Company that it was not my job to do it, and told them that I would hold them responsible for any and all damage, and so on. I could not see my work go all to pieces, and I did it for that reason.

Then one time I understand the boom broke up above....

Q.—(Interrupting) Did you see it break, or is that something you were told about?

A.—I did not see the boom breaking.

Q.—You have told us you were doing what you could to protect your work from those logs. I would like you to relate to me just what happened when you put crib No. 3 in, because that rather closed the water off, and left only the aperture No. 4.

A.—Ye did not get No. 3 crib down to the place we canted it in line before late in the afternoon — around quitting time — around six o'clock, or perhaps a little afterward. Anyway, she still held on her cables, and we started right away with the

night shift to load her with rock. About eleven o'clock they came up to the bungalow, with a hurry up call : "Logs coming down, and jamming ". When I got out there (this would be about eleven o'clock) the river was plugged full with logs, bank to bank.

Q.—You had previously built a little sheer boom there?

A.—We tried to sheer it away, but it broke the boom in one place, and it went over the boom, and under the boom, and piled an awful mess up against crib No. 1, crib No. 2. and the shore crib.

Q.—And, what about crib No. 3?

A.—It piled up there, and pushed that right smack down out of the way. Broke the cables, and filled her solid with logs right in front.

Q.—Will you describe to the Court how those logs that had jammed in front of cribs 1, 2 and 3, had got jammed there ? I understand you tried to take some of them out afterwards?

A.—Even if a crib is loaded with rock there is quite a flow of water going through it, because it is not anywhere near water tight. Placing the cribs in there created a lot heavier current, and the logs sucked into the crib timbers, and broke those away, and they were underneath, and all around, and they stayed there, with the pressure of water. Then more logs came on top, and they rolled down, and it was a tight mass in there.

Q.—Did this time when crib No. 3 was pushed downstream coincide with the breaking of the boom, as you heard it?

A.—Yes, I think it did. Of course, we had more than one jam.

Q.—Will you look at the photograph which is numbered 27, and tell us when it was taken?

A.—That was taken the next morning. It is a poor photograph. There you will see the south shore sheeting, and here is the sheeting of the north shore. There you see the sheet of the whole river and both cribs choked up with logs — plugged.

Q.—Referring to this photograph No. 27, you state that slightly to the right of the centre of the photograph there is some white steam showing up. The flat appearing surface beneath that is the sheeting of the south shore crib?

A.—Yes.

Q.—And, at the extreme left of the photograph one can see the sheeting of the north shore crib?

A.—Yes.

Q.—And, in between are the cribs?
A.—In between are cribs.
Q.—Where would be the aperture that was there before No. 4 was in?

By Mr. Geoffrion:—

Q.—This is a photograph taken from upstream?
A.—This is a photograph from upstream.

There is an aperture. I can see it, because I was there.

By Mr. Forsyth, continuing,—

Q.—The photograph is not very good?
A.—No. There is a hole or opening right there. It is surely a poor photograph.
Q.—Will you produce this photograph, No. 27, as Exhibit P-67?
A.—Yes.
Q.—Underneath that is a photograph, No. 28. What does that represent?
A.—That represents logs in the river above the cofferdam. That was taken on the same date, showing how the river was filled with logs.
Q.—Will you produce this as Exhibit P-68?
A.—Yes.
Q.—I call to your attention photograph No. 38, and I ask you whether that represents the state of affairs, with all the cribs and the cofferdam? That is, the original cribs, Nos. 1, 2, and 3, placed, and the aperture at No. 4 still open?
A.—I am not positive, but I think so.
Q.—Will you file this photograph as Exhibit P-69?
A.—Yes.
Q.—Does the photograph No. 39 show crib No. 3?
A.—It is crib No. 2. I am pretty positive of that — the leaning crib.
Q.—Was photograph No. 39 taken after the logs had come down?
A.—Yes.
Q.—And, before crib No. 4 was placed?
A.—I am pretty sure photograph No. 39 was taken after the cribs were in place.

Q.—But, no sheeting or fill had been placed?

A.—No sheeting or fill had been placed.

Q.—Will you produce this photograph No. 39 as Exhibit P-70 ?

A.—Yes.

Q.—Does photograph No. 40 show all the cribs in place?

A.—All the cribs in place, except crib No. 5.

Q.—Crib No. 5 is merely the coadjutor of No. 3, so to speak ?

A.—Yes.

Q.—Was photograph No. 40 taken after the logs had come down ?

A.—Yes.

Q.—What are the numbers of the cribs, going from the left of the picture?

A.—The upstream one is part of the south shore crib. The next is No. 4. The next is No. 2. The next is No. 3.

Q.—How do you account for the fact that No. 2 is canted over ?

A.—No. 2 was originally intended for where No. 3 is. We broke the guy line going from the north corner of crib No. 2 to the north shore. Crib No. 2 was originally intended to go where No. 3 should have gone. That is why it is numbered 2. The guy line broke, and threw her out in here. She did not start to cant until after we had most of our cribs in. I would say the reason she canted — especially the way she canted — was due to wash underneath her. She was cut and framed for the north side of the channel, where the side she canted on should have been higher. If she had canted just the opposite to what she canted, I would have said it was due to the way she was built, but she canted to the opposite side from what she should have done, so I took it it was scoured underneath.

Q.—Due to what?

A.—Something I did not know at the time.

Q.—May we put it this way: if there had been ledge rock underneath it would it have canted due to scouring?

A.—Certainly not. Rock cannot be scoured.

Q.—The next crib, going from left to right on the photograph, is No. 3. Does that disclose the position of crib No. 3 after the logs had put it downstream?

A.—Yes.

Q.—Will you produce this photograph No. 40 as Exhibit P-71?

A.—Yes.

HARRY A. LINDSKOG (for Plaintiff) Examination in chief.

Q.—Will you look at the photograph No. 44 (which I will ask you to produce as Exhibit P-72), and will you tell His Lordship what it represents ?

A.—At another time (after the cofferdam had been sheeted, and we were placing toe fill on it) during that time another jam of logs came down, and that jammed against the piers in the by-pass, and jammed away up, so tightly that it raised the head of water on our cofferdam, and afraid of the works — the cofferdam — I had to shoot it out. I had to dynamite the jam.

Q.—Just so that we may understand that. You had excavated the by-pass, and certain concrete piers had been built in it ?

A.—Yes.

Q.—What openings had been left for the passage of logs?

A.—24 feet each opening.

Q.—How many openings were there?

A.—Two and one half openings. There was water running through three openings.

Q.—But, two of them were 24 feet wide?

A.—Yes.

Q.—Was there water enough to float logs, and handle them properly?

A.—Yes, plenty.

Q.—Exhibit P-72 is a photograph of the logs jammed in the by-pass channel ?

A.—Against the piers in the by pass.

Q.—Photograph No. 46 shows the piers and the openings between them, and logs jammed there?

A.—Yes.

Q.—Was that taken at the same time as the photograph Exhibit P-72 ?

A.—Approximately. Not exactly at the same time, because that was after we had broken a part of the jam, I imagine.

Q.—Will you file this photograph No. 46 as Exhibit P-73 ?

A.—Yes.

Q.—What does the photograph No. 45 show?

A.—That is after the logs jammed in the upstream part of the by-pass.

Q.—Will you file this photograph as Exhibit P-74 ?

A.—Yes.

Q.—Was this taken on the same occasion as P-72 and P-73 ?

A.—Yes.

Q.—Let us turn back for a moment to the photograph No. 37. This was taken from above, looking down at the site of the cofferdam, and it shows the shore cribs, and cribs Nos. 1 and 2 in position ?

A.—It shows crib No. 1 in position, that is all. Crib No. 2 is not in position.

Q.—But, is being placed ?

A.—Being placed.

Q.—It indicates, however, the space which would be left between No. 2 and the shore crib before the placing of No. 4 ?

A.—It indicates two openings of approximately 30 feet each.

Q.—Will you produce this photograph No. 37 as Exhibit P-75 ?

A.—Yes.

Q.—The photograph No. 32 shows one of the banks of the by-pass channel ?

A.—Yes.

Q.—And, from the point marked with the red line with an arrow pointing at the black mark, what does the photograph show ?

A.—It shows very hard material, because it is standing vertically.

Q.—That is, the material below where the red arrow is is standing up vertically, with no slope, indicating that it is very hard material ?

A.—Yes.

Q.—Will you file this photograph No. 32 as Exhibit P-76 ?

A.—Yes.

Q.—The photograph No. 26 shows the shore cribs and Nos. 1 and 2 in position, with the openings for Nos. 3 and 4 ?

A.—Yes.

Q.—And, the opening for No. 4 is at the extreme left of the photograph ?

A.—Yes.

Q.—Will you file this photograph No. 26 as Exhibit P-77 ?

A.—Yes.

By Mr. Geoffrion:—

Q.—Those were taken from upstream ?

Mr. Forsyth:—This particular one was taken from downstream.

By Mr. Forsyth, continuing,—

Q.—What does the photograph No. 23, Exhibit P-78, show?

A.—On photograph No. 23 we are still excavating, and water was going through the by-pass.

Q.—Coming back to the logs. Before you had this serious jam which disturbed the location of your crib No. 3 you had been endeavoring to handle those logs to save your work?

A.—Yes.

Q.—And, the method by which you attempted that was the construction of a sheer boom?

A.—A sheer boom. I am not a lumber driver, but we put in a sheer boom, and what I would call tail booms — another boom from the sheer boom, that tilted them around our cribs and let them pass the cribs.

Q.—That is, trying to lead the logs past the cribs into the openings?

A.—Yes. And booms down below.

Q.—Did you have any men out on this work?

A.—Naturally. We were to considerable expense, because we had to have men watch those logs continuously, and no matter how few or how many came down there was a big eddy above the works, and we had to keep men there breaking up masses of logs to feed them sort of half decent.

Q.—Did you write Mr. O'Shea the letter which has been filed as Exhibit P-31?

A.—Yes, I wrote this letter.

Q.—You had previously, on June 17th, reported this matter to your chief by letter, a copy of which was sent to the Maclaren Company (Exhibit P-4)?

A.—Yes.

Q.—Will you look at the attached copy of letter and say if it is a copy of your letter?

A.—Yes, it is.

Q.—Did Exhibit P-4 correctly represent that was happening at the time it was written?

A.—Yes sir.

Q.—That is your letter to Mr. Bishop?

A.—Yes.

Q.—You point out in that letter that if the logs can be fed gradually through the 24 hours you would not have any trouble with them?

A.—Right.

Q.—Did the letters you wrote bring any relief?

A.—No, none whatever.

Q.—Did it cost any money to do the thing you did trying to handle those logs — that is, the construction of the sheer boom, and the tail booms, and putting your men out there to work?

A.—We paid for it, surely.

Q.—Did you ever ask anybody for men to guide the logs into the by-pass or into the other openings?

A.—Yes. I am sure I asked Mr. Coyle if he could not do something about it. When we had the big jam in the by-pass I told Mr. Coyle again. I sent a message down that he had to hurry up and do something — to come up and do something. He sent up two or three men, but to me they appeared not to be very much interested in their work. There was only one thing to do. The water was going up above the cofferdam, and dropping below, and I sent my own men there to shoot the thing out.

Q.—That is, to shoot the jam out?

A.—To shoot the jam out — and kept men there feeding it.

Q.—With respect to the handling of those logs, and the work you did there in that connection, I note in Paragraph 13 of the Declaration there is a charge for labor and material, totalling $2995.42. Can you tell us whether that is a correct amount?

A.—That undoubtedly is the correct amount. That was taken from our cost sheets.

When I saw all the trouble that the logs were causing, we had no allocation in our allocation sheet to charge this against, so we had to make a separate one. That is why I am very positive.

Q.—That is, you gave instructions for the preparation of a separate place to allocate this amount, and have a record kept of it?

A.—Yes.

Q.—I suppose the addition of the 37% is a matter of calculation?

A.—I did not add that.

HARRY A. LINDSKOG (for Plaintiff) Examination in chief.

Q.—The matter we have just been discussing has something to do with the matter I shall now take up with you. In Claim No. 3 the Bishop Company has claimed a substantial amount for the increased cost of cofferdams and unwatering. Can you tell me whether there were certain factor of this work which would increase what you would have anticipated to be necessary expense in the unwatering — that is, in the construction of the cofferdam?

A—There were two factors. The first, and the biggest factor, in my opinion, was the logs. They prevented us from placing the cribs as they should have been placed. It piled a mass of logs against those cribs, and underneath them, and we went to expense and trouble trying to get them out, but we could not. I could not put a diver down there.

Q.—Why not?

A.—The current was too fast, for one thing. The current was very fast. It was laying right against those logs which were in the jam. It would be the same thing as murdering a man to stick him down there.

My belief is the logs caused us the most damage for this reason. I could not put my wood sheeting in front of my cribs, like anybody with the least bit of sense would have done if he had a chance. I had to spar out, and build extra cribs, and do a makeshift. I had done something like that before, but not under these conditions — not with all the logs.

We sounded, and sounded, and tried to get as close to the crib as we could. We sounded, and sounded, and tried the wood, and knew it was logs. We had to shore away off with a series of struts and walers, sink those, and start to sheet.

Q.—And, that shoring out with the struts and walers was due to the presence of logs?

A.—Yes.

Q.—What are struts and walers?

A.—Walers are timbers. They are really strongbacks. They are timbers against the face of which you place your sheeting.

Q.—If we assume the front of this desk, for instance, as the face of your cofferdam, the waler would be a piece of timber out parallel or in front of it?

A.—Yes.

Q.—Against which the sheeting goes down?
A.—Yes.
Q.—And, the strut is the support for the water?
A.—Yes.
Q.—That is, you put a series of walers down, upon which you are going to sheet, and strut them out?
A.—Yes.
Q.—Why did you not take those logs out?
A.—I tried all kinds of ways and means, but I could not get them out. They were down in 20 feet of water.

In my own mind I feel positive that if a diver could have lived down there we could not have pulled him out anyway. He would be tangled up amongst the timber, and the logs, and the cribs. We had proof of that later on when we removed the cofferdam.

Q.—That is, when you had the dam built?
A.—Yes. When we removed the cofferdam Maclaren logs showed right there in the crib, and between them, and under them.
Q.—That was one factor. What was another, if there was another?
A.—The other factor was wrong information about that bottom.
Q.—What do you mean when you say wrong information about the bottom?
A.—They show ledge. That threw me off.
Q.—What was there, as a matter of fact?
A.—Boulders, gravel, muck.
Q.—How much?
A.—An extreme depth of about 9 feet.
Q.—When you unwatered the site of the dam in the river section was there any place in which ledge was showing at the surface?
A.—When we unwatered the dam site between the upper cofferdam and the lower cofferdam none of their soundings were right, or checked up.
Q.—When did you discover there was any error about the soundings, or the elevations given on the plan, of the ledge in the river?
A.—I had a slight suspicion when I saw that crib cant over.

Q.—That is crib No. 2?

A.—Yes. But I could not believe it possible that there would be any appreciable error in this plan B-2444. I thought possibly there was something wrong, or something that the had overlooked. I was pretty positive of it when we started to drive our steel sheeting. I told Mr. Bishop and Mr. Allison, after our second pumping, that there was something in that river bottom different from what we knew.

Q.—You have mentioned Mr. Allison's name. Mr. Allison, I believe, was an engineer who was sent to assist you while Mr. Bishop was away in Newfoundland?

A.—Yes. He was there quite often.

Q.—That is Mr. J. L. Allison, here present in Court?

A.—Yes.

Q.—You speak of the time you were driving the steel sheeting. That was some time after this log jam business had started?

A.—Yes.

Q.—You told us that after the logs came down and jammed the upstream face of your cribs, you started to sheet, using this system of struts and walers. How far upstream from the face of the cribs would the sheeting be?

A.—It varied. We sounded until we thought we were beyond the limits of the logs, and it varied from 10 to 15 feet. I should say possibly better than 15 feet in one or two places.

Q.—In any event, it is shown by the white line on the plan Exhibit P-37?

A.—Yes. If that is scaled it will give you the figures.

Q.—What did you do after you had sheeted the face of those walers?

A.—After we had done our sheeting the next thing was to place the toe fill. I knew under the conditions that I had put down that sheeting it was not as good a job as if I had placed it against the face of my cribs, so we made big bundles of brush and hay,weighted with rock, and let them go down in front of the sheeting, down to the bottom. Then we placed the toe fill over that.

Q.—What was the thickness of the sheeting you put on there?

A.—What we call Wakefield sheeting: three 2 inch planks nailed together and bolted. That makes a tongued and graved sheeting 6 inches thick and 8 inches face. Some of it was 10 inch face.

Q.—Is that a pretty heavy type of construction?

A.—Yes, it is a good, heavy, stout sheeting.

Q.—Is it heavier than usual?

A.—If I had my cribs I would not have done it just as heavy as that. I would have used only two of them, and possibly one inch and a quarter or so, to give a sort of shiplap — a broken joint.

Q.—After putting in this fill of brush and hay, and toe fill, did you try to pump?

A.—After we had placed a considerable quantity of toe fill — more than we ever figured on — it looked like the leak was stopped — that the cofferdam was tight. It did not show any leakage. It looked like it was a dead pool inside. We started our pumping, and we drew her down about 5 or 6 feet, but could not go an inch farther. We were pumping, but it stayed there. So, we ordered more pumps, and put it more toe fill.

Q.—You got more pumps, and put in more toe fill?

A.—Yes.

Q.—How much toe fill did you put in?

Witness:—Eventually?

Counsel:—Yes.

A.—We put about 11,000 yards. Practically an earth fill.

Q.—What do you mean when you say practically an earth fill?

A.—We brought it up three or four feet above water level — above the cofferdam — and above six feet in width. Then, of course, the slope it would take under water would be very great. There was no possibility, if everything had been as it should have been, that there would ever be a leakage through that bank of dirt.

Q.—In other words, the existence of that 11,000 yards of material was just like making a dam across the river?

A.—Practically the same as making a dirt dam across the river.

Q.—Did you continue to get water below the cofferdam?

A.—We could not see, but we knew we were getting water somewhere.

Q.—Why?

HARRY A. LINDSKOG (for Plaintiff) Examination in chief.

A.—Because we could not lower the water. I want to state here that we had probably five times as many pumps as we should have had. We had 12 pumps. We had 10 and 12 inch pumps. Ordinarily one 10 or 12 inch pump should have unwatered it, with one 8 inch pump for a standby. That we proved later on. One little 6 inch pump to keep the water out — a 6 inch pump working about quarter time took care of the water.

Q.—At what conclusion did you arrive after you placed those 11,000 yards of toe fill and still found the pool below your cofferdam filling up at a rate that you could not cope with with this pumping equipment about which you have told us ?

A.—We had a conference.

Q.—Who had?

A.—Mr. Allison, Mr. Steel, and myself.

Q.—Who is Mr. Steel?

A.—He was General Superintendent of Construction for the Wm. I. Bishop Company.

Q.—At both High Falls and Cedar?

A.—Yes.

Previously we had had a diver down to see if there was a leak in this big blanket of fill, and the diver reported "O. K." Before that I had had my suspicions that everything was not right down in the bottom, and I rigged up my orange-peel, and I had clammed out a considerable quantity of loose rock and other material besides ledge, because the clam will not take solid ledge. It was something besides ledge. I showed that to Mr. Allison and Mr. Steel, and we were pretty confident then.

Q.—That was taken below the dam?

A.—That was taken on the site of the dam.

Q.—Below the cofferdam?

A.—Yes.

That practically confirmed our suspicions.

Then we agreed that we had something there, and the only thing we could do was order steel sheeting. We were pretty sure there was no ledge there. We ordered steel sheeting to go through this muck to try to cut her off.

Q.—And, that was the reason for the existence of the line from C to D marked on the plan Exhibit P-37 "Steel sheet piling"?

A.—Yes.

HARRY A. LINDSKOG (for Plaintiff) Examination in chief.

Q.—And, you drove that upstream of your cofferdam?
A.—Yes.
Q.—Then you have from E to F "Light steel sheeting"?
A.—C to D was heavy Lackawanna steel. We drove that steel sheeting.

After my second or third pumping a leak showed up, and we built a flume and took care of that leak, and everybody was happy. "There is a leak. Get rid of that, and we will be dry". We built a flume, and started pumping again, and it was the same old story. Then we drove our sheet piling. That took care of that leak, and when we started to pump we got very low with the water. We went back and redrove it, in some places 5 or 6 feet below what was showing as ledge.

Q.—That is on C-D you re-drove the sheet piling in some places 5 or 6 feet below elevations marked "Ledge" on the plan B-2444?
A.—Yes. That told us that something was radically wrong. We lowered the water far enough that we were almost to the bottom. As the bottom slope was shown, it showed up, and showed this overburden. When we saw there was so much water — not what you would call a blow, or anything of the kind, but small streams of water the thickness of your thumb or better — countless numbers of them — coming up through there, and we had to pump day and night right along. Then we went ahead and ordered this small steel sheeting, and made a pond.
Q.—That is from E to F?
A.—Yes.
Q.—And, that reduced the head, to begin with?
A.—Yes. Then we changed our pumps around, and we had two 10 inch and three 8 inch, I think, here.
Q.—Pumping in the pond above E-F?
A.—Yes.

When we cut them off everything was lovely. A little six inch pump handled what came below E-F. There was practically no leakage after that; but you must understand that we did continuous pumping in the pond.

Q.—And, the line of steel sheeting E-F was a safeguard against a possible scouring out?
A.—Yes, surely

We were very much perturbed when we saw that our cribs were sitting on.

And it being 12.30 o'clock, the further testimony of the witness is continued to 2.30 o'clock in the afternoon.

And further for the present deponent saith not.

J. H. Kenehan,

And at 2.30 P. M. personally came and reappeared; Harry E. Lindskog, and his testimony was continued as follows:

By Mr. Forsyth:—

Q.—I show you exhibit P-38: this plan I believe represents the profile of the steel sheet piling which was driven upstream of the upstream cofferdam?

A.—That is correct.

Q.—The white line at the lower part of this plan is marked, "Profile of bottom as plotted from contour shown on H. S. Ferguson & Company's drawing B-2444"?

A.—Yes.

Q.—So that one can ascertain from P-38 the distance to which the steel sheet piles were driven below the ledge level shown on B-2444 ?

A.—Yes, that is correct .

Q.—You told us this morning that you drove these steel sheet piles at one time and then there was still solid ledge, and you redrove them. Can you tell us whether you noticed any peculiarity or unsual feature about driving them the second time?

A.—When we drove them the second time we started hammering them very heavily. The piling we had driven before started to come up, maybe four or five sheets back.

Q.—That is, when you were hammering at one point, those four or five sheets away from all the piling previously driven would start to come up ?

A.—Would start to rise up, and that is rather unsual. It indicated to us that there was something down below giving them a leverage. The only way I could account for it was, that it hit

a log, and the log acted as a lever on the rock, or as a fulcrum and pushed the other one up, and it did that in quite a few cases.

Q.—Did you afterwards remove that sheet piling?

A.—Part of it.

Q.—And did you remove the blanket of toe fill afterwards?

A.—Yes.

Q.—And did you see, when you removed this material, anything that indicated to you the correctness, or incorrectness, of your conclusion?

A.—We had conclusive evidence then that our assumption was correct, because we brought up a great many Maclaren logs which we could differentiate from our crib timber. It did not have any drift pins. It was not shaded the same way. They were logs. You could tell it was not crib timber, and we removed a considerable amount of it.

Q.—Are you satisfied that you, yourself, did not put the logs, or that your men did not put the logs there that you removed; apart from crib timber did you put any logs under?

A.—We did not put any logs there.

Q.—From the point of view of labour in the construction; from the point of view of the use of material in the construction, and from the point of view of the use of pumps, and the expense which is incidental to that, what have you to say as to whether it was more expensive to unwater that particular piece of the work that lay in the river channel, as you actually did it, than it would have been, had the conditions been as the plan B-2444 indicated them to be ?

A.—If we disregard what the logs had done, it was far more expensive to do what we had to do, because this plan B-2444 was wrong.

A construction man never questions an engineer's plans. That is his Bible. That is supposed to be correct. The engineering profession is very careful to make their plans correct, and if the plan had been correct, and there had been ledge there, that cofferdam would have been a simple problem.

Q.—I suppose it is a little difficult to state just how much of the additional cost was due to the logs, and how much was due to the bad bottom?

A.—Well, all the extra that we had to do, was caused absolutely by the logs, because you must remember at that time, I believe this was correct.

Q.—You believe B-2444 was correct?

A.—Yes, and all that additional work in the big fill, 11000 yards of fill, extra sheeting and all the labour of sparring and strutting out and so on making that cofferdam, that was all due to logs.

Q.—If you had known that the bottom was not ledge, but had this pervious over-burden to the depth you subsequently found it to be, how would you have gone about that work of unwatering?

A.—We could have used one or two methods. We could either excavated the bottom to ledge rock, placed our cribs there, and used wood sheeting, getting it down to ledge rock the same as we did when we believed it was ledge rock. That would all depend on circumstances, or, we would have ordered in steel sheeting and driven that down to ledge rock.

Q.—On the face of your cribs?

A.—On the face of our cribs because, supposing, for instance that we were pretty certain that this over-burden was impervious, that it would not pass water, we still would have to put something down there to cut it off for fear of a blow going under it. We would have used one of the two methods. Either one would have been more expensive. There would have been additional work, but it would not have taken much more time.

Q.—Excuse me for a moment. Of course, when you started the strutting and sparring there to put the wood sheeting on the face, what was your opinion about the bottom at that time?

A.—Ledge.

Q.—And after the logs came, would it have been possible to steel sheet the face of the cofferdam after the log jam?

A.—It might have been. That would all depend on how big a mass of logs there was down at the bottom. That big, heavy steel sheeting will cut through a log, if you fix them up in the bottom you know, but it won't cut through a mass of logs say, five, six, seven or eight feet deep all around each other.

Q.—Have you examined the figures in the declaration with respect to the claim that is made for the additional cost of unwatering (that is, paragraph 15 and following). That is in paragraph 19. The amount as claimed there as being the total cost of the cofferdam is $144,457.92, to which is added a thirty-seven per cent addition, and then credit is given on that for $49,050.20 received. I am dealing with the cost, $144,457.92?

A.—I have examined those figures, and I believe they are correct.

HARRY A. LINDSKOG (for Plaintiff) Examination in chief.

Q.—Apart from the thirty-seven per cent, the result shows that over and above what you received, you spent $95,407.72. I just wanted to ask you whether you are in a position to say the presence of the logs and the bad bottom would account for an expenditure of that amount, practically $100,000.00 — $97,000.-00 ?

A.—Yes, because they are taken from our cost sheets. Our cost sheets are mostly estimates and so on. We had a charge for cofferdamming, and that is the total charge. I made up some costs at the time at Cedars, and that is a reasonable figure.

Q.—In giving evidence this morning, you said that when that crib canted the way you would not expect it to cant, you had a suspicion that all was not well on the bottom, and that you became pretty positive of that when you started to drive the steel sheeting. Was there anything that you could do when you became pretty positive, other than what you did do?

A.—No. The dammage had then been done; the delay and the damage then already had occurred. There was only one thing for us to do then. It was very late and everything else, and that is the only way we could do, order a small steel sheeting to corral that water.

Q.—You referred this morning to some soundings that you took. What was the purpose of taking those soundings?

A.—When we started to build our cribs, we wanted to know how deep we had to build them. We built out cribs up above, and we wanted to know how much water we had to float the cribs down there. The soundings were like it say; 70 and so on does not mean anything say, to my crib foreman, because the river level may vary, so before he started to build his cribs, he made soundings to find out how much water he had there.

By Mr. Geoffrion:—

Q.—Who is "he"?

A.—The cofferdam foreman.

Q.—You don't know then. You were not there?

By Mr. Forsyth:—

Q.—Did you see him take them?

A.—Oh yes. I checked up with him.

Q.—Then, do I understand that what he endeavours to do in taking these soundings, is to find out how deep the water is?

A.—Correct.

Q.—Because of the variation in the water level from time to time?

A.—Yes.

Q.—And when he gets his depth of water, he establishes the contour so that he can establish the bottom of cribs accordingly?

A.—Yes.

Q.—Would those soundings indicate the character of the bottom?

A.—No.

Q.—I am going to go from this question of cofferdam to claim No. 8, which is the extra cost of work under winter conditions. In the first place, I would like to ask you how much extra time you consider was consumed because of these conditions that you have described, namely, the presence of these logs, and the inaccurate information as to the bottom of the river?

A.—Our record shows that we were pretty inactive for three months.

Q.—Under the way this work was planned, how would you have been with respect to the pouring of concrete during the winter ?

A.—We would have had no winter concrete. We would have been ahead three months.

Q.—And how were you running on the progress schedule before you had trouble with the cofferdam?

A.—Beating it; ahead of the progress schedule.

Q.—Does it cost more to do concrete in the winter than in summer?

A.—Certainly.

Q.—For what reason? What additional costs are there?

A.—You can summarize them under three heads; heating of concrete aggregates, protection of concrete.

Q,—That is, the materials?

A.—The materials, sand and stone.

Q.—And protection ?

A.—Protection of concrete, and reduced efficiency of men in winter time, especially Quebec winters, and heating camps; heating camps, that is part of the overhead, adds to the cost for concrete.

Q.—Take, for instance, with respect to excavation, if you are excavating in the winter time, is that more costly than in summer?

A.—It all depends on what material you excavate. Now, in rock excavation there is not such a great amount of extra expense. There is the weather and snow storms etc that affect you, but it does not affect you like your concrete.

Q.—Would you just describe to his Lordship what you had to do with reference to heating of material and protection of your concrete ?

A.—We had to do the heating and protection of concrete as ordered by the Quebec Streams Commission. Whatever they said we had to do. They were pretty careful that no concrete was going to freeze. We had to build scaffolding and staging, pretty elaborate, with tarpaulins and forms, and to put salamanders, steam jets and stoves, to be sure and keep this concrete warm, which was quite an expense.

Q.—Would any of that work have been necessary or useful, if you had been working under winter conditions?

A.—No, I do not believe so. There would be no sense to it.

Q.—What are salamanders?

A.—Salamanders are a cylindrical receptacle about a foot and a half in diameter, about three feet high. It has got leg stands and a grate, and a bottom, and you just throw coal or wood, whatever you want, and set fire to it, and that makes heat.

Q.—The additional costs attributed by the plaintiff to working under winter conditions (paragraph 32 of the declaration) placed at $3.21 a yard for the class 1 concrete; at $6.61 for the class 2 concrete, and at $7.56 per ton for the structural steel. Have you examined those figures?

A.—Yes, I have examined those figures. I believe they are fair enough, for class 1 concrete where it is $3.21 under the conditions that we had to protect our concrete there. In my honest, candid opinion, it is too low, because we were forced to keep things very closely protected.

Q.—With reference to the $6.61 for the class 2 concrete, what do you say about that?

A.—That is correct.

Q.—And the structural steel figure of $7.56?

A.—Yes. That was in a very exposed place when we put that up in cold weather. That does not sound unreasonable at all, seven or eight dollars a ton for winter erection of steel.

Q.—Additional to the summer work?

A.—Additional to the summer work.

HARRY A. LINDSKOG (for Plaintiff) Examination in chief.

Q.—Then, I note that there are items for fuel, protecting the water lines, protecting steam lines, protecting camps and extra lighting, which total $14,627.43. Have you examined those figures?

A.—Yes. They are very reasonable.

Q.—Did you keep records?

A.—Yes. We had to keep records of that class of work for our own information. All water lines and so on had to be boxed in with steam lines.

Q.—Then, to these figures thirty-seven per cent is added. That is something you had not anything to do with?

A.—No, I do not know anything about it.

Q.—Now, we have claim No. 13, standby and overhead expense during delay, and interruption to work because of wrong information regarding nature of river bottom. That claim is set up in paragraphs 40 and 41 of the declaration, and the total extra expense, leaving out any question of profit — there is a fifteen per cent charge added for profit, but the total expense is placed at $38,252.56. Have you examined those figures?

A.—I have examined the figures, and the method they arrived at in computing those figures, and I think it fair.

Q.—Can you tell me why, when you were delayed in this cofferdam, you did not cut down right off, discharge these men, and only work with the organisation at the cofferdam?

A.—Well of course, all the time we believed that the next pumping would make the site of the dam in the river dry, and I knew that we were pressed for time. I knew the minute my cofferdam was dry I had to throw a big bunch of men in there to get at it, and not lose and hour. That is one reason. The other reason, supposing I had laid off everybody at that time, I would still have to keep my staff; I would still have to keep my pump men; I would still have to keep my mechanics; I would have to have quite a few men around there, and the men I laid off — it was fifty miles to the railroad, how was I going to get them back.

In 1929 times were not so terrible hard. We had to raise our wages in 1929. We had to boost the rate of pay up, especially to get them up there fifty miles from anywhere, and as I say, if I had laid off my general foreman and my foremen, it would have taken me some little time, even if I knew where they were at, and supposing I could have got them back, it would have been a week before I could have had them up there probably.

HARRY A. LINDSKOG (for Plaintiff) Examination in chief.

Q.—Had these men been on the job practically from the start?

A.—Practically. At least the foremen and so on I picked; most of the foremen I had picked had been with me, some of them five or six years. We did reduce our amount of labour. If a foreman or straw boss had ten or fifteen men, why, we reduced his labour probably by half.

Q.—Are you satisfied that you reduced the cost of the standby operation as far as it was safe and prudent to do it?

A.—As far as I thought it was safe and prudent in my judgment.

Q.—Now, we go back to Claim No. 4, which deals with the cofferdam at the lower end of the bypass. Will you tell me what the original plan was with reference to the work in the bypass, that is, the original progress schedule?

A.—In our progress schedule, we were to have the dam site and the bypass down river from the dam site all excavated, and concrete poured, piers and so on poured in the dam site where the bypass intersected it, before any high water, so if we had not got into that difficulty of that break in seam....

Q.—Is that what Mr. Bishop referred to as the cut-off?

A.—Of the cut-off trench. If we had not run into that, well, we would have been O.K.

Q.—In point of fact, was the cofferdam in the lower end of the bypass placed before the cut-off trench was excavated?

A.—It was certainly placed there before we completed the cut-off trench.

Q.—May I ask you, did your progress schedule that you had planned, contemplate any cofferdam in the lower end of the bypass ?

A.—No.

Q.—When did you start to place the cofferdam?

A.—The bypass cofferdam ?

Q.—Yes, that is the lower end of the bypass?

A.—About in the early part of April; the 4th or 5th of April.

Q.—1929 ?

A.—1929.

Q.—Had you previously made any tests there?

A.—The reason we put in that cofferdam was, we cleaned off the rock in the dam site as per usual. The engineers had accepted most of it and there was a little streak of rotten rock in one portion. There did not seem to be much, so we got orders from the Engineer....

HARRY A. LINDSKOG (for Plaintiff) Examination in chief.

By Mr. Geoffrion:—

Q.—Which Engineer?
A.—The owners Engineer, I am pretty sure.
Q.—That would be O'Shea or Mr. McIntosh?
A.—It was Mr. McIntosh and Mr. Dubreuil, both of them, and we started to pick in there....
Q.—That was in the bypass?
A.—The site of the dam.

By Mr. Forsyth:—

Q.—The site of the dam where it intersects the bypass?
A.—In the inner gate section. As we started to explore that, it got worse and worse. It looked to me like there was going to be a hold-up. I had already started forms for boring concrete. We were all set to pour concrete when this thing occurred. Then, as it opened up more, I saw I could not take any chances. I went ahead right away and we slapped the cofferdam across the lower end because the river was starting to go up. I would not say it was going up then. The way it looked to me, I did not know how far we were going to go down, and it opened up a lot bigger, so we had to take that much precaution to protect ourselves.
Q.—When you finally got to the point where they would allow you to pour concrete there, what was the position with regard to this cofferdam. Did it prove to have been necessary or not?
A.—Oh, very necessary. Later on we had to go and sand-bag and raise it up, sand-bag the cofferdam and raise it.
Q.—Raise it even higher?
A.—Raise it even higher with sand-bags.
Q.—And if it had not been there what would have happened to your work?
A.—The work would have been flooded out.
Q.—I just observe a couple of photographs here and am wondering whether they indicate the nature of the rock in the cut-off trench?
A.—In the cut-off trench.
Q.—No. 15, is it not?
A.—That one it.
Q.—That is No. 16?
A.—Yes.

Q.—Will you file this photograph No. 16 as exhibit P-79 ?

A.—Yes.

Q.—That indicates the sort of rock you had to go down in in the cut-off trench?

A.—I may state that I put a test hole myself with a tripod drill. We ran down twenty feet after we had started that, and, if you are an experienced driller, if you have anything to do with drilling, you can tell by the sound of your steel and the action of your drill pretty close what kind of rock you are going through, and the dust coming up, and twenty feet, that is as long a steel as I had. That established conclusively that she was not cut down below.

Q.—How did you take that rock out after you had made that test drill?

A.—It was the Engineer's job to see that I did not go any deeper than necessary. They made me take it out in two or three foot lifts, always thinking that to take out two feet or three feet usually would be good.

Q.—Did they make you do that after you had made your test hole there with a drill twenty feet down?

A.—Surely.

Q.—Did you tell them what results you had had from your test drilling there?

A.—Well, I told him, in my opinion, she is going to go far down.

Q.—Were they around there when you were making that test drilling operation? Were these engineers around there?

A.—I could not say as to that. It took some time. They were probably there at one stage.

Q.—I did not mean to say they stayed right by the drill, but were they on the job at that time?

A.—Oh yes, I believe so.

Q.—In paragraph 21 of the declaration, the cost of the construction of that cofferdam is placed at $4,060.95; labour, $3,670.94 and the material $390.01. Have you had an opportunity to check up on those figures?

A.—I have not had an opportunity to check away back, but at the time at Cedars, Mr. Bishop asked us to get the cost of that cofferdam, for the reason that he was going to arbitrate, and we went back in our records and found that that was the sum.

HARRY A. LINDSKOG (for Plaintiff) Examination in chief.

Q.—And this sum represents the correct amount taken from the records?

A.—I think so.

Q.—Might I ask you before we go to the next Claim, this general question, as to whether in the light of your experience, you are of opinion that it would have been possible to determine the true character of the material to be excavated in the bypass channel?

A.—Certainly, core drilling, surely.

Q.—And whether it would have been possible to ascertain the true nature of the surface of that river bed?

A.—Surely.

Q.—How would you do that?

A.—Core drilling.

Q.—And generally speaking, is it possible to determine the nature or rock of the depth to which you will probably have to go in order to get ledge foundation?

A.—Oh yes. It is the generally accepted method to core drill especially for a dam site.

Q.—And in your experience who does it, the Engineers or the Contractors?

Mr. Geoffrion:—I object to this question. It is a matter of contract and not of practice.

His Lordship:—I thing it is good evidence. I will reserve the objection?

A.—The Engineers.

By Mr. Forsyth:—

Q.—I note that the contract in this particular case indicated that the total quantity of rock excavation was 8060 cubic yards. In the first place, do you know of any attempt having been made either by the Engineers of the Quebec Streams Commission or of the owners, to determine the final depth to which these rock excavations had to be carried?

A.—No. That question was brought up once after we had had a lot of difficulty trying to make tranches in the rock, and we had no success.

Q.—That was at the stoplog section?

A.—At the stoplog section. The rock did not show up good. There was a lot of big, black mica streaks in it, and it was flakey, and we had then made — I won't say how many, but three or four attempts, to make trenches. First, I had to convince Mr. McIntosh a couple of times that we could not do it, and then Mr. O'Shea came up, and I had to repeat the operation, and later on I had to repeat the operation for Mr. Dubreuil.

Q.—If you will just excuse me: when you speak of making the trenches in the rock, were those the trenches to form the heel and toe of the dam?

A.—Correct. I don't know just the exact date, but I had a conversation with Mr. McIntosh, and he stated that it would be a very good idea if we could get a calex core drill here, and drill and find out what we had to contend with, and I was led to infer that he wanted to know if we could do the core drilling providing he could get the consent of Mr. O'Shea, and I know that he asked Mr. O'Shea about it.

Q.—Were you present when he asked him?

A.—I think so. I don't know if I was absolutely present.

By Mr. Geoffrion:—

Q.—It must be absolutely what happened. Half presence is unknown to me.

A.—I don't know if I was present when Mr. McIntosh asked the question, but I do know that Mr. O'Shea would not allow core drilling unless we did it at our expense.

By Mr. Forsyth:—

Q.—And in the absence of core drilling they look this method of going down two or three feet at a time, still at your expense?

A.—Still at our expense.

Q.—But taking the rock in that way, two or three feet at a time, did they increase the expense of the excavation?

A.—Well, certainly. In two or three feet lift we first of all do not get the action of the powder that we should have. You have to drill more holes, and the big expense is repeated and repeated, cleaning the bottom for which we never received a cent. There is no yardage in cleaning off the bottom. Then, if the Engineers go there and test it and find it hollow, or it does not look good, we drill some more holes and dig out a little here.

Q.—Clean again?

A.—Clean again, certainly. It adds very much to the expense.

Q.—For instance, if you were taking out ten feet of rock, how would you take that out?

A.—In one lift.

Q.—And if you were going to go twenty feet, how would you take it out?

A.—That depends on what tools and equipments I had there. Most likely I would take it out in one lift.

Q.—As compared with the indications of these plans, how far did you go below the anticipated elevations?

A.—In some cases like that cut-off trench, thirty feet or better. I forget just how much. The non-spilling section showed two trenches three feet deep. We went fifteen feet in places.

Q.—In the non-spilling section where the trenches are shown two or three feet deep, that would be that portion of the detailed plans, would it not? That is shown by section H-H, that is, if you take the longitudinal profile of the dam shown at the top of the plan B-2751 and establish the letter H-H at the right hand of the plan marked "non-spilling section" at the top, and take the cross section H-H, which is the uppermost right hand detailled drawing, you get trenches of two and three feet, or perhaps I should say three and two feet?

A.—We were supposed to make trenches three feet by three feet.

Q.—That is, one at the toe of the dam and one at the heel?

A.—One at the toe and one at the heel of the dam.

Q.—What actually happened there? By looking at the plan P-27, did you make trenches there?

A.—No, we could not make them.

Q.—You went right down?

A.—What I have stated before, I had to convince the Engineers that I could not make trenches. I was accused of shooting too hard and this and that and finally I said, "Gentlemen, tell me how much powder to put in there, and what to do, and I will do exactly as you say", and it was the same old story, their rock would not stand it.

Q.—That is, this dam could not, so far as the trenches are concerned, be built the way it was designed?

A.—No.

HARRY A. LINDSKOG (for Plaintiff) Examination in chief.

Q.—So that instead of having as an original design, a dam, the toe of which rested in one trench three feet, and the heel of which rested in another, with a ledge of rock in between as a sort of anchor for the dam, you had a single trench?

A.—A deep single trench.

Q.—A deep single trench in which the bottom of the dam was poured?

A.—Correct.

Q.—And how far does the plan P-27 show you below the elevation indicated as the bottom of the dam in drawing B-2571 at the deepest point?

A.—Twenty-seven feet.

Q.—What do the cross sections of the Stoney Gate section, drawing B-2571 indicate, as to how far you had to go there?

A.—It shows the same thing.

Q.—The same thing as for H-H?

A.—Two trenches.

Q.—Was it found possible to put the Stoney Gate section in the way the drawing B-2571 indicates?

A.—No.

Mr. Geoffrion:—What do you call the Stoney Gate section?

Mr. Forsyth:—The Stoney Gate section is the next section south of the non-spilling section which is in the by-pass, where the dam crosses the bypass.

By Mr. Forsyth:—

Q.—Did you have trenches there as built or was it built with trenches as indicated in the cross section?

A.—No.

Q.—Were you in the same position again, that you had a deep trench in which you poured concrete?

A.—Yes.

Q.—Will you look at the plan P-27 and tell us how far at the deepest point you went to get bottom for the dam below the bottom line indicated on B-2571?

A.— A little better than thirty feet. We went to 54.7.

Q.—Where B-2571 showed elevation 88 you went down to elevation 54.7?

A.—Yes.

HARRY A. LINDSKOG (for Plaintiff) Examination in chief.

Q.—Just going back to the non-spilling section for a moment, and establishing the elevation line 122, where your bottom of the dam is shown as approximately 122.4, you went to 95.4 at the lowest point?

A.—Correct.

Q.—Just unroll the plan P-27, and tell us whether there is any point right across that dam where the drawing B-2571 indicated correctly the ultimate locus of the bottom of the dam as built?

A.—I see none except at one point.

Q.—At the point, "Station"?

A.—Station 0 plus 80.

Q.—At Station plus 0 and plus 80 on the north side of the river ?

A.—Yes.

Q.—That is just about at the north bank?

A.—That is on the north bank.

Q.—When you look over at the south bank, I note that there is a stretch there for some feet where your foundation is a little higher than the foundation line of the drawing B-2571. At what station is that ?

A.—From Station 3 plus 7 south to 3 plus, say, 35.

Q.—So that would give you 28 feet, would it?

A.—Yes.

Q.—28 feet where the line of the dam as designed is lower than the line as actually built?

A.—Yes.

Q.—Out of a total footage of how much?

A.—Some 900 feet.

Q.—It would be 530 feet from your zero?

A.—From the zero.

Q.—530 feet, and then you add?

A.—330.

Q.—That is, the whole length of the dam is 860 feet?

A.—860 feet.

Mr. Geoffrion:—What is this blue line?

Mr. Forsyth:—The blue line is the original rock circuit and the brown one is the original circuit and the bottom is shown on B-2571, is the red line, and the yellow one is the actual bottom of the dam as built.

HARRY A. LINDSKOG (for Plaintiff) Examination in chief.

By Mr. Forsyth:—

Q.—Perhaps we had better look at B-2571 again. Looking at B-2571, will you tell me whether this dam as designed, was to be placed as to foundation on this trench system all the way across, that is to say, were you to excavate these trenches for the heel and toe across the whole length?

A.—As shown on the plan that is what it was supposed to be.

Q.—Did you do that everywhere in the actual construction of it?

A.—We tried it right along until Mr. Dubreuil saw the futility of it and told us to go ahead and forget the trenches, and excavate it in one trench.

Q.—Was there any place where the concrete was poured in trenches as indicated on this plan?

A.—No.

Q.—And you say that Mr. Dubreuil instructed you not to do that. Why did he instruct you not to do it? Did Mr. Dubreuil tell you why?

A.—Well yes, he told me, "You cannot do it, it is spending too much money. Go ahead, we have to take it out anyway".

Q.—And was that on account of the character of the rock ?

A.—Surely.

Q.—In paragraph 25 of the declaration, an amount of $89,355.76 is set up as being the total cost of excavating 21,565 cubic yards of rock. Have you had an opportunity of examining those figures?

A.—Yes.

Q.—Were records kept as to the actual cost of excavation there?

A.—Surely.

Q.—And do you know whether these figures are correct?

A.—Well, they should be correct. They were taken from our records. We had various ways of checking up. That item would not go in a wrong place.

Q.—Then, there is an addition of 37 per cent, and a credit of the actual amount received for rock excavation, leaving a charge of $35,100.74 as being the extra cost of rock excavation due to the way in which it had to be taken out, and for the other

reasons that you have given. I would like to know if you can tell the Court whether that is a reasonable figure for the additional cost of the work?

A.—I think it is, because taking out rock the way we had to do it cost far more than if I would have been given a face, for that dam you could have a ten foot face or even a five foot face to go through; I would put my holes down accordingly.

Q.—I notice that it works out at about $1.70 a yard more. Would that give you a better method of comparison?

A.—That is not excessive.

Q.—We will take the next claim in order as it occurs in the declaration is, "Handling and trimming excavated rock". Can you tell us about your disposal piles there? The excavation ?

A.—That disposal pile, the owners Engineers told us where to put it. It had to be put upstream. If we had not had the excess quantities of rock, that pile would have been all right. It would have been covered with water when the dam was filled.

Q.—That is, if you had the 8060 yards that the plans indicated were there, and did not have 13,000 more?

A.—Correct. As we went back with our derrick and the excavation got bigger and bigger it was the only place we could put it.

Q.—And then, I note from some correspondence that was filed before, you were ordered to trim those piles ?

A.—We were ordered to trim the piles down. Mr. Lefebvre was up there, and saw the pile, and we explained to him it was absolutely due to the tremendous over-run of quantities, and he stated that if we trimmed them off a little bit it would be good. When they were trimmed off I was not at Cedars.

Q.—So that you do not know anything about the cost of doing this ?

A.—I do not.

Q.—The next Claim in order is the one that we had, No. 6, but it is in paragraph 28 and following of the declaration, paragraphs 28 to 30 inclusive. It deals with the claim for removing frozen material in the river bed. You stated this morning that when you got into the river bed you found there was an over-burden there. What did that over-burden consist of?

A.—Big and small boulders, gravel, some clay, not much.

Q.—Would that, in your opinion, fall into the classification of earth?

A.—No.

Q.—Did you remove it?

A.—Surely.

Q.—And what would you say as to the cost of removing that material as compared with the excavation of hard rock?

A.—To be frank I would rather remove twice the amount of solid rock. We unwatered in the middle of the winter when it was frozen solid. We had an awful time to drill it, and when we shot it we had the same story as in the hardpan and it was frozen; solid rock would have broken up. This did not.

Q.—What were the temperatures you had there at that time?

A.—It was pretty cold on quite a few occasions.

Q.—You did not wear straw hats?

A.—We did not wear any straw hats.

Q.—I understand that there were 811 cubic yards of that which was excavated, and that the owners paid $1.23, the earth rate for the excavation, that is, I note that the Plaintiff Company is charged $4.35 a yard for that. What have you to say to that price?

A.—It is fair enough under those conditions.

Q.—You don't know anything about the overcharge on the logs?

A.—No, I do not.

Q.—What do you know about the extra cement which was required for the Apron, as to its cost?

A.—Well, it would have cost quite a bit more, because they had to haul it when there were no winter roads. That is when they had to haul it.

Q.—They had to haul it just about during the break-up. I stole the cement, or I took the cement allocated to the gate house, and put that in the Apron.

Q.—Was that Apron shown as a part of this dam anywhere in the drawing of the original plans?

A.—No, that was not shown in the drawing at all. That was decided by Mr. Dubreuil for the reason that the rock in the bypass did not look good enough.

Q.—And he wanted to make a better surface?

A.—He was afraid of the water going down the O. G. section.

Q.—What is the O. G. section?

A.—Just on the bottom, east of the Stoney Gate spillway.

Q.—Why are they called Stoney Gates up there?

A.—It is the name of the man who invented them, I guess.

Q.—That is, it has nothing to do with the rock or stone or anything like that, but they are still gates of the design invented by a man named Stoney?

A.—Correct.

Q.—When was the Apron in the bypass channel placed there ?

A.—In the early part of April or the latter part of March ?

Q.—Of 1930 ?

A.—Of 1930.

Q.—And you have told us that you used for that, cement which had been in hand for the gate house, and that consequently bringing the cement in for the gate house increased the cost ?

A.—Yes.

Q.—There is a claim made by the plaintiff for shortage in payment of class 1 concrete. Did you ever discuss with Mr. O'Shea the basis of the payments as they were made or consent to having estimates made on the basis that he made it?

A.—I never consented. I had not any option. Mr. O'Shea brought me his estimate, so much and so much. He said, "Here is what we are paying you", and that was after I tried to argue with him, but with very slight success.

Q.—Very slight seems to me to be an exaggeration. At any rate, you transfered the argument to your head office?

A.—Correct.

Q.—That is, your end of the argument?

A.—Yes.

Q.—Who was the person who directed you as to whether the concrete was to be poured with or without plums in any particular location ?

A.—First, Mr. O'Shea or his representative.

Q.—Mr. McIntosh ?

A.—Mr. McIntosh. Later on the Quebec Streams Commission established themselves there. They had the complete say so of how the dam was to be built.

Q.—Was there anything in the plans which indicated where plums could or could not be used?

A.—No, not on these plans. It was indicated in the specification, I believe.

HARRY A. LINDSKOG (for Plaintiff) Examination in chief.

Q.—At any rate the plums went into the ground where you were told, either by Mr. O'Shea or the Quebec Streams Commission they should go in, and they stayed out where you were told by Mr. O'Shea or the Quebec Streams Commission that they had to stay out?

A.—Yes.

Q.—Are you in a position to give any evidence on the additional cost of the plant removal?

A.—I can give this evidence, that I saw we could not get the plant out in the winter of 1929-1930, and I went ahead and made a new lease for the garage at Gracefield for another year.

Q.—So you would have a place to put it when you did take it out?

A.—Correct, and of course, it would cost more because, there was, first of all, a lot more equipment.

Q.—On the first photograph of the photograph album we have photographs numbers 1 and 2. Would you just tell his Lordship what those are?

A.—Photograph No. 1 is a view of the material at the site of the dam where the bypass intersects it after it has been shot.

Q.—Is that the material below the five feet of easy digging that you described this morning?

A.—Correct.

Q.—So it is material which you say is the material which you class as hardpan after is has been shot?

A.—Correct.

Q.—And photograph No. 2 ?

A.—Is another view of it.

Q.—Another view of the hardpan after a shot?

A.—Yes. It is partly cleaned up there.

Q.—I will ask you to produce photographs Nos. 1 and 2 which appear on the first page of the album as one exhibit P-80?

A.—Yes.

Q.—Photograph No. 7 shows the east end of the bypass and the derrick working on the excavation of the Stoney Gate section?

A.—Yes.

Q.—And the point about the photograph No. 7 is to see the lack of slope in the banks?

A.—Yes.

Q.—Indicating the hard wedge material?

A.—Yes.

Q.—Will you file photograph No. 7 as P-81?

A.—Yes.

Q.—Photograph No. 11 indicates the character of the rock in the excavation at the north end of the inner gate section?

A.—Yes.

Q.—Will you file that photograph as exhibit P-82?

A.—Yes.

Q.—Photograph No. 16 has already been produced. No. 15 shows the excavation in the non-spilling section. Is that approximately at the point where you went down to deep below the grades indicated by B-2571?

A.—Well, I would say so.

Q.—Will you file photograph No. 15 as exhibit P-83?

A.—Yes.

Q.—And photograph No. 18 is another view of the same non-spilling section as P-83. Will you file photograph No. 18 as exhibit 84?

A.—Yes.

Q.—Where is photograph No. 19 located?

A.—At the inner gate section. Some of them at the by-pass, what we call the Island.

Q.—And that is just showing the rock excavation that was there?

A.—Where we set up an extra derrick.

Q.—You set up an extra derrick there?

A.—That is on the original estimate, Engineers' quantities. That is where most of our rock was. The top of the Island had to be levelled off, so when we saw we got into such a terrible mess of rock on the north end, I set up an extra derrick to take this out.

Q.—Will you file photograph No. 19 as exhibit P-85?

A.—Yes.

Q.—Photograph No. 31 shows typical rock excavation in the non-spilling section?

A.—Yes.

Q.—I will ask you to produce that photograph No. 31 as exhibit P-86?

A.—Yes.

Q.—Does that show fairly well the character of the rock that you encountered there?

A.—Yes.

Q.—Is photograph No. 33 taken from the bypass?
A.—Yes. That is looking upstream in the bypass.
Q.—And indicates the character of the material that was classed as earth?
A.—Yes.
Q.—Will you produce photograph No. 33 as exhibit P-87 ?
A.—Yes.
Q.—Photograph No. 41 shows the cofferdam after the sheeting was done, but before the placing of the toe fill?
A.—Correct.
Q.—Will you file photograph No. 41 as exhibit P-88 ?
A.—Yes.
Q.—And photographs Nos. 42 and 43, which I will ask you to file as exhibits P-89 and P-90 show work being done placing the toe fill?
A.—Correct.
Q.—What does photograph No. 47 show?
A.—That shows the site of the dam in the river between the lower and upper cofferdam when it was partly pumped up.
Q.—Can you see the pumps from there?
A.—You can see the smoke on all of them, and the steam.
Q.—Will you file photograph No. 47 as exhibit P-91?
A.—Yes.
Q.—There are some photographs which are not numbered, and which are subsequent to No. 47, and I am going to ask you to produce all those as one exhibit, as they show the various views of the dam as completed?
A.—Yes.
Q.—Will you file those photographs as exhibit P-92?
A.—Yes.
Q.—They are the last four photographs in the book?
A.—Yes.
Q.—Did you take these photographs yourself?
A.—Mr. Riffenstein took them.
Q.—He is one of the Engineers of the W. I. Bishop Company?
A.—Yes.

Mr. Forsyth:—I produce as exhibit P-93 a list of the photographs which have been produced as exhibits and of some which have not been produced, but showing the dates on which they were taken, and I call my learned friend's attention to the

fact that the photograph No. 9 is not in the book. I have just asked Mr. Bishop for an explanation of that and he tells me it was not material. It is not the album and it is not filed.

And it now being 4.15 P. M. the further examination of this witness was adjourned until Tuesday, the 21st day of February instant at 10.30 A. M.

And further for the present deponent saith not.

DEPOSITION OF WILLIAM I. BISHOP

A witness recalled on behalf of Plaintiff for further cross-examination.

On this twenty-first day of February, in the year of Our Lord, one thousand nine hundred and thirty-three, personally came and reappeared William I. Bishop, a witness recalled for further cross-examination, who being duly sworn, doth depose and say as follows:

Further cross-examined by Mr. Geoffrion, K. C., of Counsel for Defendant:—

Q.—I asked you to prepare for us on the same principle as your chart of expected performance, a chart of your actual performance. Have you done so ?

A.—Yes. I made a statement last week; the work, even with the actual quantities could not have been completed by Christmas of 1929. I have put in white lines the actual quantities of the actual performance. This was made on May 23rd, 1930. I have put on here in yellow the progress required to Christmas, as per my scale, and in addition to that I have a statement here showing how that is made up so that your Engineers can verify that there is no progress calculated that is not within the rated capacity of the equipment as per the list we file.

Take the white caption. That is when the plan was showing white lines, which shows how the work was actually constructed.

W. I. BISHOP (recalled for Plaintiff) Cross-examination.

Q.—Will you please file this progress schedule as D-5 ?

A.—Yes.

Q.—And will you file as D-6 the explanatory statement?

A.—Yes.

By Mr. St. Laurent:—

Q.—On exhibit D-5, the first thing to the left is, contract quantities, and then there is a column which is entitled "Contract quant.", quantities and the number of cubic yards is indicated in the first column containing figures?

A.—Yes.

Q.—Then, the description of the locality comes next?

A.—Yes.

Q.—And the section of the work it refers to?

A.—Yes.

Q.—Then, opposite that is the nature of the work, "Excavation earth, excavation rock, forms, concrete etc."

A.—In each section.

Q.—Those actual quantities represent, I understand, the actual yardage that was performed on that job?

A.—Yes.

Q.—Opposite each one of those items there are white horizontal lines, and yellow horizontal lines?

A.—Yes.

Q.—The white horizontal lines indicate the time and quantities during that time actually performed?

A.—They show the performance on the actual quantities shown in this right hand column.

Q.—Both as to quantities, and as to the dates on which those quantities of work were performed?

A.—Yes.

Q.—The yellow shows the same quantities, and shows when those quantities could have been performed, had there been no delays resulting from causes about which you complain?

A.—Yes.

Q.—By whom was the yardage actually performed, measured? What measurements are used in this exhibit D-5?

A.—This was prepared by our resident Engineer, Mr. Riffenstein, the one showing the white lines to that extent, and I understand there is no serious discrepancy between Mr. Riffenstein's figures and the Engineers of the owner. There is no argument about the quantities.

HARRY E. LINDSKOG (for Plaintiff) Examination in chief.

Q.—Mr. Riffenstein will be able to tell us how the quantities actually performed, as ascertained by him, checked with the quantities ascertained by the Engineers for the owners?

A.—Yes sir.

Q.—Your understanding is, that there is no substantial difference there?

A.—Not that I have heard of.

Q.—I understand that exhibit D-6 is a tabulation showing the daily quantities performed during the months listed on the top of this exhibit D-6?

A.—No. Those are the quantities required to be performed to fit in with the lines shown in yellow.

Q.—The quantities required to be performed?

A.—Yes.

Q.—You would then have to during twenty days of each month work at the rate indicated in the totals shown at the bottom of D-6, in order to attain the results which you predicated in yellow on this exhibit D-5?

A.—That is correct.

Q.—And the purpose of D-6 is, to show that you were not over-taxing in order to arrive at the results that D-5 would show?

A.—Exactly.

And further for the present deponent saith not.

DEPOSITION OF HARRY E. LINDSKOG

And on this twenty-first day of February, in the year of Our Lord, one thousand nine hundred and thirty-three, personally came and reappeared Harry E. Lindskog, and his examination in chief was continued by Mr. L. A. Forsyth, K. C., of Counsel for Plaintiff as follows:—

By Mr. Forsyth:—

Q.—Mr. Lindskog, you are under the same oath. Have you had an opportunity to check exhibits D-5 and D-6, the progress charts?

A.—Yes.

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

Q.—And the required quantities as shown in D-6?

A.—Yes.

Q.—Are you in a position to tell the Court whether the plant and equipment that you had were capable of performing the per diem quantities shown in D-6, and to have accomplished the results shown on D-5, if there had been no interruption to the work, as you described in your evidence yesterday?

A.—Our equipment was rated to do more than that, that is, the quantities that should have been taken out, and our equipment could do better than that.

Q.—That is, the quantities shown on D-6 are the quantities which would have been required to make the figures shown by the yellow lines on D-5?

A.—Correct.

Q.—And you have stated the equipment was rated to do more than that?

A.—Yes.

Q.—On actual performance of the equipment as you saw it operating, was it able to do it?

A.—According to our daily reports and so on, and according to our estimate given by the owners Engineers we did better than these quantities.

Q.—You did better than the quantities shown on D-6?

A.—Yes.

Cross-examined by Mr. Geoffrion, K. C., of Counsel for Defendant.—

Q.—I see by this exhibit P-66 that from 1905 to 1915 you were on railroad work?

A.—Yes.

Q.—Railway building or railway operating?

A.—Railway building, location work.

Q.—Location work?

A.—Location and construction work.

Q.—You say, Instrument Man, Resident Engineer, Location Work, Bridge Inspector, Concrete Inspector; at the Grand Trunk, what was your position in the Grand Trunk, and when?

A.—I went out as Instrument Man in 1909 at the Yellow Head Pass under Mr. Wade.

Q.—How long was that?

A.—We were there from November to about Christmas.

Q.—A few months?

A.—A few months.

Q.—Canadian National Railways. What position did you have there, and when?

A.—It is not C. N. R. It is Great Northern.

Q.—On the exhibit P-66, you have both C. N. R. and Great Northern?

A.—I am sorry. That is a mistake. I have not been on the C. N. R.

Q.—Then, to avoid confusion I will scratch that out. On the Great Northern?

A.—Resident Engineer.

Q.—Where?

A.—On the Fargo Line; from Fargo to the Junction at Surrey.

Q.—Was that construction or maintenance?

A.—That was construction.

Q.—You were no building a line.

A.—Yes.

Q.—What distance were you building there?

A.—The total distance was about two hundred miles. I had a sub-residency for Fargo, for twelve miles out.

Q.—Were you the Chief Resident Engineer for these twelve miles?

A.—Yes.

Q.—You were not the assistant? You were the Head there for that section for these twelve miles?

A.—For the twelve miles.

Q.—You had a Resident Engineer over you, of course?

A.—Yes.

Q.—How long did that last?

A.—From early spring to late fall?

Q.—What year?

A.—1908, I think.

Q.—Chicago and Milwaukee. What was your job there?

A.—Instrument Man on Maintenance of Way

Q.—Instrument Man, what is that position?

A.—You run the levels. You do the transit work. You do the instrument work. It is assistant to the Resident Engineer.

Q.—Taking levels?

A.—Taking levels and instrument work ; transit work also.

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

Q.—Transit work is the same thing. It is locating spots?
A.—Yes.
Q.—You locate the positions as they take levels?
A.—There is a difference between level work and transit work.
Q.—Transit work is to locate spots, locate positions?
A.—Certainly.
Q.—How long were you an Instrument Man there?
A.—It was during the summer months.
Q.—Do you remember what year?
A.—1910, I think.
Q.—Northern Pacific. What were you on the Northern Pacific?
A.—Level Man on the location.
Q.—When was that, and how long?
A.—That was in the winter of 1910, I am pretty sure.
Q.—How long?
A.—From the fall to about March, during the winter.
Q.—Minneapolis and St. Louis?
A.—That was in 1905.
Q.—How long?
A.—The summer months.
Q.—What job?
A.—Rod Man.
Q.—When?
A.—1905, and also in 1906, I think — two summers anyway.
Q.—You say you were in the University of Minnesota for three years. What three years?
A.—In 1907 I was a Freshman and in 1909, then I was out of school for quite a while and I think I went back in 1913.
Q.—Minneapolis Power Station. You were working for Stone and Webster then?
A.—Stone & Webster.
Q.—How long?
A.—From March until late in the Fall.
Q.—What were you there?
A.—First I was Instrument Man at the Main Steam Plant; then, I was made Resident Engineer of the sub-Station in the city.
Q.—It was not construction, it was operation?
A.—Construction building.

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

Q.—First you were Instrument Man of the Main Steam Plant, and then you were made Resident Engineer for the sub-Station in the city?

A.—Correct, building.

Q.—When you say, Resident Engineer, you mean you had a Resident Engineer on the spot?

A.—Well, I was the Engineer there while we were doing the work.

Q.—Did you say how long you were there on that job?

A.—From about March to in the fall.

Q.—In 1911, Stone & Webster again, on the Keokuk dam?

A.—Yes.

Q.—How long were you there? Was that in 1911? Is that correct?

A.—Yes, I am pretty certain.

Q.—How long?

A.—From August to sometime the next summer; some time in 1912, I think.

Q.—Did you stay to the end of the work?

A.—No.

Q.—Did you stay to the end of the work for the Power Station?

A.—Yes.

Q.—What was your position for the Keokuk Dam?

A.—Assistant to the Superintendant, Mr. Ryan, and later on I was Inspector of practically all the work on the Power House.

Q.—Construction?

A.—Construction.

Q.—Was it Power House, or Dam or both?

A.—Power House and Dam, both.

Q.—Then I come on exhibit P-66 to 1913, Coon Rapids Dam. You were working for the Byllesby Corporation?

A.—The Byllesby Corporation.

Q.—How long were you there?

A.—That was in the spring, till late in the fall.

Q.—Did you finish the work?

A.—The work shut down, because there was no money.

Q.—What was your position there?

A.—First, I was general Foreman; later on I had charge of the deep excavation and the cofferdamming of the power house.

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

Q.—In 1916 what did you do ? You were on the Rapidan Dam ?

A.—Yes.

Q.—The same Byllesby Corporation?

A.—The same Byllesby Corporation.

Q.—How long was that?

A.—That was a matter of about six or seven months. The Dam was built. That was a repair job. there was a break under the dam, and we had to cofferdam to fix it up.

Q.—Now, the next is 1919, A. Guthrie Company, Incorporated. You say you were estimating Engineer?

A.—For the summer.

Q.—During the summer of 1919? Was it during the summer you worked for the Guthrie Corporation as Estimating Engineer?

A.—Correct.

Q.—What was your job? Estimating for tenders?

A.—Estimating for tenders.

Q.—They were making tenders?

A.—Yes.

Q.—You were one of the people entrusted with the estimating of tenders?

A.—Surely.

Q.—This bring us to 1920, the same Guthrie Company, Mesaba Iron Range. You were night Superintendent. What was your job?

A.—Stripping operation.

Q.—Stripping what?

A.—Stripping the uncovered iron ore.

Q.—For mining purposes?

A.—For mining purposes.

Q.—You were night superintendent for them?

A.—Correct.

Q.—For how long?

A.—One summer.

Q.—Did you finish the job?

A.—I suppose it is still going on.

Q.—In 1921 you were with the Milwaukee Light Power and Traction Company, Winston Brothers. How long did you work for them?

A.—That work was started late in the fall or early winter and we worked through till about July of that year. That was the next year.

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

Q.—Did you finish the work?

A.—We finished the tunnel.

Q.—There was a tunnel?

A.—Well, we finished. I had more to do with that than anything else, the tunnel excavation.

Q.—In 1922 you were with the Northern Lethbridge Irrigation Project with Crealman & Verger. General Foreman, General Superintendent of Structures. How long was that?

A.—A year and a half; possibly two years.

Q.—What was the work?

A.—Irrigation project, and there were quite a few Structures. First, I had charge as General Foreman of a lot of small structures, and later I was made superintendent of Old Man River Crossing.

Q.—What was the crossing?

A.—A flume going across the river.

Q.—What was that flume? A tunnel?

A.—No, it is a flume to carry the water over the river.

Q.—It is a bridge over the river — a viaduct?

A.—Yes. Later on I was made Superintendent at the head works to do a lot of repair work at the flooding, damage by flooding.

Q.—How long? You told the Court how long that was, a year and a half or two years?

A.—A year and a half I should say.

Q.—In 1923 I see Elko Tunnel and Dam?

A.—Elko Tunnel and Dam for Winston Brothers.

Q.—How long you were there?

A.—I was at Elko two years.

Q.—Your note is, Elko Tunnel and Dam?

A.—Well, Elko Tunnel. We drove the Tunnel. I was night Superintendent or Night General Foreman, whatever you call it, in charge of driving the Tunnel, both ends till we practically met ; then, the East Kootenay Power Company asked me if I wanted to go on to the Dam, and they asked Winston Brothers if it was all right ; then, I went and took charge of the dam.

Q.—To make things shorter. I find that you left during 1923 for William I. Bishop & Company?

A.—There was a lot of financial difficulty with the East Kootenay Power Company. They shut down, and I went to Bonnington Falls. Bonnington Falls is not a far distance from Elko

Tunnel. Then, when the William I. Bishop Company got the contract to finish up the Elko Power project I was called back to Elko.

Q.—At Bonnington, who was the contractor for that?

A.—That was a force account work by the Canada Smelters.

Q.—From 1923 down to 1928 you worked for Bishop continuously, did you not?

A.—No, not continuously.

Q.—I see a series of jobs here, after the Bishop Company, to finish the Elko Tunnel. You have, River Bend Paper Mill, night Superintendant for William I. Bishop Limited and day Superintendent; St. Johns, Newfoundland Government Dry Dock; Beaupré Paper Mill Construction; Cap Madeleine Wharf; Anglo Canadian Pulp & Paper Company. That was not continuous. There were breaks?

A.—I misunderstood your question.

Q.—I said you worked there all the time for them until 1928. according to this memorandum?

A.—Yes, until 1928 I worked continuously, only for one break, when I worked for the Anglo Pulp & Paper Company, building a wharf which I do not think is shown in there.

Q.—Did you work during the summer and winter, or only in the summer for Bishop? You worked the year round for Bishop?

A.—I worked the year round practically.

Q.—Up till then you had not been working continuously, judging by what you told me?

A.—No. I did not work continuously on all the jobs.

Q.—What do you do in the meantime when you do not work. Have you any other occupation?

A.—I have had to take what I could get.

Q.—Were you a Farmer?

A.—I was foolish enough to try it once.

Q.—I thought you were still. You are not now?

A.—No.

Q.—How long did you try farming?

A.—About a year and a half I imagine — two years.

Q.—How long ago?

A.—1914.

Q.—Well then, the others are the Hudson Bay Railway Construction? Where were you working there?

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

A.—West of Hudson Bay Junction, or north of Hudson Bay Junction.

Q.—While you were working at Cedars did you keep a diary?

A.—I did not keep a diary. I made my Engineer and the Accountant keep a diary.

Q.—So you kept no diary?

A.—Not except that every day I put down what I would want to do, things that came up and I wanted to do the next day, you understand.

Q.—I quite understand what you say, but I have something else to ask. You did not know what happened, or what you did?

A.—Yes sir.

Q.—Where is that diary?

A.—That has been a sore point right along, because I looked over that diary every day to see that every thing was in it that should be.

Q.—I wonder where it is now. That is what I am interested in?

A.—I have not the faintest idea.

Q.—You had a diary and you cannot give it to us now. You don't know where it is?

A.—No.

Q.—You told us in the beginning that you did not keep a diary yourself, but that you had it kept by your Engineer. Which is it? Did you keep a diary or did they keep a diary for you. Which is the case?

A.—They kept it for me and for the Company?

Q.—And did you also keep one for yourself?

A.—No.

Q.—When you say or suggest that the diary is lost, which diary is lost, the Engineers' diary ?

A.—Correct.

Q.—That is lost too? Mr. McEwen's?

Mr. Forsyth:—I do not think Mr. McEwen's is lost.

Mr. St. Laurent:—He said he had it here, but it contained a lot of personal things, and that he had taken these things out.

Mr. Geoffrion:—Oh, I beg your pardon. You are quite right.

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

By Mr. Geoffrion:—

Q.—Can you tell us what was the weight of the orange peel bucket that you were using?

A.—I have not actually weighed it, but from catalogues it should weigh 4800 pounds.

Q.—What is the catalogue description of it?

A.—A Haywood Heavy Duty Orange Peel.

Q.—You referred to the fact that the earth stood up in the bypass as evidence of hardpan. At what angle did it stand up ?

A.—That is hard to state just what angle, but it was at a slight angle with the verticle.

Q.—I know that, but that is not what I want to know. I want to know whether it was vertical or at an angle, or what?

A.—I could not state .

Q.—Well, it is important. That was one of the reasons I would suppose it would be hardpan, and you would be able to tell us?

A.—I did not state that it was hardpan because of the angle of the sides of the excavation.

Q.—The way the earth stood up is not suggested by you as evidence that it was hardpan?

A.—It is one of the indications.

Q.—Exactly, that is why I should say it is one of them. I want you to tell me at what angle you put it?

A.—Because it did not stand up at the same angle .

Q.—Then, what angle did it stand up?

A.—It stodd up at a less angle than one to one and a half.

Q.—How much?

A.—Quite a bit.

Q.—How much, about?

A.—I could not state.

Q.—One to one?

A.—Less than that.

Q.—Therefore, less than forty-five degrees?

A.—Less than forty-five degrees.

Q.—Steeper than that?

A.—Steeper than that.

Q.—How much? I am trying to get it. We have an angle of forty-five degrees. Now, where do you put it?

A.—Oh, in some cases I will say that it was vertical.

Q.—Where were the places where it was vertical?

A.—Quite a few places.

Q.—Quite a few. I cannot control you, and I am going to try and control you, and destroy your evidence, unless you do not give me a chance to do so.

A.—Well, at one point where the north line of the by-pass south of the dam site intersects the downstream line of the dam site it was vertical.

Q.—At any other point?

A.—I cannot say.

Q.—Can you give me the angles anywhere else?

A.—I cannot.

Q.—Only, you put them between forty-five and what I call ninety, or my learned friends call zero, somewhere between?

Mr. Forsyth:—Somewhere between forty-five and the vertical.

By Mr. Geoffrion:—

Q.—And you say that is an indication that it is hard-pan ?

A.—It may be one of the indications.

Q.—I don't want to know whether it maybe. Is it?

A.—It should be.

Q.—Therefore, if it should be, I suppose it is. Things are as they should be.

Mr. St. Laurent:—Not in this case.

By Mr. Geoffrion:—

Q.—You are not prepared to say it is. First you said it may; then, you say it should be. Now, are you willing to go so far as to say it is?

A.—No, I won't.

Q.—Let me see if you can confirm or correct me. Are you able to say if this is right, that when the excavating foreman, Mr. Crawford, I understand, discovered there was only a certain thickness of soft material, and under it was hard, he removed the soft material on top and he was not uncovering the hard material?

A.—I don't know anything about it.

Q.—After you came, had they begun working at the hardpan? Had they just finished the soft material?

A.—They had excavated undoubtedly hardpan. I don't know what the stuff was that was excavated before I was there. The first part of the bypass was completed.

Q.—To its depth?

A.—Yes.

Q.—And you cannot tell us whether they had first stripped the soft surface before beginning that work?

A.—I don't know.

Q.—The upper end was not yet touched?

A.—It was not touched.

Q.—How was the bank at the upper end? Was it steep or sloping? How was the shore of the river where the bypass joins the river at the upper end?

A.—I don't understand your question.

Q.—Was it sloping or steep? The point where the bypass was made later to join the river at the upper end, how was the bank there? Was it steep or sloping?

A.—Before it was excavated?

Q.—Yes.

A.—Before it was excavated, there was a sort of natural dam, a saddle right in front, right upstream from the site of the dam, where the bypass went through the dam. This ended in a fairly steep slope, then she went down into a sort of valley and hit the water.

Q.—So there was a certain steep slope at a certain distance from the water?

A.—Yes.

Q.—You do not know how far? The lower end was open when you came?

A.—The lower end was open when I came.

Q.—The work on the dam in the bypass was only done the following summer? That excavating work above the dam in the bypass was only done during the summer?

A.—That was done during the summer of 1929?

Q.—The greater bulk of excavation was below the dam, or in it?

A.—Correct.

Q.—The excavation above was not very much, in quantity?

A.—The excavation in quantity was not as much as in the dam and below the dam.

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

Q.—Then, you told me that the bypass below the dam, the excavation below the dam in the bypass, the level was advanced?

A.—Was partly advanced, yes.

Q.—Was there much excavation yet to be done below the dam when you arrived?

A.—No, not very much.

Q.—It was nearly finished?

A.—Correct.

Q.—In the dam (I am not speaking of rock, but before you reach rock) in the dam site where it crosses the bypass, was the excavation also nearly finished, or advanced?

A.—It was advanced, but not nearly finished.

Q.—In the dam?

A.—In the dam, it was advanced. You must understand the swing of the boom, there was still hardpan in the bypass down river from the dam site. There was more hardpan in the dam site.

Q.—Did I hear suggested that you considered it was worse to excavate than rock?

A.—Well, under those conditions it was worse than rock.

Q.—So Mr. Bishop and Mr. McEwen are extraordinarily generous when they value it at less than rock?

A.—I don't know anything about that.

Q.—I want to know in your view if that would be the case, if they valued it at less than rock in their testimony, and in their claim they are unreasonably generous?

A.—Well, I cannot say whether they are unreasonably generous. That is quite a term.

Q.—Well, generous, you think they are wrong?

A.—I would not say they were wrong.

Q.—Then, who is wrong? Are you wrong?

A.—No, I do not think I am wrong.

Q.—Therefore, they are wrong?

A.—Under those conditions I would say, as I stated before, I would far rather excavate solid rock.

Q.—That is the only answer you can give to my question?

A.—Yes sir.

Q.—I take it you are unable to testify, or are you able to testify, that the quantities given in the declaration of hardpan excavated in the bypass of the dam, 4600 cubic yards in the bypass, and 8,335 in the dam: do you know anything about it.

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

I am not asking you to guess as my learned friend has asked you several times. Did you measure?

A.—I did not measure,

Q.—So you do not know?

A.—I know I sent my Engineer out.

Q.—But you did not do it yourself?

A.—I did not do it myself.

Q.—You said there were some soundings taken. What are the various soundings that can be adopted for sounding in a river like this?

A.—The only method we took there, was to find out the depth of water.

Q.—Will you listen to my question ? I am not asking you what you did. You told me what you did, and I am satisfied with that. I want you to tell me what are the methods that can be taken for sounding in a river like this?

A.—You can sound it with a lead line. You could sound it with light pipe I imagine.

Q.—That is a sort of rod?

A.—A rod.

Q.—I suppose (I don't know, you can correct me) but beyond a line with a weight attached to it, a lead line or a stiff rod pipe, whatever it is, do you know of any other way?

A.—No.

Q.—Which way did you take?

A.—We took both those.

Q.—How many soundings did you take?

A.—I did not take any soundings.

Q.—Who took them?

A.—My Engineer and the Crib man.

Q.—Who is your Engineer?

A.—Mr. Riffenstein.

Q.—He will be examined in this case?

A.—Yes.

Q.—Who is the crib man?

A.—Charron.

Q.—You cannot say how many soundings were taken, and where?

A.—I can say that we put out a scow and made the platform. I was there now and then when they sounded.

Q.—Of course, what you cannot tell me, I will ask somebody else?

A.—I cannot tell you how many soundings were made.

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

Q.—Is there a plan showing where the sounding were made?

A.—I believe so.

Q.—Have you got that plan?

A.—It was probably for our work right there.

Q.—You cannot tell me how many soundings, nor where, exactly. Would they be on the site of the dam or on the site of the crib?

A.—At the site of the crib. I can tell you that.

Q.—You cannot tell us how many?

A.—I cannot tell you how many.

Q.—You told us a story about the troubles of crib No. 3, that it went down too low. Were you there all the time. Did you see it happen?

A.—Yes

Q.—What is it you saw happen?

I am not speaking of what happened when you were not there and you surmised: what did you actually see happen? First, what day did this thing happen?

A.—I cannot tell you the exact date? It happened during the night between six o'clock in the afternoon and twelve o'clock.

Q.—During the day you let down your crib?

A.—Yes.

Q.—Floating down the river?

A.—Correct.

Q.—How were you letting it down the river? By ropes?

A.—By cables.

Q.—By two cables, one on each side of the river?

A.—More than two cables. There were probably four cables, because we had to have guy cables also,

Q.—One cable broke? No. 3 crib I take it, is the crib that was out of place?

Mr. Forsyth:—If the witness is going to be asked about these cribs I would ask that the plan be put before him.

Mr. Geoffrion:—Whatever he wants he will ask for. In cross-examination a witness is on defence and is not defended by his lawyer. If he wants anything he can ask for it.

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

Mr. Forsyth:—That may be my learned friend's view of it, and if your Lordship thinks that is the correct view I will accept it. I am told by my learned friend that I have no right to interfere with this witness' cross-examination, but if there is any information that should be put before him that I think he should have I am going to put it before him.

Mr. Geoffrion:—Have I not the right to test the witness' memory to find out what he knows or does not know?

His Lordship:—I have no doubt the witness can take care of himself?

Witness:—I ask for that plan.

By Mr. Geoffrion:—

Q.—If you want it you can have it.

A.—Before I answer that question, I would like to see that plan.

Q.—Certainly, now that your attorney has suggested it.

A.—Several cables broke on crib No. 3 when the logs pushed it down.

Q.—I am not speaking of that. Don't try to evade the question — when you were letting it down?

A.—No. 3 Crib.

Q.—During the day, did not the rope break?

A.—No.

Q.—You absolutely deny that?

A.—I deny that absolutely.

Q.—Did not that rope break or get out of order and cease to function; whether it slipped or broke, I am not sure, but ceased to function either by slipping or by breaking?

A.—No.

Q.—Did not the Crib, as a result of that, get caught between two other cribs, diamond shaped with one of the points upstream instead of being in proper position, before any logs interfered, if any interfered, — do you know that the Crib came down while you were letting it down by means of a rope or guy rope or whatever you like to call it, or an anchor slipping or breaking or getting loose, in a position where it was caught between the other Cribs, and when I say diamond shaped, I mean with the point up instead of being square ?

A.—I deny any breaking of cables.

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

Q.—Do you deny that the Crib got into an improper place between two other cribs, in a diamond shape. You know what I mean by a diamond shape?

A.—I don't know how long following it took us to finally put it in position, but we finally put it in position.

Q.—I am not asking you that. That is perfectly useless. Do you deny that it did get caught between the two, in the same line as the two other cribs but not straight, as a diamond shape with the point, the corners upstream and downstream? In other words, I am taking your plan P-37, between Crib No. 1 and what you call No. 2, we call Crib No. 3 — that is the difficulty — that your Crib No. 3 came down and something funny happened, but we can leave that out for the minute if you like, but it got caught between those two Cribs in a diamond shape, with the point upstream?

A.—I don't remember.

Q.—Do you deny it?

A.—I do not deny it, because I do not remember.

Q.—Do you deny, or do you simply fail to remember that the Crib got out of position in that manner due to the ropes failing to hold or breaking or slipping. Do you deny, or do you say you do not remember?

A.—I deny that any rope or cable broke.

Q.—Or slipped?

A.—Or slipped.

Q.—Therefore, if it got into an improper position it would be from some other cause?

A.—Some other cause.

Q.—You do not remember if it did or not, so you could not give us the cause?

A.—I remember that we had trouble with only one Crib. That was Crib No. 2 where a guy cable...

By Mr. Forsyth:—

Q.—On P-37?

A.—Crib No. 2 on P-37, that a guy cable running from the north side of the Crib to the north shore broke.

By Mr. Geoffrion:—

Q.—That is the one you had to lower the bridge to stop it going down stream?

A.—No.

Q.—Not that one?

A.—We still had gates.

Q.—You had to lower the bridge to stop it, otherwise it would have gone downstream?

A.—We never lowered the bridge to stop it.

Q.—And then you got the derrick to drop the bridge to stop it going down?

A.—We never could have depended on the bridge altogether.

Q.—But did you do so?

A.—When that cable broke to the north side, certainly we dropped the bridge for more precaution, not to stop it, for more precaution.

Q.—If it was not to stop it, it was to get through?

A.—Because it might possibly have broken the rest of the cables. We wanted to have more protection and make more sure.

Q.—Did not the crib go against the bridge?

A.—Certainly it did.

Q.—And damaged the bridge to a certain extent?

A.—That was surely damaged.

Q.—It damaged the bridge?

A.—To a certain extent, surely.

Q.—Are you claiming damage to the bridge from us?

A.—I do not think so.

Q.—So you admit you would be responsible for that anyway?

A.—Correct.

Q.—Of course, you were the party in charge of directing that there, and responsible for it?

A.—Surely.

Q.—Any mistakes would be yours?

A.—Yes.

Q.—Let us go back to Crib No. 3, because I skipped over to the other one, the one mixed up with the bridge, and you deny that the cable broke or slipped, but you do not remember if the Crib got caught (I mean the level Crib with edges pointing up and down stream) between the other two cribs?

A.—No, I don't remember that.

Q.—Well, then, at six o'clock that evening in what position was the Crib when you left the dam?

A.—The Crib was in position. We had started loading it.

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

Q.—You do not remember the details then of getting it into positions?

A.—When they lowered the Crib I was generally there, and if anything was seriously wrong, I am pretty sure I would remember it.

Q.—You say you were generally there, but I want to know if you remember being there for that. It is important?

A.—Yes.

Q.—You say generally. Were you there because you were generally there, or do you say you were there because you were generally there, or do you remember particularly having been there?

A.—I was there, because everytime they lowered the crib I was there.

Q.—But you do not remember yourself, the circumstances of lowering this crib? You do not remember specially the circumstance of lowering this particular crib?

A.—I do not remember that we were having any trouble with it.

Q.—You were loading it with rocks to make it go down?

A.—Yes.

Q.—Did you finish loading that night?

A.—No.

Q.—Was it fairly advanced?

A.—Up to the time the log jam came down there; it had settled on the bottom.

Q.—Was there heavy loading?

A.—It was not completely loaded.

Q.—Was it loaded as heavily as the others?

A.—No.

Q.—You left for the evening. You did not spend the night sitting on the shore?

A.—No.

Q.—You left for the evening?

A.—Yes.

Q.—Then, when did you come back?

A.—I was called out about ten or eleven o'clock.

Q.—In the evening?

A.—In the evening.

Q.—By whom?

A.—By the night Superintendent.

Q.—Who is that?

A.—That would be Mr. Labelle, at that time.

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

Q.—Is he here?
A.—No.
Q.—And you came over in the evening?
A.—In the evening.
Q.—And what did you see?
A.—I saw a terrible jam of logs against it, and it had broken the cables. It forced it down till we got busy and tied her up to Crib No. 1.
Q.—It had broken the cables?
A.—Yes.
Q.—Then, you left it tied?
A.—Oh yes, you bet your life.
Q.—When you arrived, had it already been shoved down?
A.—Part way.
Q.—Do you mean to say it moved while you were there?
A.—Yes.
Q.—Do you swear it moved while you were there?
A.—I will swear it moved there.
Q.—How much did it move?
A.—We put what we call twisters.
Q.—What are twisters?
A.—That is cable. We take some cable; we tied her up with cables to Crib No. 1, and before we had a chance to twist them up, she had tightened up those cables that we could not do anything with it. She moved while I was there .
Q.—That is, because she tightened up the cables before you could put them?
A.—Before we could twist them up.
Q.—That would not show she moved, would it?
A.—Certainly.
Q.—So you could not pull them up by twisting them?
A.—I would like to keep the Crib there and not let her move any more.
Q.—You cannot say how much she moved?
A.—No, I cannot.
Q.—You say there was a big jam of logs?
A.—Yes.
Q.—Against everyone of the cribs?
A.—Against Crib No. 1, Crib No. 3, Crib No. 2 and the south shore Crib.
Q.—At all events all the Cribs that were in place?
A.—All the Cribs that were in place. There was a jam of logs clean across.

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

Q.—At that time there was only one Crib that was not in place. The one that was not in place was No. 4 ?

A.—I would not call No. 3 in place.

Q.—Would you say the others were in place?

A.—Yes.

Q.—Is that your idea of the Crib as it lays there, even overlooking the misplaced one, No. 3. Is that the way you planned your Crib, as shown in this exhibit?

A.—No.

Q.—I am leaving that one out. Was that the original planning of the Crib?

A.—No. Our original plan was....

Q.—A straight line?

A.—As straight a line as we could get.

Q.—Where would your upper face have been?

A.—Take the face of Crib No. 1 and prolong it right across.

Q.—May I suggest to you that your two abuttments do not fit very well above ; then, others are very crooked. One of them is, at least?

A.—I can explain that.

Q.—I hope so. You have one abuttment on one Crib that is quite out of line with the other. You can explain it if you like. What is the trouble? Was it logs again there?

A.—That was put in before there were any logs. That was placed that way because there was a drop off in the ledge. If we had gone out straight that way, we would have got into deep water there.

Q.—Secondly, your Crib No. 1 is not quite straight either ?

A.—No. You cannot place them within inches in placing cribs. I defy anyone to do so.

Q.—And secondly, it is not in line with the neighboring abuttment at all?

A.—No.

Q.—Which one of the two abuttments did you place first, the south, the south or the north one?

A.—The south one.

Q.—And then, you say you had trouble with No. 2. We are coming to that now. You had no trouble with No. 4 ?

A.—Not any more than ordinary trouble you have with a crib.

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

Q.—Why do you put No. 2 so much higher up than No. 1. No. 3 was down below. Why did you not put it in line with No. 1 and try and bring it back to be in line with the abuttment too?

A.—Because that Crib belonged over here — Crib 2 belonged Next to No. 1. We broke a guy line, a guy cable on the north side to No. 2. That threw her out into the middle of the river. That is where you suggested that we stop the Crib with the bridge.

Q.—And you left it where the bridge stopped?

A.—We left it there rather than go ahead and try to pull her away over to No. 1.

Q.—Or move it lower down?

A.—Or move it lower, further down. I had the face of my Crib there to sheet just as well if it was five or six feet further down.

Q.—Do I understand that one of your ropes broke, it was intended to be No. 1 near the shore?

A.—It was intended to be No. 2 adjacent to No. 1.

Q.—It was intended to be adjacent to the first Crib starting on the north shore, is that it?

A.—Correct.

Q.—And it dropped a little further midstream on account of that break and took the place of the other, and then was stopped by your lowering the bridge and something else, and you left it there. Now, let us see. You said that dropping the bridge was only one of the precautions. What other methods did you take to stop it?

A.—We put on our cables, if we had not had our lowering down cables that bridge would not have stopped it.

Q.—You had some cables on?

A.—We had our lowering cables on it. The guy cable would not keep it from going downstream.

Q.—You placed a boom to take care of the logs, did you ?

A.—Yes, we placed a boom.

Q.—When did you place it?

A.—I think we placed the boom before we placed this crib.

Q.—No. 1?

A.—No. 1, I believe so.

Q.—No. 1 is the first one you placed?

A.—Yes.

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

Q.—Where was your boom located? Where did it start from, and where did it end?

A.—Away up river. The elevation plan might show it. That boom was placed near the upstream face of the crib, and she ran up here about four or five hundred feet to rock.

Q.—It is not marked on the plan?

A.—It is not marked on the plan.

Q.—Do you say it went from the outward face of the Crib No. 1, and ran four or five hundred feet?

A.—Upstream.

Q.—Upstream to rock?

A.—Yes.

Q.—Are you able to tell us at what angle, approximately, to the face of the Crib it was?

A.—Which face do you mean? The upstream face?

Q.—The upstream face of the crib.

A.—It was placed practically at a ninety degree angle.

Q.—Practically? What is it?

A.—Pretty near — well, less than ninety degrees. It sheered off.

Q.—But close to ninety degrees you say?

A.—I would say so.

Q.—You are sure of that?

A.—I have never measured the angle.

Q.—But your are sure about that?

A.—I am sure about that, yes.

Q.—You cannot tell us what date you placed it?

A.—No, not the exact date. I think it was in June. I think it was about the time we started to lower down cribs.

Q.—You got some of the Maclaren logs from the dam. There is no objection to it, but that is a fact?

A.—I am pretty sure we took some of Maclaren's logs.

Q.—Did you simply take them, or did you ask anybody for them?

A.—I asked Mr. Coyle.

Q.—Who took the photographs?

A.—Mr. Riffenstein?

Q.—Not you?

A.—Not me.

Q.—You are not a river man?

A.—No.

Q.—Did you have any river man with you to advise you about building that boom?

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

A.—Well, I had good Canucks who had worked for Maclaren before. I imagine they had worked there before.

Q.—You think the whole race are River Men?

A.—To answer that question, I did see them on logs, and I was scared to death all the time that they would get drowned, because they took some awful chances.

Q.—At all events, you had some ordinary day labourers?

A.—Not ordinary day labourers.

Q.—What labourers did you take?

A.—Crib men.

Q.—As a matter of fact, the logs went under the boom?

A.—They pushed the boom away.

Q.—Did they go up on to dry land?

A.—They pushed up pretty good, probably not absolutely dry and handsome, but they were up just like a real jam.

Q.—Did any part of your boom break?

A.—I do not think so.

Q.—Did this boom stop any logs?

A.—Oh yes, when they did not come down in too big a mass ; with the help of crib men and so on it did pretty fair.

Q.—Certainly, even with the big jam, it must have sent many logs aside ; it must have been a great help to the crib No. 1, even with the big jam, or was it perfectly useless — in a big drive, not jam? When a big quantity came down there — I called it a jam but I was mistaken ; when the big quantity came down there, was that boom perfectly useless or did it protect to a certain extent Crib No. 1 ?

A.—It protected it to a certain extent, surely.

Q.—You did not think of tying your boom up to Crib No. 2 ?

A.—I misunderstood your question. I was under the impression, the way you asked me, when you built that boom — I said, when we started our Crib work, when we first had our boom, we had it to this Crib.

Q.—To Crib No. 1 ?

A.—To Crib No. 1.

Q.—To the outter corner of Crib No. 1?

A.—Yes, and then, after Crib No. 3 was placed we put it over there to guide it into there. Crib No. 3 was in here before it was pushed down. We would not keep our sheer boom there then.

Q.—When did you move your sheer boom out?

A.—I suppose....

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

Q.—I don't want suppose. Can you tell me when you moved your sheer boom out?

A.—Some time after Crib No. 3 was placed.

Q.—At a given moment after Crib No. 2 was placed....

A.—After Crib No. 2 was placed under.

Q.—You placed No. 1 and you put in a boom?

A.—Yes.

Q.—You placed No. 2 in midstream and did not move the boom ?

A.—Did not move the boom.

Q.—Then you got the trouble with No. 3?

A.—We got the trouble with the log jam, yes.

Q.—And then moved your boom out to No. 1 ?

A.—No, before that. You have got me wrong.

Q.—I am afraid so. I think you are wrong there.

A.—When we closed the opening between 2 and 1, we moved our boom outside to No. 2.

Q.—Exactly, but that is, therefore, after placing Crib No. 3 ?

A.—After placing Crib No. 3, correct.

Q.—That is what I am saying. What date did you do that ?

A.—That would be the evening when Crib No. 3 was placed in position.

Q.—The same evening?

A.—Correct.

Q.—Before leaving there that night?

A.—The night crew did it. The night crew would do it. I gave orders for it.

Q.—Do you know who did it?

A.—It would be Mr. Labelle.

Q.—He is not here?

A.—He is not here.

Q.—He is the only man who could tell us whether it was done or not?

A.—Charron.

Q.—He is not here either?

A.—He is not here either.

Q.—They are the only two men who could tell us whether it was done or not?

A.—Correct.

Q.—Coming to the bypass — we have been long enough in the river for the present. We will go back to it bye and bye.

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

Coming to the bypass, what happened there when the jam came so that you had to dynamite it. You blew up logs ?

A.—There was another big jam of logs came down the river, and in the bypass were two piers, part of the Stoney Gate structure, and they piled up against the faces of these piers and blocked her solid.

Q.—You told us that. In order to clear it, you blew it up with dynamite?

A.—I dynamited it.

Q.—The dynamite was supplied by our people. They gave you the dynamite, is that right?

A.—I won't say. I think it was our own dynamite. We had dynamite there.

Q.—Were you there when it was done?

A.—I was there when it was shot out.

Q.—Who made the arrangement for shooting it out?

A.—I did.

Q.—With whom?

A.—With Coyle. I made no arrangement with Coyle about shooting it out. I told Coyle to clear the bypass because our water was going up.

Q.—And what happened there?

A.—And they could not clear it by labour alone, so we went and got dynamite and shot it out.

Q. -I will tell you the dynamite was asked for by us, and given to you by us. Do you deny that?

A.—I won't deny it.

Q.—In other words all your trouble was, you had only a few hours and a few men?

A.—We were more than a few hours and more than a few men.

Q.—To blow up the logs?

A.—Even after it was blown it was jammed. We got men up to dynamite those logs from there.

Q.—In that particular bypass?

A.—Yes.

Q.—You have not the details of that, how many days, or how many hours or how many men?

A.—At the time I told the accountant to keep strict account of it.

Q.—Out of all that field, you left it to the accountant. Where was the accountant?

A.—On the job.

Q.—Who is he?
A.—Mr. Smith.
Q.—Is he here now?

Mr. Forsyth:—We have his records.

By Mr. Geoffrion:—

Q.—I don't know if I understood you, when you said it was very dangerous for a diver. Do you mean to say it was dangerous for the diver when your sheeting was in or before the sheeting was put in?
A.—Before the sheeting was put in.
Q.—When the sheeting was in, the water only leaked?
A.—Only leaked.
Q.—When all your cribs were in, and even before the sheeting was in, do you mean to say it was dangerous for the diver? They were pretty close by these cribs?
A.—It is pretty hard ; if a rock was big there was really nothing like back water up there.
Q.—When did you open the bypass for water?
A.—Some time in June.
Q.—You opened the bypass before putting in the last crib ?
A.—It was opened to thirty feet before we put No. 3 and 2 in. We could not take any chance.
Q.—At the time of your sheeting the bulk of the river was going by the bypass?
A.—No, I would not say the bulk yet.
Q.—You had a complete chain of cribs?
A.—Correct.
Q.—A few inches or feet scarcely between them?
A.—Correct.
Q.—And you had a big thirty foot bypass and you still say the bulk of the river was going through the Cribs?
A.—I do not say the bulk of the river was going through the Cribs.
Q.—The bulk was going through the bypass?
A.—I stand corrected. The bulk of the river went through the bypass.
Q.—What danger was there at that moment for the diver ?

A.—Because there was an extreme head. There was a head of water between the upper face of the Cribs and the lower face of the Cribs. There must have been four or five feet of head. When we put the last crib in, it raised the head of water I would say, considerably. At least, it made the water three to five feet higher in the bypass.

Q.—What was the space between the cribs? Take the three middle ones?

A.—Oh, possibly two feet.

Q.—What was the other space?

A.—About two feet I would say. Yes, that is about what it was.

Q.—There were four Cribs, therefore, leaving aside the shoal which was shallow, taking the three middle ones, two were of three feet, the other a few inches?

A.—But that is not the only place where water went through.

Q.—Where a man could go through? It was the only place where a man could go through?

A.—Sure. It was the only place where a man could go through, but it is not the only place where a diver could have got caught and his life very much endangered.

Q.—Have you much diving experience?

A.—Not much. I have had experience.

Q.—Have you had any whatever?

A.—As a diver?

Q.—With men diving for you?

A.—I have had men diving for me.

Q.—Where?

A.—At Elko ; Coon Rapids ; Bermuda.

Q.—You told us that the depth of the over-burden was an average of nine feet?

A.—No. I said an extreme.

Q.—What would be the average?

A.—It all depends on the section you would take. Above the jam where we drove the light steel sheeting, I would say it was an average of four feet, perhaps more. I think it would average there four feet anyway.

Q.—Where else did you observe it? At what spot ? Give me the other places where you observed it?

A.—Well, lower down where we excavated there were quite a few places where she was over four feet I believe.

Q.—Where would it be lower down?

A.—In the dam site ; right up against the Cribs it would be the same.

Q.—Over five feet?

A.—I would say so.

Q.—How much about? Seven feet?

A.—No — oh, it is hard to tell.

Q.—Somewhere between five and nine feet?

A.—Something like that, yes.

Q.—How far, according to your observation, did it extend down the river?

A.—This overburden extended right down to our lower cofferdam.

Q.—You cannot say from below that?

A.—No, we did not know.

Q.—And you cannot say for above the steel sheeting?

A.—I cannot say.

Q.—From the lower extension of the steel sheeting to the lower cofferdam?

A.—I know the over-burden was above the light sheeting under the cribs, as far as we could see.

Q.—You view is, that there was a continuous overburden from somewhere above the upper crib to somewhere above the lower crib?

A.—I know from my own eyes, that there was an over-burden from the downstream face of the upper cofferdam to the upstream face of the lower cofferdam.

Q.—At least that?

A.—At least that.

Q.—There may have been more up above?

A.—There may have been more up and below.

Q.—Was it the width of the river?

A.—Not completely across the river.

Q.—All the bottom?

A.—All the bottom.

Q.—You did not try, did you, to have a diver go down in order to give you the shape of your sheeting?

A.—No.

Q.—Is it your practice to do that?

A.—Well, different jobs make you do different methods.

Q.—As far as you are concerned, I want to know if you ever had the deciding on your own responsibility, or whether you would have had a diver go and give you what should be the shape of the bottom tip of the sheeting?

A.—The bottom tip?

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

Q.—The shape of your sheeting to drive to the ground?

A.—I have no one occasion — no, I have not. That was not sheeting. In Elko we used a diver to find out just how the bottom looked.

Q.—Therefore, you never did that?

A.—No.

Q.—Did you, yourself, ever have the responsibility of deciding how the sheeting problem would be handled?

A.—As far as this job?

Q.—No. On other jobs?

A.—Yes.

Q.—Which one?

A.—Coon Rapids.

Q.—At Coon Rapids then, you did not think it advisable to find out by a diver how the lower edges of the lower tip or ends or butts, whatever you call them, what would be the shape to adapt themselves to the ground?

A.—No, because we were driving in blue clay.

Q.—I suppose without notes you cannot give us any dates ?

A.—It is three years ago.

Q.—I know that. Therefore, that would be the advantage of having notes. I want to know if you can give us dates when you began driving the sheet piling?

A.—It was a considerable time after.

Q.—You cannot give us the dates?

A.—No, I cannot give you the exact dates.

Mr. St. Laurent:—Are you referring to wood sheeting or steam sheeting?

Mr. Geoffrion:—Both.

By Mr. Geoffrion:—

Q.—I think you said that your sheet piling went lower than the levels shown on the plan?

A.—Correct.

Q.—Will you show it to me on your exhibits, because I do not find that. You are reading from exhibit P-38?

A.—Yes. That solid white line at the bottom represents profile of bottom as plotted from contours.

Q.—I beg your pardon. I thought you said levels. The contours would be the levels.

A.—Contours were the only thing we could go by.

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

Q.—I understood you to say your levels were wrong. Now, you are criticizing our contours. Is your testimony about that in respect of our contours or our levels?

A.—Well, I understand that your contours are plotted from levels.

Q.—But there are levels shown on the bottom of the river too?

A.—Yes.

Q.—They are shown, but I want you to tell me whether your testimony is based merely on the contours shown, or on the levels given?

A.—Well, I understand that contours shown are from levels given.

Q.—So you know that this plan shows certain levels?

A.—Correct.

Q.—You base your remark with regard to levels shown on the plan as defined from contours, levels directly shown?

A.—It is based....

Q.—I am not asking you that. I want to know something else. I want to know if your testimony is based on the contours shown, or on the levels directly shown?

Mr. Forsyth:—I do not want to object unnecessarily, but I submit that if my learned friend is going to cross-examine the witness he must ask him the question which is intelligible.

By Mr. Geoffrion:—

Q.—If you do not understand my question, all right. I think I will be able to make the Court understand it. The figures given for levels then?

A.—This line here is taken from figures shown on B-2444.

Q.—Show me a single figure on that line. If you say contours, that is all right and I have nothing to say. Where does your level line pass exactly?

A.—That line passes somewhere here. May I correct that answer. That plan was made by our Engineer.

By Mr. Forsyth:—

Q.—That is, P-38 was made by your Engineer?

A.—Yes, and to the best of my knowledge and belief, he was careful in taking those levels, contours, whatever you call it, but I have no personal knowledge that they are correct.

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

By Mr. Geoffrion:—

Q.—What is the bottom level of the bypass, do you remember?

A.—The bottom level should be 96.

Q.—What was the height of your cofferdam that you built at the bottom end of the bypass?

A.—About six or seven feet higher — seven feet higher.

Q.—So even if there had been excavation down to level 96, you would have built that cofferdam anyway?

A.—No.

Q.—If you had to excavate anything whatever in that bypass, if you had had to do your concreting for that bypass during that spring you would have needed the cofferdam anyway?

A.—I do not think so. I think we would have been through.

Q.—If you had had to do so, if you had had to do any concreting in that thing, you would have needed the cofferdam anyway?

A.—Not unless we had the concrete in high water.

Q.—Exactly. That is what I am telling you, if you had to do any concreting in high water, and you would have had any work in the bypass during high water season, you would have needed the cofferdam?

A.—It would have been the level of the tail water below the dam.

Q.—What is the level of the tail water below the dam?

A.—That varies.

Q.—Give me the various figures during the spring?

A.—I cannot give you that.

Q.—The cofferdam was needed to prevent any water that would get higher than level 96 to flow up that tail race, if there was anything to do during that period in the tail race?

A.—Correct.

Q.—And in order not to need the cofferdam, you would have needed one of the other of two things, either no work whatever to do there, so certainly the water would not rise higher than to the 96 levels?

A.—Or the certainty of getting our work finished.

Q.—I have something in my notes that you stated, that you suggested drilling holes in the dam section, in the Stoney Gate part ?

A.—I suggested?

Q.—Yes.

A.—We drilled one test hole.

Q.—You said you put in a test hole and ran down twenty feet. At page 346 of your evidence you said:

> "I may state that I put a test hole myself with a tripod drill. We ran down twenty feet after we had started that, and, if you are an experienced driller, if you have anything to do with drilling, you can tell by the sound of your steel and the action of your drill pretty close what kind of rock you are going through and the dust coming up, and twenty feet, that is as long a steel as I had. That establishes conclusively that she was not cut down below".

Is that true that you put a test hole in yourself?

A.—Not myself, my men.

Q.—But on your own decision?

A.—I think so.

Q.—Are you sure?

A.—I am sure.

Q.—If you say you are sure, why do you say you think so? If you are sure of a thing, why don't you say so right off, or do you only think so?

A.—No, I am not sure.

Q.—You were ordered by the Engineers to sink quite a number of test holes, — not test holes, but holes for the purpose of grouting?

A.—I was ordered to sink a number of holes for grouting.

Q.—And of course, presumeably you were paid for it?

A.—Surely.

Q.—And those were the only holes you did dig?

A.—I drilled their cut-off trench. I am positive I drilled that hole.

Q.—Was not that one of the holes?

A.—I do not think so.

Q.—For the purpose you put grout in the holes so as to seal the seams of the rock?

A.—I think that was it. The grout holes, we did that and were paid for it.

Q.—But the purpose was to pour grout into those holes under water so as to seal the rock underneath it?

A.—Yes.

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

Q.—At that time there was no question of excavating a deep cut? Nobody knew of it?

A.—They knew that on the face of the rock it looked bad. They did not know, or at least, they never told me how far to go. They just told me. go till you get good rock.

Q,—But at that time they were intending to pour grout, and not to excavate?

A.—I am not under that impression.

Q.—Can you tell us what day the bad seam was discovered, if you happen to remember the date for this?

A.—Sometime in April. I can make it close enough this way : the latter part of March or the early part of April.

Q.—I am instructed that the Company's Engineers say it was the 18th of May?

A.—That I was instructed to take it out on the 18th of May?

Q.—Yes, it was discovered on the 18th of May and then you were told to go below level 71 on the 24th of May?

A.—We excavated from below the general level of the dam site long before the 18th of May. I am positive of that.

Q.—I am speaking of that deep cut, on account of the bad seam?

A.—Are you speaking of when you received force account?

Q.—No. Force account is only when you reached water. I am speaking when you reached a bad seam. I suggest it was after the 18th of May?

A.—I say that we excavated in that seam, and went down below the general level of the dam excavation before the 18th of May.

Q.—When did you begin?

A.—Early in April.

Q.—Some time ago you told us that was the end of April or beginning of May?

A.—At the end of March or beginning of April.

Q.—I understand you began pouring your concrete there on the 18th of May also, is that right?

A.—Correct.

Q.—So that your concrete had not yet begun?

A.—No, because of this seam, we had forms set ; we were ready to pour.

Q.—Were your forms ready ? I am instructed your forms were not ready?

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

A.—I remember distinctly that one pier form, that we were intending to pour, when this question of the seam occurred, that after we had cleaned off the rock this showed up. We thought it would be a minor matter. We waited for a couple of days ; it got worse and worse ; then we could not pour in that form then, because it was practically over this hole. We had to go ahead and build more forms further north and arranged it that way.

Q.—Therefore, you had some concreting to do elsewhere than over that seam? You had other concreting apart from it in the by-pass, which was not done in the spring?

A.—It was not done because we had not the form up, and it was not quite cleaned off.

Q.—Apart from the concreting that had to wait for the digging of that particular trench, had to be done during that spring?

A.—Yes.

Q.—When you excavated the frozen material in the river which you charge there, what sort of stone did you get out of it? Was it broken stone?

A.—No, round water worn boulders. It was easily distinguished.

Q.—You are quite prepared to say what was there was not big broken stone?

A.—There was no big broken stone.

Q.—You have photographs of that?

A.—Well, we have one showing part of it.

Q.—Can you tell us how much cement you had at the end of March?

A.—March of what year?

Q.—March 1930.

A.—Just enough to finish what work we had in hand.

Q.—That is not an answer. How much had you?

A.—I cannot tell you.

Q.—You stated this morning, in respect of exhibits D-5 and D-6 that you did better than shown in D-6. In what respect did you do better regarding D-6?

A.—That shows rock, 180 yards per day at the Stoney Gates section. That yards per day is a twenty-four hour day. We did better than that many times.

By Mr. Forsyth:—

Q.—What is the figure?

A.—180 yards.

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

By Mr. Geoffrion:—

Q.—As an average?
A.—Well then, our average.
Q.—Why do you say many times better. Is your average better than that?
A.—Yes.
Q.—I suppose it can be checked?
A.—It can be checked.
Q.—That is one thing. What is the next?
A.—Concrete. We did better than that right along. Our average is better.
Q.—Is it Stoney Gate you are speaking of that is better?
A.—Yes. Sluice gates better ; non-spilling section.
Q.—Concrete again?
A.—This is all concrete.
Q.—When did you do the Stoney Gate concrete. What time was your average higher?
A.—In the month of July I think.
Q.—July of 1929?
A.—1929.
Q.—You think it was higher?
A.—Yes.
Q.—You said the Stoney Gates and the non-pilling sections?
A.—Stoney Gates.
Q.—What is the next one you said?
A.—And the non-spilling section.
Q.—When?
A.—It would possibly be in August.
Q.—How many days in August?
A.—I am talking now of the monthly average.
Q.—Any other concrete where you did better than your estimate?

Mr. Forsyth:—That is not an estimate.

By Mr. Geoffrion:—

Q.—All right, I stand corrected. Did better than D-6 shows. I understand you to have said that you did better than what D-6 shows ?
A.—Yes.

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

Q.—I want to know in what respect, and when?

A.—In respect to monthly yardage of concrete and monthly yardage of rock.

Q.—Now, monthly yardage of concrete. I want the month. You gave us two months, did you?

A.—I will say June, July and August.

Q.—June, July and August your average was higher than that?

A.—Yes.

Q.—For Stoney Gates, concrete?

A.—Concrete, Stoney Gates and non-spilling sections.

Q.—The next thing you say is rock. When was your average better?

A.—In March, I think.

And it now being 12.30 the further testimony of this witness was adjourned until 2.30 P.M.

And further for the present deponent saith not.

And at 2.30 in the afternoon on this twenty first day of February, 1933, personally came and reappeared the said witness, Harry E. Lindskog, and his cross-examination was continued as follows:

By Mr. Geoffrion, K. C.:—

Q.—You were enumerating under Exhibit D-6 when your averages were above those figures. You had dealt with the concrete, Stony Gates and non-spilling, and you had dealt with the rock Stoney Gates, I think.

A.—You understand when I say Stoney Gates and non-spilling concrete, and the averages, we would pour partly in Stony Gates possibly, and then check over.

Q.—What you want to say is your average production?

A.—In those two sections, was better than this.

Q.—During the months you mentioned this morning?

A.—Yes.

Q.—Now, what about the Stony Gates and non-spilling in the rock?

A.—When we had a straight go at it, we beat those.

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

Q.—But, I cannot check it unless you tell me the months. Can you do so?

A.—I would not say it was every month, but there were certain months when we had a good fair shot at it.

Q.—You said that before. Without repeating, can you tell me the months ? You may be able to do so, or you may not. It is for you to say. If you do not know, do not guess.

A.—In May.

Q.—The stop log was not a big item?

A.—The stop log was not a big item.

Q.—Nor the log sluice either?

A.—No, the log sluice was not a big item.

Q.—And the sluice gates?

A.—The sluice gates were not a big item in rock excavation, but were a big item in concrete.

Q.—Referring to the boom. The boom you mentioned this morning was the only one you placed?

A.—Correct.

Q.—You said that that evening, before the rush of logs had moved down on one of your cribs that the crib in question (No. 2 I think) was still tied by the guy ropes?

A.—By the lines and cables.

Q.—Were the cables under water, or over water?

A.—Under water, and over water.

Q.—How many cables had you?

A.—Three, I think. I am positive we had two, and I believe we had three.

Q.—Where were they attached on the crib? Was it the top, or the bottom, or the side?

A.—The face of the crib.

Q.—What part of the face of the crib?

A.—About the middle of it, as far as depth was concerned. Then they were attached pretty well towards either end. One cable would be fairly well, I should say, to the north, and the other one to the south of the crib ; on the upstream face of the crib. And, of course, lashed back in through the box, so that we would pull the face of the crib out.

Q.—Where were they moored on the other end?

A.—On the shore.

Q.—Higher up?

A.—Higher up.

Q.—At that time was the crib itself below, or opposite, the other two cribs?

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

Witness:—At what time?

Counsel:—When you tied it in the evening.

A.—It was what I figured was close enough. What I figured was the right position.

Q.—But, you cannot tell me whether it was above, or below, or opposite?

A.—It was very close to the alignment it was supposed to be.

Q.—That day, when you were placing that crib, did you send any message up to Mr. Coyle and tell him you would like to have the logs delayed while you were placing the crib ; or, did you see him about it?

A.—I do not know if it was that time. You bring it back to my memory now. I did ask Mr. Coyle if he could not hold up logs. I do not know if it was that time, or if it was previous.

Q.—Do you know whether it was previously, or at that time, or after?

A.—No, I do not.

Q.—Of course, in a letter you did ask them to feed the logs more regularly, but that is something else. I am speaking of a conversation, not of your letters. Was that the only conversation you had with Mr. Coyle about it, that you remember?

A.—I had various conversations with Mr. Coyle about how the logs were going to act. and so on ; and I am under the impression that Mr. Coyle said that we would not be bothered to any extent with logs — that he would be pretty careful.

Q.—You told us that in your examination in chief. That was early in the operation?

A.—Yes.

Q.—But. I want to know whether during this period while you were placing the cribs you remember of any particular request or notice to Mr. Coyle about placing those cribs?

A.—I recollect (and I think it was during the time we were placing the cribs) that I asked Mr. Coyle if he could hold up logs to any extent, and if I am not mistaken he said that they had a boom up at Lac à Sable, and that they were holding their logs there.

Q.—Is that all you remember of that conversation?

A.—Yes.

Q.—And, you cannot say when that was?

A.—Not definitely.

Q.—How indefinitely can you say it?

A.—I would say it was during the time of the operations of building the cofferdam — placing cribs.

Q.—Was it during the time of placing the cribs, or during the time of building the cofferdam? The cofferdam consisted of three processes ; placing cribs, putting sheeting, and toe filling?

A.—I would say it was during placing of cribs.

Q.—Can you tell me the month?

A.—No, I cannot.

Q.—Do you remember that a few days after this jam or trouble Mr. T. F. Kenny, Mr. O'Shea (and there may have been others) coming down, and your having a conversation with him about that accident?

A.—I remember Mr. Ferguson was there on the job.

Q.—I am told Mr. Ferguson was there also.

A.—I remember that.

Q.—Do you remember Mr. Kenny saying to you : "Why didn't you ask Mr. Coyle to hold those logs for that crib, or ask for a boom?" and you answered vigorously? You know what I mean by vigorously?

A.—I have a suspicion.

Q.—I simply want to refresh your memory on the point, because there may be evidence on it.

A.—No, I do not remember that.

Q.—At the time of the by-pass jam, the by-pass was open to water ?

A.—Yes.

Q.—So, there was no work proceeding there?

A.—No.

Q.—Are you able to apportion your delays between their causes? Can you tell me, for example, how much was due to log trouble? It may be you can say how much is apportionable to each, and it may be important to know, in case you succeed on some and not on all. I understand the accountants will give us the figures in regard to the cost, but I am speaking to you as regards the delay. How much delay was due to the log trouble ; how much to the over-burden ; how much to the hardpan ; and, how much to the rock?

A.—If you will allow me to answer it in my own words.

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

Counsel:—Answer in your own way.

A.—The fact is that I recall there were logs embedded in the cofferdam, and that threw me off on my calculations and any other methods that I might have used. I was certain and positive there were logs. I never questioned the accuracy of the Engineers' Plans. I was always under the impression I had to believe there was ledge there. I had a suspicion later on that it was not so, but the fact that there were logs there was the only cause that gave me away. I blamed everything — that I had not been good enough in blanketing those logs. I put a diver down later on.

The delay was due to logs, for at least three months.

Q.—How much was due to the over-burden?

Witness:—What over-burden?

Counsel:—In the river.

A.—The removal of the over-burden was not such a big delay. We wrestled, and so on with it, and ate it out piecemeal. The over-burden certainly caused us an excessive amount of pumping.

Q.—But, I am now asking for the time. We will get the cost from somebody else. You are the one who can answer better than anybody else as regards the time.

A.—It caused delay long enough that we had to wait for steel sheeting and so on.

Q.—I was not there, and you are probably the only man who can (if anyone can) give us that division in periods.

A.—I cannot very well say that it delayed us. If it had been over-burden without logs, or logs without over-burden, then I could state it ; but it is hard for me to state, under the conditions, how much delay was caused by the over-burden.

Q.—Can you not do it as well as you did it for the logs? You mentioned three months for the logs. Is that a wild guess?

A.—No. I knew the logs were there, but I did not know there was an over-burden there.

Q.—So, you cannot tell us what delay the over-burden caused you?

A.—No, I cannot.

HARRY E. LINDSKOG (for Plaintiff) Cross-examination.

Q.—But the logs caused you a delay of three months?

A.—Yes.

Q.—Did the hardpan cause you any delay, as to the other work?

A.—No, it did not cause any delay, but it was costly.

Q.—I do not want to mislead you. You understand I am enquiring in regard to delay, as distinct from cost. A man might lose quite a lot of money in two days.

A.—It did not cause us delay, no.

Q.—I suppose it would cause you some delay when you had to take the rock out in thin layers. Can you estimate what that would be?

A.—That would have caused us a delay, but we went ahead and placed more equipment. We set up another derrick on what we called the island. Most of our rock excavation, according to the contract plans, was on the island. When we saw this thing opening up gradually, then I doubled up on the equipment. I placed another derrick on the island, and we pushed the rock harder.

If I had stuck to only one piece of equipment, surely it would have caused delay.

Q.—Was there any delay, due to the method of rock excavating?

A.—No.

Q.—Did making the concrete in winter cause you delay, or was it only a matter of expense?

A.—Expense.

Q.—No delay?

A.—No delay.

Q.—You said when you unwatered you found logs entangled in your cribs?

A.—Not when we unwatered ; when we removed the cofferdam.

Q.—How many logs did you find there?

A—Quite a bunch : 50 or 60, perhaps. I do not know.

Q.—How were they distributed among the cribs?

A.—Any which way.

Q.—Were there any under the crib? I am wondering whether there were some inside the crib, under the crib, or facing the crib, or beside the crib, or behind the crib.

A.—I cannot swear to the statement where they were. I know they came up. The clam digging down in a certain portion the crib was, the peel brought up Maclaren logs.

Q.—All you know is while you were excavating with the clam to remove your cofferdam you occasionally brought up logs?

A.—We brought up logs.

Q.—And, you say they were not your crib logs?

A.—They were not our crib logs.

Q.—But, you cannot say where they came from?

A.—We know they were embedded in the toe fill, and in amongst the cribs.

Q.—But, you cannot distribute them between the crib and the toe fill?

A.—No, I cannot.

Re-examined by Mr. St. Laurent, K. C., of Counsel for Plaintiff:—

Q.—On cross-examination there was something said about grouting operations. Was that done in the course of the excavation, or after the excavation work had been completed?

A.—It was done after the excavation work had been completed. We could not put down grout holes while they were still excavating.

Q.—Were those grout holes put down, and the grouting put in, after you had reached the elevation on which you put your foundation?

A.—Correct.

Q.—With respect to the concreting in the by-pass, you said on cross-examination that you would have required this by-pass cofferdam if you had had any work to do in that by-pass during the highwater season?

A.—Yes.

Q.—Does that mean you would have had to do all the work in the by-pass up to the top elevation, or only that you would have to get above a certain elevation?

A.—It meant I had to get above 96. Not necessarily clean to the top.

Q.—Not necessarily 96, but whatever the high water level was?

A.—We could not put all the concrete in the bypass section, because we had to leave it open.

H. E. LINDSKOG (for Plaintiff) Re-examination for Plaintiff.

I wanted to put more concrete in there than I was allowed. I wanted to put a lot more, but the Engineers stopped me, because they wanted a backing to their concrete — the remainder of the concrete.

We stopped our concrete below elevation 96. We stopped our concrete about 2 feet below 0 — about elevation 94. However, we ran the piers up.

I hold that if this thing had not occurred, it was a simple matter to shove that in, and there it was, ready.

Q.—That is, shove the concrete in up to elevation 94 ?

A.—Yes.

Q.—You wanted to put it in to a higher elevation, and they wanted to leave it out?

A.—To leave a toe hold for the remainder of the concrete in there, for the O. G. section.

I wanted to put in more concrete. That means I was pretty sure that I would get through there without any water bothering me. But, I was forced to put in less.

Q.—When you say they wanted this backing or toe hold, you mean they wanted the joint to be made lower down than the elevation where you would have made it had they let you have your own way?

A.—Yes

Q.—When did you place this sheer boom you spoke of in connection with the cofferdam piers?

A.—When we first started placing cribs.

Q.—How heavy a boom was it?

A.—The sheer boom was made out of Maclaren logs, various lengths. We tried to get as long logs as we could. Good big size.

We tried to get boom chains from the Maclarens, but they only had a few, so we had to bore holes and place three quarter inch cable with cable clamps. It looked substantial.

Q.—Wire cables, or hemp cables?

A.—Wire. Plow steel cable ; the same as we used for our machinery.

H. E. LINDSKOG (for Plaintiff) Re-examination for Plaintiff.

Q.—And, that boom was stretched from what point to what point ?

A.—From approximately 500 feet upstream from the site of the cofferdam, to the cofferdam. Then we had a little tail boom built to take her down.

Q.—On what side of the stream was that?

A.—To start with, that was on the north side. They would run off to the north shore of the bank.

Q.—From where?

A.—At first it was from the corner of crib No. 1, and it went up to the north shore.

Q.—About 500 feet in length?

A.—Yes.

There was a big eddy here (witness indicating).

Q.—That is in between the boom and the north shore?

A.—Yes.

Q.—Was the purpose of the sheer boom to keep logs out of that eddy?

A.—Yes ; so that they would not pile up.

Q.—Then, this sheer boom ran across the mouth of the by-pass ?

A.—Yes.

That was before there was any appreciable amount of water in the by-pass. Later on we swung her the other way, from the by-pass to the south shore.

Q.—Was that boom in place on the fatal day when the jam came down after six o'clock and pushed one of the cribs out of position?

A.—I am pretty sure it was.

Q.—Did it hold, or did it give way?

A.—It held, but it gave way. It did not break.

Q.—Did logs get into that eddy?

A.—Logs got into the eddy, surely, and piled up in there.

Q.—Piled up in that space between the boom and the north shore?

A.—Yes

Q.—The by-pass is on the north side of the river?

A.—The by-pass is on the north side of the river.

H. E. LINDSKOG (for Plaintiff) Re-examination for Plaintiff.

By Mr. Geoffrion:—

Q.—You say that later on you swung the upper end of the boom to the south shore?

A.—When the cribs were across the river we swung her to the north shore, and swung the downstream end over towards the by-pass.

By Mr. St. Laurent, continuing:—

Q.—The upper end was swung from the north shore to the south shore?

A.—Yes, and the lower end was swung from the cribs over to the other side of the by-pass, to lead the logs into the by-pass.

Q.—You said something about twisters that you had intended to use when you tied this crib on the evening of the fateful day. What are twisters?

A.—A twister is a cable. The crib was going downstream. The mass of logs against it had broken most of the cables, so, to hold it in position, we ran a three quarter inch cable around the log, up to the log of the crib in place. Then it was our idea to put a crowbar in, and twist up on it and take up the slack, to hold it. Before we could do that, it kept pushing and pushing, until the cable was tighter than we could ever twist it.

Q.—The pushing took up the slack that you had intended to take up with your twister?

A.—Exactly.

The twister was a safety measure to keep it from going any farther.

Q.—Referring to Exhibit P-37, can you say where crib No. 3 was when you left it at six o'clock on the afternoon of the day the damage happened?

A.—The front face was in line with the face of crib No. 1, very closely.

Q.—At that time did it have the diamond shape it appears to have on this plan?

A.—No, sir.

Q.—What was its shape at that time?

A.—Very much like No. 1. It was a rectangle — four 90 degree corners.

Q.—And, you say it was practically in line with crib No. 1 ?

A.—Yes.

Q.—Am I correct in understanding that before you left at six o'clock there had been enough rock put in that crib to lower it to the bed of the stream?

A.—There had been quite a bit of rock put in. She was grounded. I am positive she was grounded. I would not say she was loaded enough to stay there, but she was grounded.

Q.—After six o'clock was any more rock put in?

A.—Yes. Rock was kept piling in there, until they saw this mass of logs coming down; then they ran up and started to make some preparation.

By Mr. Geoffrion:—

Q.—You do not know anything about that. You were not there?

A.—I was not there.

By Mr. St. Laurent, continuing:—

Q.—When you left, was there or was there not a night shift to continue the loading of this crib?

A.—There was a night shift there, and they had orders to load the crib — forget everything else, and load that crib.

Q.—You were called some time between ten and eleven o'clock?

A.—Correct.

Q.—When you arrived on the scene how far down had crib No. 3 been pushed by the jam?

A.—Quite a way. I would not say how far the crib had moved when I got there, but I can swear it moved far enough. When we were trying to put our twister on, more logs were piling up. There was an awful mess of logs in front, and the water was backing up, and the crib moved down far enough that it tightened up those twisters.

Q.—To what extent do those cribs obstruct the passage of water, before the sheeting is put on?

A.—They obstruct it some, but nowhere near in comparison to what it is when the sheeting is on, of course.

Q.—Was this crib that was not completely loaded when you left off for the day shift at six o'clock just a basket work

crib, or was there a solid face ? Were there spaces in front of it ?

A.—There were spaces in front.

Q.—The logs were crisscrossed at each corner ?

A.—Yes.

Q.—And, between each of the front logs there would be a space the thickness of the side logs ?

A.—As a rule.

Q.—I suppose they are notched to a certain extent ?

A.—They are notched, yes.

Q.—If I understood you correctly, crib No. 2 was built upstream ?

A.—It was built upstream.

Q.—And the intention was to have it where cribs Nos. 3 and 5 now appear on Exhibit P-37 ?

A.—Correct.

Q.—In order to bring it down it was being moved by the current, and being held at that time by your cables and your guy ropes ?

A.—Correct.

Q.—How did it happen to get over to the point where it appears on the plan Exhibit P-37 ?

A.—When the crib was let down from up above we had a guy cable to the north shore, and one to the south shore.

Q.—What were those guy cables for ?

A.—To guide it into the proper position.

Q.—To steer it into the proper position ?

A.—Correct. To steer it.

The cables that kept it from going downstream — from getting loose from us — were a lot heavier cables that were tied to the front face of the crib. When she got down so far, something happened — we could not tell just what it was. The light five eighth inch guy cable to the north shore broke, and that threw her over, but she was still held by the main cables, which we depended on. They were not broken.

Q.—You say the guy cable that enabled you to keep it towards the north shore of the river broke ?

A.—Yes.

Q.—And, was it the current that swung it over towards the south shore ?

A.—Yes. The current, and the position of the holding cables, which were at a slight angle towards the south shore.

Q.—Because of the swing of the river when your guy cable broke, the resistance of your holding cables, and the current, pushed it over south?

A.—Yes.

Q.—You say you let down the bridge when that happened ?

A.—I do not remember much of that. The bridge was lower than the cribs, because we had her fastened to the two shore cribs, the south shore crib and the north shore crib. Those were two three quarter inch cables, with boards on top of them. A very flexible structure.

Q.—A swinging bridge?

A.—Swinging bridge, yes. A suspension bridge.

In some cases I guess we lifted her up.

Q.—You do not remember precisely what happened on that occasion when you were handling crib No. 2 ?

A.—When they saw that crib swing around like that, I believe they did drop it.

By Mr. Geoffrion:—

Q.—Do you believe it, or do you know it?

A.—I do not know for sure.

By Mr. St. Laurent, continuing:—

Q.—You have not a sufficiently clear recollection to say that they did?

A.—I have not a clear enough recollection to say if they did or not.

Q.—Have you a sufficiently clear recollection to say what was preventing this crib No. 2 from going farther downstream at that time? What was holding it?

A.—The anchor cables up above.

Q.—What kind of cables were they?

A.—They were three quarter inch and seven eighths inch plow steel hoisting cables.

Q.—There was some discussion this morning as to whether or not the vertical, or nearly vertical, face from which the

by-pass had been excavated indicated hardpan. What did you observe that enables you to say that what was excavated there was hardpan ?

A.—The nature of the material itself. I walked over it lots of times. I saw what we were doing. And, there is the fact that the big peel could not make any impression on it.

That is why I say it was hardpan.

Q.—How much blasting or shooting was done there after you came on the job ?

A.—Continuously.

Q.—With respect to Exhibit D-6, and your actual performance in concreting ; does your statement as to the average production for June, July and August apply to the whole period from the first of June to the end of August ?

A.—No.

Q.—Just what is it ?

A.—I said we beat that time and again. When we had a straight run, many times — when we were not held up there — we poured more concrete. When we did not have to clean rock repeatedly, or something like that, we took out more rock. I do not say it averaged out all the way through, but there were many periods we did it, when we had a good fair show.

Q.—But the word "average" was used, and it might mean that the total quantity for those three months would be divided by the number of working days, to arrive at the average. Is that what you mean ?

A.—No. Not of the whole three months. I do not mean the average of the total concrete for the three months.

By Mr. Geoffrion:—

Q.—Then, what do you mean by "average" ? If we are not talking the same language it will be difficult to understand the evidence.

A.—Many days we poured more concrete than what our progress schedule showed we should pour per day. Many days we excavated rock than what our progress schedules showed we should excavate per day, or per shift.

By Mr. St. Laurent:—

Q.—Did some of those many days come in this period you have mentioned, June, July, and August, with respect to the concreting ?

A.—Yes. The engineers' estimates are there. The owners' engineers' showed what we did.

Q.—Do you remember, or have you been able to ascertain from looking at the estimates, what yardage of concrete was poured in January, 1930?

A.—Close to 6000 yards, I think, was poured in January.

Mr. Geoffrion:—Where does that come from?

Mr. St. Laurent:—The information, I think, is on the Engineer's estimates for January.

Mr. Geoffrion:—I simply want to know where the witness takes it from.

Witness:—I would not say exactly 6000 yards, but it is close to that, and it will show in the Engineer's estimate.

By Mr. St. Laurent, continuing:—

Q.—What were the circumstances during that period?

A.—We had a good run down in the deep gate sections. We had a chance there to pour quite a bit of concrete. That was one time when we had enough to keep our plant going. We did not have to stop because we had to go down 25 or 30 feet in some places with our forms. That was one time that we had plenty concrete ; and, at that, it was only in one spot, and it was under winter conditions. Even so, at that time, we poured close on to 6000 yards. Our mixers were running steady.

Re-examined by Mr. Geoffrion, K. C., of Counsel for Defendant:—

Q.—Dealing with the by-pass cofferdam ; you said you wanted to put more concrete, and the Engineers wanted backing or a toe hold, and stopped you?

A.—Yes.

Q.—That was Mr. Dubreuil?

A.—Yes.

Q.—What was the level or height of water that spring?
A.—I cannot tell you.
Q.—What would be the height of water you would fear?

If a man has to decide whether he would build a cofferdam or not, he will decide according to the height of water he anticipates. Of course, he cannot figure it exactly in advance.

I am speaking of the lower end of the by-pass. What would be the river height at the lower end of the by-pass ? Because, I take it that an engineer or a contractor who decides to build a cofferdam at the lower end does so to prevent the water from coming in by the rear?

A.—That is correct.
Q.—And, he will have to build it to a sufficient height to prevent the water from coming in? In other words, applying it to yourself, you built your cofferdam to a height sufficient to take care of what you feared as high water?
A.—I got the information as to the height of high water from our Engineer, Mr. Reichenstein ; but, I am sorry to say the water went even higher still, and I had to sand-bag it.
Q.—To what height did the water go?
A.—5 or 6 feet.
Q.—Above what ?
A.—Above 96.
Q.—The bottom ?
A.—Yes.
Q.—What was the height of your cofferdam above the bottom ?
A.—About 7 feet altogether, I guess.
Q.—Above your cofferdam, or above 96?
A.—7 feet above 96.
Q.—Would that include the sandbags, or only the cofferdam proper?
A.—With the highest water we had about a foot and a half or two feet of freeboard.
Q.—What do you mean by freeboard?
A.—We had that much to spare to the top of our cofferdam.
Q.—But, you just told me it was not high enough, and that you had to add sandbags to it?

A.—Perhaps it was high enough, but it was not strong enough. Anyway, we added sand bags.

Q.—Your statement is there were about 6 feet of water?

A.—About 7 feet.

Q.—In other words, with the cofferdam there you would have had a column of water the width of the by-pass, 6 feet deep, pouring up that by-pass?

A.—About that.

Q.—At what level were you stopped from continuing the concrete by Mr. Dubreuil?

A.—94.

Q.—So, when he stopped you your concrete would have been drowned by about 8 feet?

A.—Correct.

Q.—You told us that Maclarens gave you logs, but could not give you chains for the boom?

A.—They let us take the logs in the river.

Q.—But, I am now speaking of the chains.

A.—We may have got a few chains, or something like that, but there was not a sufficient amount.

Q.—Did you ask for them?

A.—I had some of my men ask for them.

Q.—That was done by somebody else?

A.—Yes.

Q.—Was it the same boom that you later used to divert the logs into the by-pass, or was it another boom?

A.—The same boom.

Q.—Are you sure of that?

A.—Pretty positive.

Q.—Are you very positive ? Because I am instructed otherwise.

A.—I am sure of it.

Q.—The same boom?

A.—Yes.

Q.—With no alterations? As it was originally?

A.—They may have fixed it up. There might have been alterations. They may have added to it.

Q.—I thought you had — I will not say admitted, but, expressed a doubt as to whether I was right in my suggestion this morning that your crib No. 3 was wedged diamond shape between the two other cribs. You now say it came down in proper alignment?

A.—The one that got kicked down ...

Q.—(Interrupting) You say kicked. We say slipped.

A.—If there had been any serious trouble there, I am sure I would have remembered it.

She may have caught this way, or that way, but she went the way she was supposed to go without any serious trouble.

Q.—You say that at six o'clock you left orders to the night shift to carry on piling rock?

A.—Correct.

Q.—Apparently they had four hours to pile more rock in that crib : from six o'clock to ten o'clock?

A.—About that. From six to ten is four hours.

Q.—How many men?

A.—Twenty-five or thirty men.

Q.—So, the crib must have been pretty full when the jam came down?

A.—It was fairly well loaded.

Q.—Pretty nearly completely filled?

A.—I would not say it was completely filled, no.

Q.—You had piled some rock in it before you left at six o'clock ?

A.—They had started.

Q.—How long before ?

A.—I cannot say.

Q.—You cannot say, therefore, what quantity of rock was in it, but you can say there was some?

A.—There was some.

Q.—You do not know if they had started shortly before?

A.—It would be very shortly before.

Q.—So, there was very little rock in it when you left?

A.—Very little.

Q.—And, you had 25 men working approximately four hours after six o'clock ?

A.—Yes.

Q.—Were you living very far from that place?

A.—No, it was not very far.

Q.—And, you say those 25 men in the four hours could not have filled the crib?

A.—Well, they did not have it filled : I am pretty sure of that.

Q.—They may not have worked very very hard?

A.—Possibly.

Q.—You made a statement which I am not quite sure I understood. Dealing with the new meaning you give to the word "average", I take it you mean there were some days in those months when you averaged higher than Exhibit D-6 shows. Your statement now is you mean there were some days when you did better. I had not understood you in that way. You said when you did not have to clean the rock repeatedly you did better concreting. Was it concreting, or excavation?

A—Better excavation.

Q.—Then, it comes back to this : that you say you did a better average when you were not compelled to take out thin layers ?

A.—When I had to clean, that would take the men I had excavating rock the whole day, in many cases, and when they had cleaned the rock there would be very small yardage. When we had a shot down, and they were going in there to excavate, we did pretty good.

Q.—There were days when your men worked at cleaning, and other days when your men worked at excavating ?

A.—Correct.

Q.—That is, when your chief job was cleaning, you did not have a good record in excavating ; and when your chief job was not cleaning you had a good record in excavating?

A.—Yes.

Q.—Did you expect there would be no cleaning under this contract?

A.—No.

Q.—Then, you complain there was too much cleaning?

A.—Yes.

Q.—Was that because you were compelled to excavate in small layers?

A.—Because we cleaned the rock for the Engineers' inspection so that it would be O. K., Then it was found that the rock was still bad, and we had to go ahead and do the operation over again.

Q.—In other words, we come back to the same old point, that you should have been allowed to blast 16 or 20 feet at a time ?

A.—My point is that I should have been given more and better information as to how far I should have to go, not piecemeal that way.

Q.—It is the same thing. You mentionel 10 or 20 feet slices in your examination in chief.

H. E. LINDSKOG (for Plaintiff) Re-examination for Defendant

Coming now to the concrete : you have given us your meaning of the word "average" for the rock excavation. Do you mean the same thing for the word "average" as regards concrete? Do you mean there were some days during those three or four months, when things were going beautifully, when you did better than what Exhibit D-6 involves?

A.—When we had enough forms in front of us, so that we could run the mixer ten hours, we could do better than what it showed on our profile.

Q.—In other words, whenever you did not have to place forms, or the placing of forms was simple, and you had only the concrete, or practically only the concrete, you did better than this ?

A.—Yes.

Q.—But, whenever you had to devote any time to placing forms, you did not do as well?

A.—If we had no place to put the concrete, naturally we could not do as well with the concreting.

Q.—In other words, you did not do any concreting while you where placing forms?

A.—Oh, yes. The operation of placing the forms was going on while we were placing the concrete in another place.

Q.—I suppose you had to interrupt your concreting, or your forms, at the place where you were working?

A.—I do not understand you.

Q.—You had to stop concreting while you were putting the form in which to put the concrete at that particular place?

A.—At that particular place, yes.

Q.—And, when you had to devote time to placing forms, on those days you did not do as well as when you only had the concreting, the forms being there?

A.—The building of forms was the carpenter's job. The placing of concrete was the job of the concrete men. You must understand that the carpenters were trying all the time to get ahead of the concrete gang, and the concrete gang was trying to catch up with the carpenter gang. Now and then one would catch up with the other.

Q.—Whenever the carpenters beat the concrete men, you had a fine record of concreting?

A.—Yes.

Q.—And, when the concrete men picked up on the carpenters, it did not go as well?

A.—Correct.

JAMES J. STEELE (for Plaintiff) Examination in chief.

Q.—Is that practically what is involved in your statement that you had a good record of concreting when you did not have to go 20 or 25 feet with your forms?

A.—I meant by that statement, when my carpenter gang were not held up by rock excavation.

Q.—So, we are coming back to the thin layers of rock. Do you still say the thin layers of rock — or rock excavation in thin layers as ordered — did not delay you ? From what you have told me it would appear to me as if it delayed you.

A.—It may have delayed us in this way, that we never knew when we were ready to put forms there.

Q.—I have been asking you to what extent you attribute any part of your delay to rock excavation. Have you any answer ?

A.—I cannot answer that. I do not know that rock excavation delayed us to any appreciable extent. I do not think so.

And further deponent saith not.

DEPOSITION OF JAMES J. STEELE

A witness examined on behalf of the Plaintiff.

On this twenty first day of February, in the year of Our Lord one thousand nine hundred and thirty three personally came and appeared James J. STEELE, residing at No. 4960, Connaught Avenue, in the City and District of Montreal, construction and mechanical superintendent, aged 60 years, a witness produced and examined on behalf of the Plaintiff, who, being duly sworn, deposes as follows:

Examined by Mr. Forsyth, K. C., of Counsel for Plaintiff:—

Q.—How long have you been engaged in the construction business?

A.—Off and on since I was fifteen years old ; in different kinds of work, and not all the time continually.

Q.—You were working for Mr. Bishop at Cedar and High Falls during 1929?

A.—Yes.

JAMES J. STEELE (for Plaintiff) Examination in chief.

Q.—When did you start working there?

A.—I went to Cedar on August 12th, 1929.

Q.—The excavation of the by-pass was completed when you arrived there, I believe?

A.—Yes.

Q.—Were you working at High Falls also?

A.—Yes, I took Mr. Bishop's place in both High Falls and cedar.

Q.—As General Superintendent?

A.—As General Superintendent.

Q.—Where was Mr. Bishop at the time?

A.—He was in the hospital. I met him in the hospital on August 8th, when I hired with him.

Q.—Was the question of handling those logs past when you got to Cedar?

A.—Practically.

Q.—What was the condition of the unwatering in the main channel of the river when you arrived?

A.—It was in a very bad condition. The cribs were uneven, and out of alignment, and anything else but what they should be.

Q.—Did you make any investigation of this condition?

A.—I checked the cribs and the pumping system over that day. I spent about four hours doing that.

I went down to High Falls, and about four days later I went back, and I met Mr. Lindskog, and we used all the practical methods to try to stop those leaks, by making hay bales, and brush bales, and dropping them into where we thought the holes were, and putting in toe fill on top of them to hold them down; which is the usual method.

Q.—And, was it successful?

A.—No, it was not.

Q.—What did you do then ?

A.—There was considerable toe fill in then, and we decided to put in a big blanket of toe fill.

Q.—Did you do anything to ascertain the conditions under those cribs?

A.—No ; I could not tell.

Q.—Did anyone put a shaft in there?

A.—Yes, but that was later on.

Q.—Then, you decided to blanket it?

A.—Yes.

Q.—What do you understand blanketing to be?

A.—Dumping toe fill down in front of the sheeting. This toe fill ran out 6 or 8 feet on top. and would slope off probably to four times that much in the bottom. If it was 6 feet on top, it would probably be 24 feet on the bottom.

Q.—That is, the toe of the toe fill would be 24 feet out from the toe of the cofferdam?

A.—Yes.

Q.—Was that additional toe fill discussed with the Engineers and Mr. Bishop?

A.—Yes ; with Mr. Bishop, the Engineers of the Streams Commission, Mr. Lindskog, and myself.

Q.—How did you put the toe fill in?

A.—We just built a track around the edge, and got some cars up from High Falls, and ran the toe fill and dumped it in. Then we had scows bringing it in from the other side of the river, so that we could get the best toe fill that was available there.

Q.—After you did that did the leak stop?

A.—No.

Q.—What did you do then?

A.—We decided we would drive this steel piling. We ordered the piling, built a pile driver, had a five ton hammer shipped up, and when the pilling came decided to drive it out, as I thought, and we thought, at that time beyond the logs that had been sucked down, and if we got out farther into the toe fill we would have a better chance of reaching the bottom.

Q.—That is, you thought the logs that had been sucked down in between the place where you finally put the sheeting and the cofferdam would interfere with or prevent the sheet piling being down, so you carried it out a sufficient distance upstream to avoid the logs if possible ?

A.—Yes.

Q.—And, that was done?

A.—Yes.

Q.—Did the driving of the sheet piling meet the situation, or improve it?

A.—Yes, we were able then with a reasonable number of pumps to handle the water and get near the bottom.

JAMES J. STEELE (for Plaintiff) Examination in chief.

Before we put in the sheeting I was not satisfied with the drawing where they indicated ledge, so I sunk a shaft down in this toe fill, down to the bottom, 12 feet long.

Q.—When you say the bottom, do you mean the level of the bottom of the cribs?

A.—Yes.

Q.—The contour of the bottom sloped towards the centre of the stream?

A.—Yes.

This over-burden started in this hole I dug.

Q.—That is, the material that was subsequently found to overlie the ledge was ascertainable in the shaft you drove?

A.—Exactly.

I noticed the sheeting on this was all right. It was perfectly tight.

Q.—The sheeting on what?

A.—On the rock.

Q.—The sheeting was tight where you had ledge?

A.—Absolutely.

Where they had driven this sheeting it had struck boulders, and logs, and turned the end out in the bottom.

Q.—Was that where there was ledge, or was there something else there ?

A.—There were boulders imbedded in the material generally.

Q.—Could you describe it as ledge?

A.—No, absolutely not.

Q.—I think I understood you to say something about logs in there?

A.—Yes, there was a certain quantity of logs in there.

Of course, I did not see those log jams. They happened before I came there. Afterwards, however, we found out there was a great quantity of logs in under that toe fill and along in front of the cribs.

JAMES J. STEELE (for Plaintiff) Examination in chief.

Q.—Had the wood sheeting been placed when you arrived there?

A.—Yes.

Q.—Was that sheeting placed on the face of the crib?

A.—No, sir.

Q.—Did you know then, or did you ascertain later, why it had not been?

A.—Not on that trip. I did not ask the question. I found out later that the reason they had it out was to try to clear the logs.

Q.—You told us that before the steel sheet piling was driven upstream you were not able to handle the water with the pumps you had there?

A.—No, we were not.

Q.—You were, after the steel sheet piling was driven?

A.—Yes.

Q.—Had you had experience in cofferdaming before?

A.—Yes, on several rivers.

Q.—I would like to ask you whether the pumps you had there before the sheet piling was driven were more than the number you would expect to find in a situation of that kind?

A.—Absolutely. There were pumps enough to pump out four cofferdams of that description.

Q.—And, after the sheet piling was driven you could handle the water with a reasonable number of pumps?

A.—Yes.

Q.—I note from the plan Exhibit P-37 there was some sheet piling driven downstream from the cofferdam?

A.—Yes. That was below the cofferdam. That was driven there to make a sump for the pumps which sat on the cribs, also to keep the loose material from coming in from under the cribs.

Q.—Are you prepared to state whether if that river bottom had consisted of ledge rock, and there had been no logs jammed in front of the crib, the system of cribs and wooden sheeting was, with a proper amount of toe fill, the proper way to approach that unwatering proposition?

A.—Absolutely.

It was very essential at that certain point that whoever was doing the job should know what was on the bottom of the river.

JAMES J. STEELE (for Plaintiff) Examination in chief.

Q.—I do not want you to speak now from anything you were told, but from your own investigation and your own observation there. Can you tell us why the cribs, the cofferdam, and the wood sheeting, would not hold the water, or would not permit the pumps to handle the water?

A.—As soon as you placed your crib on this over-burden, you started to build up a head. It immediately started to scour out underneath. The suction from the underneath part was probably what drew those logs down into the cribs.

When you fill a crib it breaks the water pretty well ; well enough for you to put a diver down, but when it is scoring out underneath I would not attempt to put a diver down.

Q.—What depth of toe fill would you ordinarily have expected to place in front of your wood sheeting on a job of that kind?

A.—About 400 or 500 yards.

Q.—What depth ?

A.—3 or 4 feet up along. Perhaps not that much. Just enough to seal the bottom.

Q.—Enough to seal the crack where the sheeting met the bottom ?

A.—Exactly.

Q.—After you arrived on this work did you see any evidence of any attempt on the part of the owners to regulate their logs as they came down?

A.—No, I did not.

Q.—Where you there when the by-pass was affected?

A.—Yes. I had gone up there. I saw a jam in the by-pass. That was the only jam I saw there.

Q.—Have you been on rivers where driving of logs was done ?

A.—Yes.

Q.—In your opinion, was it possible to so regulate those logs as to avoid the jams?

A.—Absolutely. It was possible to drive them properly, providing a proper boom had been placed in the river to direct the logs into the openings that were left.

Q.—What openings did they have at High Falls to pass logs ?

A.—They just had an ordinary log sluice; I should say four and one half to perhaps eight feet wide; and they had their boom directed in the proper way. They had no trouble.

JAMES J. STEELE (for Plaintiff) Examination in chief.

After we finished the logs sluices at Cedar, they went to work and put their booms in the proper shape to handle the logs without any trouble.

Q.—Who passed the logs through at High Falls?
A.—The Maclaren Company men.

Mr. Geoffrion:—I object to this evidence as irrelevant. It is a pity that we should have to enter into the High Falls lawsuit in this case.

Mr. Forsyth:—It is not a question of entering into the High Falls lawsuit. It will be our contention that, as a matter of law, the Maclaren Company were obliged to regulate those logs, to get them through the openings, and I want to show that not only did they know how to do it, but they did it elsewhere, and with smaller openings than we left.

By Mr. Forsyth, continuing:—

Q.—Did you later see them putting logs through the logs sluice at Cedar?
A.—Yes : in 1930.
Q.—What was the size of the openings there?
A.—Approximately 10 feet.
Q.—Did they pass the logs through there?
A.—Without any trouble at all.
Q.—In the method you have described, placing booms to direct the logs into the openings?
A.—Yes.

They had men who knew how to drive logs too.

Q.—Were you cognizant of the method in which the rock excavation was taken out on this job?
A.—Partly. I do not think my evidence on that would be very definite.
Q.—Are you in a position to say as to whether it is more expensive to take rock out in lifts of two or three feet than it is if it where taken out in larger lifts?
A.—It is more expensive to take it out in shallow layers, especially if you have to clean the rock up and prepare it for concrete every time you go down a lift.

JAMES J. STEELE (for Plaintiff) Examination in chief.

Q.—From your experience can you say whether it is possible to ascertain with reasonable certainty the depth to which one must go through rock?

Witness:—You mean in taking it out?

Counsel:—Before you take it out. Is there any method by which you can ascertain, within reasonable certainty, how far you have to go down to get good rock?

A.—That can only be determined by core drilling.

Q.—Did you ever see one of those electrical apparatuses working?

A.—No, I never did.

Q.—What was the nature of the excavation to be made in the main channel at the site of the dam?

Witness:—You mean on the dam site?

Counsel:—Yes. In the main channel.

A.—When I went there the over-burden was taken off. No, excuse me : I am wrong there. The overburden was boulders, and gravel, and clay. Practically the same as it was under the cribs.

Q.—Would that type of material, frozen, be comparable to earth?

A.—No. I should say it would be more like taking out rock. It would cost just about the same.

Q.—Did you see it?

A.—Yes, I saw it.

Q.—At a certain stage the contractor was instructed to trim some excavated rock above the north end of the dam. Did you have anything to do with that?

A.—Yes, I supervised that.

Q.—What have you to say about it? If the quantities of excavation had not existed as mentioned in the contract would any levelling off of those piles have been necessary ?

A.—No, sir.

Q.—Did you have general charge of the carrying out of the winter work on this job?

A.—Yes. I was up there practically half the time.

JAMES J. STEELE (for Plaintiff) Examination in chief.

Q.—Are there any costs additional to those of summer work involved in carrying on work in the winter, on concrete?

A.—Yes. Any job I ever worked on we figured $3.00 a yard extra for heating, tarpaulins, salamanders, thawing out rock, and things like that ; and I think that is a very fair price.

By Mr. Geoffrion:—

Q.—That is $3.00 a yard for winter concrete, over summer concrete?

A.—Yes.

By Mr. Forsyth, continuing:—

Q.—I suppose it depens, to some extent, on what you have to do?

A.—A good deal.

Q.—What temperature did you get at Cedars during the winter?

A.—I never kept a record of it, but I have seen it register 20 or 25 below zero, and perhaps a good deal more than that.

Q.—You speak of $3.00 a yard extra for winter concrete. Is that heavy concrete, or light concrete?

A.—Heavy concrete, of course. Lighter slabs, or light concrete, would cost probably twice that much.

Q.—What distinction do you draw between heavy concrete and light slabs?

A.—A concrete that goes in big bulk forms, where you can pour 2000 or 3000 yards to a lift, is heavy concrete. A light concrete slab, which is probably 7 or 8 inches thick, you have to use just as much heat to keep it from freezing as if you had the big bulk stuff.

Q.—That is to say, if you pour a great big mass of concrete at once, you use a certain amount of heat to keep it warm ; and, if you pour a light slab, you have to use as much heat, and you have to attribute the same amount of heating to the smaller yardage?

A.—Yes.

By Mr. Geoffrion:—

Q.—And, you double the figure of $3.00 for the light concrete ?

A.—Yes.
Q.—That would be $6.00 a yard extra?
A.—Yes.

By Mr. Forsyth, continuing:—

Q.—In addition to the extra cost of placing concrete in winter, do you find any other costs involved in winter work as compared with what would obtain in summer?

A.—Yes. The efficiency of the dam is not nearly so good. Men cannot do as much in winter time as they can in summer.

The quarry would cost more, in a small way. I imagine in a big quarry there would not be much difference.

Q.—What about your camps?

A.—It costs a lot more to run camps in winter than it does in summer, on account of the extra heating, the wood, keeping the stoves going at night, and so on.

Q.—Does the question of snow enter into it?

A.—Oh, yes, sure. Everything of that description — snow and ice.

Q.—With reference to the apron in the by-pass channel, when that work was ordered was it possible to haul cement in for it over the winter roads?

Q.—No. That came in after the hauling had broken up. Some of the cement had to hault part of the way with tractors, and part of the way with teams, which would cost probably twice as much to get in as it would on a winter road with the tractor running.

Q.—The figures with reference to the cost of hauling that cement are to be found in Paragraph 35 of the Declaration, and the actual cost is placed at $2103.20, and credit is given for $468.56, leaving a difference of $1,634.64 as being attributable to the extra cost of hauling when the winter roads were broken up. What have you to say as to that?

A.—I went over it with the Engineer at the time, and I thought the prices were very fair and reasonable.

Q.—Do you know anything about any extra cost being involved in taking out the plant after the winter roads had broken up?

A.—Yes. We removed the heavy parts, the crushers, the boilers, and things of that kind, that they were going to take

out. We took them over to a storage off the Maclaren property, and the next winter I believe they went up and hauled them out.

Q.—Had you taken those out over the winter roads, I suppose it would have been simply a matter of hauling them from the point where they were working, and loading them on the cars ?

A.—Yes.

Q.—Instead of that, you hauled them to a storage, handled them into the storage, then handled them out of the storage, took them to Gracefield, and handled them out of Gracefield?

A.—Yes.

Q.—Have you examined the figures charged as the cost of that work?

A.—Yes, I went over them also with the Engineer, and I figure they are reasonable.

Q.—Did those facts you have spoken of, with reference to the placing of the cofferdam, the driving of the sheet piling, and so on, actually delay the work of unwatering in the river channel?

A.—Yes, there certainly did.

Q.—What effect would those delays have on the efficiency and the output of the remainder of your force?

A.—If the bottom of the river had been as the plans indicated, it was about a six weeks job to unwater it. I believe they started in June, and the job was not unwatered until some time in December.

Q.—During that period was it necessary to keep the force, or the organization, intact?

A.—Yes. You could not tell what day we would accomplish this, and have to start our gang on full blast again.

Q.—Was there much construction work going on elsewhere at that time — in 1929? I am now referring to the difficulty of obtaining men?

A.—There was quite a bit. They paid quite good price for good men.

Cross-examined by Mr. Geoffrion, K. C., of Counsel for Defendant:—

Q.—You stated that you thought the logs would interfere with the sheeting?

A.—Yes.

JAMES J. STEELE (for Plaintiff) Cross-examination.

Q.—What made you think that?
A.—When I sunk this shaft I saw logs and boulders there.
Q.—Where did you sink that shaft?
A.—Just outside of the wood sheeting.
Q.—Your shaft was just outside the upstream face of the wood sheeting, above the crib?
A.—Yes.
Q.—Closer to the north shore than the south shore?
A.—Yes.
Q.—About what distance from the north shore?
A.—About 60 to 70 feet, I should say.
Q.—And, what distance from the face of the wood sheeting?
A.—Right up against it.
Q.—What was the size of your shaft?
A.—About 12 feet long, and perhaps 4 feet wide.
Q.—How deep did you go?
A.—Right down to the rock.
Q.—Do you remember how far you went?
A.—The top might have been 4 feet, and the bottom end might have been 12.
Q.—You were on a slope?
A.—Yes.
Q.—You dug shaft through the fill?
A.—Yes.
Q.—That fill was mud, I suppose?
A.—Earth, and gravel, and mixed stuff, that we picked up around the shores.
Q.—You say you saw some logs there?
A.—Yes.
Q.—Did you meet logs in the shaft?
A.—In the deep end of the shaft there were three or four logs, or parts of them.
Q.—Three or four logs protruding or coming out of the fill ?
A.—Yes. Of course, I could not say whether they were 3 feet long, or 20 feet long.
Q.—There was some substantial part of three or four jutting out of the sides of your excavation?
A.—Yes, or in the bottom, where they had sucked down.
Q.—In what direction were the logs? Upstream ; downstream ; or otherwise?
A.—I thing mostly sidewise.

JAMES J. STEELE (for Plaintiff) Cross-examination.

Q.—In other words, flat against the crib — jammed sidewise against the crib?

A.—Yes.

Q.—And, that was all you saw there?

A.—That was all I saw at that time.

Q.—You say you were afraid they would interfere with your sheeting. You mean with the steel sheeting?

A.—No. This wooden sheeting was already in.

Q.—I was asking you in connection with my learned friend's question to which you replied that you drove your sheeting at a certain distance from the cribs because you thought the logs would interfere with you.

A.—That was the reason we drove the steel sheeting out clear of this sheeting.

Q.—I understood you to say you drove your wooden sheeting a certain distance from the face of the cribs because you were afraid the logs might interfere with it?

A.—The wood sheeting on the cribs was all in before I got there.

Q.—Then, you were speaking of the steel sheeting?

A.—Yes.

Q.—Your steel sheeting was placed a certain distance out, on that account?

A.—Yes.

Q.—And, the reason was because of what you told me you saw in digging the shaft?

A.—Yes.

I had that shaft dug myself.

Q.—And, that was the way you knew the wood sheeting was tight where there was ledge?

A.—Yes, sir. That was all right.

Q.—You said you where about 60 feet from the north shore?

A.—60 to 70. I did not measure it.

Q.—And, extending 12 feet out in the river?

A.—Yes.

Q.—So, it would be from 60 feet to 70 feet, to 70 feet to 80 feet?

A.—Yes.

Q.—You said you drove down to the rock. Part of your shaft went to the ledge?

JAMES J. STEELE (for Plaintiff) Cross-examination.

A.—Yes, part of the shaft to the ledge : say half way, or two thirds of the way, then you struck the over-burden.

Q.—And you say you saw boulders and logs in the over-burden?

A.—Boulders, and clay, and gravel. The same as you would see in any other place of that description.

Q.—Have you any memorandum, or diary, or anything of the kind?

A.—No, I never kept a diary up there.

Q.—Your first visit was on August 12th?

A.—Yes.

Q.—And, you went back four days later ? That would be August 16th?

A.—Yes.

Q.—When did you drive your shaft?

A.—I could not give you the date. It was probably a month or six weeks later than that.

Q.—Probably in September, or October?

A.—It was before we drove the steel sheeting.

Q.—Shortly before driving the steel sheeting?

A.—Yes.

Q.—Would that be before or after Mr. Ferguson's visit?

A.—I do not know when Mr. Ferguson was there.

Q.—In any event, it was some time previous to driving the steel sheeting?

A.—Yes.

Q.—According to you which was the worst trouble : the logs or the over-burden?

A.—I think the over-burden was the worst. That is the way I would take it.

Q.—You told us that you would not have put a diver down there on account of the scouring underneath?

A.—Yes. It was not safe.

Q.—But, you did not know until later on that there was any scouring underneath?

A.—I knew it. I could tell the way the cribs had settled that they had scoured out underneath and caused those cribs to settle there unevenly.

Q.—You concluded from the uneven settling of the cribs that there was scouring underneath?

A.—Yes; and one reason I sunk this shaft was to determine whether there was an over-burden on the rock there.

JAMES J. STEELE (for Plaintiff) Cross-examination.

Q.—Did you personally go down into the shaft, or did you send somebody down?

A.—I was down there fifty times, I guess.

Q.—Was the shaft there long?

A.—Oh, yes. It was there for anybody to see. I did not fill it up.

Q.—You said the taking out of the over-burden at the dam site in winter was the same thing as taking out rock?

A.—Practically.

Q.—Was that because it was frozen?

A.—Yes.

Q.—In your examination in chief you said something which I considered surprising. You told us it would have taken six weeks to unwater there?

A.—That is all.

Q.—If there had been no over-burden?

A.—If there had been no over-burden, and I had those cribs to put in, I would have put them in five or six weeks, and unwatered that job.

Q.—Therefore, if there was no over-burden, six weeks time would have unwatered it?

A.—Yes.

Q.—And, you said it took nearly six months?

A.—Yes.

Q.—So that nearly five months were lost?

A.—Four or five months.

Q.—What was the gang you say you kept there during that time? What was that gang for?

Witness:—You mean the extra men?

Counsel:—Yes.

A.—Clerks, and timekeepers, and all such men as that.

Q.—What would their work be?

A.—Just the general office staff, and the foremen that were around the work, and the men in charge of it.

Q.—What you kept were the timekeepers and the office staff?

A.—Yes, and the foremen.

Q.—Which foremen?

A.—The concrete foremen, and all the carpenter foremen, and the extra foremen.

JAMES J. STEELE (for Plaintiff) Re-examination.

Q.—When did you start your concreting there?

Witness:—In the main channel?

Counsel:—On the work.

A.—It was started long before I went there.

Re-examined by Mr. St. Laurent, K. C., of Counsel for Plaintiff:—

Q.—You were not there when the log trouble occurred?
A.—No, sir.
Q.—So, you do not know just how serious it was when it occurred?
A.—No.

By Mr. Geoffrion: —

Q.—You cannot give us the dates of your visits there? We have two, one on August 12th, and another on August 16th.
A.—I used to drive up from High Falls about once or twice or three times a week ; it just depended on how the work was going.

And further deponent saith not.

And the further hearing of testimony in this case is continued to Wednesday, February 22nd, 1933, at 10.30 o'clock in the forenoon.

DEPOSITION OF MARSHALL C. SMALL

A witness examined on behalf of the Plaintiff.

On this twenty second day of February, in the year of Our Lord one thousand nine hundred and thirty three personally came and appeared Marshall C. Small, of the City and District of Montreal, lumberman, aged 52 years, a witness produced and examined on behalf of the Plaintiff, who, being duly sworn, deposes as follows:

Examined by Mr. St. Laurent, K. C., of Counsel for Plaintiff:—

Q.—How long have you been engaged in the lumber business?

A.—Practically since I have been in business : twenty or twenty five years.

Q.—With what Companies have you been connected?

A.—I was with Price Brothers & Company, Quebec.

Q.—For how long?

A.—Ten years.

Q.—About how long ago?

A.—Up to 1904.

Q.—What was their business at that time?

A.—Sawn lumber.

Q.—With what part of the business were you connected?

A.—With the sawmill end of it, and the shipping end — all parts of it.

Q.—What Company did you join after you left Price Brothers?

A.—I went to the Laurentide Company, at Grande Mère.

Q.—How long were you with that Company?

A.—Twenty years.

Q.—With what part of their operations were you connected ?

A.—For a short time, with the sawmill operations ; and later, in the logging department, in the woods.

Q.—As a matter of fact, I understand you were their general forest manager — General Manager of their forest operations?

A.—Yes.

Q.—And, they had both sawmill and pulp and paper mill operations?

A.—They had sawmill until 1912.

Q.—From that time until you left their employ they were exclusively in the pulp and paper business?

A.—Yes.

Q.—In what business have you been engaged since you left the Laurentide Company?

A.—I have been in business for myself, in the white pine business, at Pembroke, Ontario.

Q.—That is, having white pine taken from the forest, and sawn into lumber for the market?

A.—Yes.

Q.—And, you have been engaged in this business for your own account?

A.—Yes.

Q.—I presume in the course of those years you have had some experience with the driving of logs in streams?

A.—Yes, sir.

Q.—How much experience have you had?

A.—All that is connected with it.

Q.—Was that a regular part of the operations each year?

A.—Yes.

Q.—Was it small quantities, or large quantities, of logs that were being handled on the rivers?

A.—Large volumes in the case of the Laurentide.

Q.—And, in the case of Price Brothers?

A.—Smaller quantities in Price Brothers.

Q.—In what does the driving of logs consist?

A.—Taking them from their landing, and floating them, and driving them to the mill.

Q.—What does that mean? Does it mean you just dump the logs into the stream at one end, and take them out at the other?

A.—No. The idea is to keep men along the river, to watch the dangerous places where the logs might stop.

Q.—What do those men have to do?

A.—They keep the logs moving.

Q.—That is, keep them in the channel to which the main body of water flows?

A.—To keep them in the water that will float then, during the driving time. You understand, the driving time is not the whole year ; it is the springtime.

Q.—Does that require just a few men, or a large number of men?

A.—It depends on how the river or stream is.

Q.—Do you know the Lièvre River?

A.—I know the upper part of the Lièvre River.

Q.—You know the Maclaren Company?

A.—Yes, I do.

Q.—They handle quite a large quantity of logs?

A.—Yes.

Q.—Do you know if their driving operations require a large lumber of men?

A.—Yes, I would consider the Lièvre River a fairly rough river.

Q.—If one were engaged upon construction works in a river like the Lièvre, and was required by the terms of the contract to so arrange and manage the construction of the works as a whole that logs might be driven by the site of the works during the driving season, would you or would you not consider that leaving an opening of at least 30 feet in the main channel at all times, through which not less than several feet depth of water flowed, was managing it in such manner that logs might be driven by the works and through that opening.

Mr. Geoffrion:—I object to the question. It is dangerously near asking the witness to define a phrase in the contract, if it is not actually asking him to do so.

If my learned friend wishes to know whether a hole of that size is big enough, with the depth of water, to permit of logs being driven through, that is another question.

Mr. St. Laurent:—I am not asking for any opinion as to what the contract implies. The witness has had a very wide experience with the driving of logs, and I am asking him if the leaving of that kind of an opening is managing the work in such a manner that logs can be driven by there.

Mr. Geoffrion:—If my learned friend left the contract out completely, and asked the witness, as a matter of fact, whether that opening is sufficient to allow the driving to be made, I probably would not have any objection. As it is, my learned friend refers to the contract, and, irrespective of how experienced the witness may be, it is not his province to determine

the meaning of the contract. That is a matter for the Court. We are not going to have witnesses come here and give their opinions on the meaning of the contract.

If my learned friend is purely and simply asking whether the hole was big enough and deep enough, he can put his question so that there will be no doubt as to what he means, and I will not have anything to say.

His Lordship:—I think you might put it that way, Mr. St. Laurent.

Mr. St. Laurent:—I am asking him, your Lordship, if that was sufficient.

Mr. Geoffrion:—Let my learned friend put his question purely and simply as a question of fact, forgetting the contract.

Mr. St. Laurent:—But, I cannot forget the contract, because I want the evidence to be pertinent to the case.

I have not refered to the contract. I have simply said: "I am under contract bound to do a certain thing, and I do it in a certain way. Am I leaving it possible to drive logs by?"

Mr. Geoffrion:—It is not necessary that my learned friend should refer to the contract in order to ascertain if the hole was big enough. The witness knows the Lièvre River, and he apparently knows the Maclaren driving, and he can say whether the opening was big enough for the driving.

There is no purpose in referring to the contract, hypothetically or otherwise, if it is not to try to get an opinion of the witness on the contract.

Mr. St. Laurent:—It is certainly for the purpose of assisting the Court in arriving at a conclusion.

His Lordship:—Could you not put the question as Mr. Geoffrion suggests : would an opening 30 feet wide, by 5 or 6 feet deep, be sufficient to drive the logs through?

MARSHALL C. SMALL (for Plaintiff) Examination in chief.

By Mr. St. Laurent, continuing:—

Q.—You have heard the form in which His Lordship suggests the question. Will you please answer it in that form?

A.—It would be sufficient to drive a large quantity of logs through, providing they were guided properly to the opening.

Q.—Would the guiding of the logs properly to the opening be a part of the driving operation?

Mr. Geoffrion:—I object. That is a question of construction of the contract.

Mr. St. Laurent:—It is a question of fact.

His Lordship:—I think it is a question of fact.

Witness:—Yes. If they were allowed to come down in a bulk they would block in a 30 foot channel or opening.

By Mr. St. Laurent, continuing:—

Q.—If it became necessary at any time to build an obstruction right across from one bank of the stream to the other, would the creation of a bypass or canal divert the main flow of the water around ; that canal or by-pass having 35 feet in width and carrying a flow of several feet in thickness of water, be sufficient to allow the logs to be driven?

A.—The logs would follow the current to the by-pass, but they would still have to be watched.

Q.—They would still have to be watched ; but would that be a big enough space to enable them to be driven by the site of the works?

A.—Yes.

Q.—I presume in the course of those long years of experience you have become quite familiar with the Quebec Log Scale?

A.—Yes.

Q.—And, with the manner in which the out-turn of lumber compares with the theoretical board feet obtained by using the Quebec Log Scale?

A.—Yes.

Q.—When sawing up logs that run from 7 inches to 15 inches in diameter, and getting out stuff one and two inch thick-

ness, on which waney corners are allowed, in what manner does the out-turn obtained by a good sawyer compare with the theoretical content arrived at the Quebec Log Scale?

A.—It will give an over-run of 15% to 25%, depending on the size of the wood. If the wood is thinner it will give a less over-run.

Making dimension timber, the over-run will go as high as 30%.

Q.—What would you describe as dimension timber?

A.—Square timber : 6 x 6, 8 x 8 or 10 x 10.

Q.—In making boards of 2 inch thickness, the over-run would be about 15% to 25%?

A.—Yes.

Q.—Is that a fact that is generally recognized in the trade?

A.—There was a case this summer of a mill that sawed 15 million feet of logs, and their average over-run was 26%.

By Mr. Geoffrion:—

Q.—Were you there?

A.—Yes.

Q.—Do you know the fact personally?

A.—Yes.

The sawing was one, two and three inches thick.

By Mr. St. Laurent, continuing:—

Q.—Is this over-run a condition that is generally known in the trade, and that is taken into account in making up prices?

A.—Yes, it is expected.

Q.—Have you had anything to do with the buying or selling of logs in the rough?

A.—Yes.

Q.—According to the general practice prevailing in the Province of Quebec how are logs in the rough measured when they are dealt with by the thousand feet board measure?

Mr. Geoffrion:—I object to this, as not being alleged.

MARSHALL C. SMALL (for Plaintiff) Examination in chief.

Mr. St. Laurent:—We allege a contract. Contracts are the words the parties use, construed by the meaning those words have in the trade.

Mr. Geoffrion:—But, if one wishes to prove a custom of trade, he alleges it, and it is not an answer to say the law provides the custom is implied in the contract. If my learned friend wishes to rely on the position that the words in the contract have a customary sense in a certain trade, it must be alledged.

Mr St. Laurent:—In this contract we use language which, in the Province of Quebec, has a certain meaning, just as if we had used the word "yards" or "acres", or something of that kind.

Mr. Geoffrion:—But, will my learned friend be allowed to bring evidence before the Court to prove what a "yard" is ? If the word is used in its natural sense, the Court has to judge upon it. If my friend wants to prove it in a special sense, then it should have been pleaded.

His Lordship:—If it is to be proved, I think you should have alleged it.

By Mr. St. Laurent, continuing:—

Q.—What is the method of measuring logs in the rough, when they are being dealt with by the thousand feet board measure?

Mr. Geoffrion:—Where is that alleged?

Mr. St. Laurent:—We are dealing in things that are not in boards, and we are dealing with them in feet board measure. My question is how is that arrived at.

Mr. Geoffrion:—But, that is not alleged.

His Lordship:—What does the contract say?

Mr. St. Laurent:—"Agree to furnish the contractor with logs in the round at McCabe's Mill, at $20 per thousand feet B. M. Quebec Log Scale".

His Lordship:—The contract itself says "Quebec Log Scale"?

Mr. St. Laurent:—Yes, your Lordship. But, my learned friends will contend that the words "Quebec Log Scale" were not mentioned.

Mr. Geoffrion:—If my wanted friend to rely on a contract in which those words do not appear, and that the contract would have the effect as if the words did appear, he should have alleged it.

My friend's second question is the same as the first, in a different form.

Mr. St. Laurent:—It is not proving the same thing in a different form. It is proving that measurement in feet B. M. is something which has an application to logs.

Mr. Geoffrion:—Put your question in that way, and I will not object.

Mr. St. Laurent:—That is my question. Then I ask the witness how that measurement is arrived at.

Mr. Geoffrion:—What is the use of it? My learned friend has said those words were in the contract. If they are in the contract, why bother about it?

My learned friend now wants to say if they were not in the contract, it would not make any difference, because there is a usage that would imply those words. If that is not the point, then the whole testimony is irrelevant.

The point is whether we are to pay for the over-run, and that is covered either by the words of the contract standing alone, or by the words of the contract implemented by usage. My learned friend has not chosen to allege usage.

Mr. St. Laurent:—It is not merely a matter of usage ; it is something established by the regulations. There is a table of measurements set up, and it is an official table of measurements.

MARSHALL C. SMALL (for Plaintiff) Examination in chief.

His Lordship:—If you want to prove it, I think you would have to allege it.

By Mr. St. Laurent, continuing:—

Q.—What is the expression "thousand feet B. M.", with reference to logs?

Mr. Geoffrion:—We admit it is "Board Measure".

Mr. St. Laurent:—But, I am not examining my learned friend. I am examining the witness.

Mr. Geoffrion:—I am giving you an admission.

Mr. St. Laurent:—But, the admission is not a part of the Record.

By Mr. St. Laurent, continuing:—

Q.—What is meant by the expression "Thousand feet B. M." with reference to logs?

A.—Board measure.

Q.—How is that ascertained with respect to logs in the round?

Mr. Geoffrion:—That is the same thing again.

His Lordship:—I think it is the same thing.

Mr. Geoffrion:—Either it is useless to my learned friend, or it is something he wants to get.

Mr. St. Laurent:—The witness, who is an experienced man, can tell us how the measurement is obtained.

Mr. Geoffrion:—Possibly he can tell us, but my submission it is a matter that should be alleged.

Mr. St. Laurent:—We have alleged those logs were sold by the thousand feet board measure, and we have alleged the Defendant measured the sawn lumber, and that is not the method — that the method is to measure the logs in the round, and that

the sawn lumber gives an over-run. Your Lordship will find this covered in Paragraph 33.

His Lordship:—Your statement is that it is covered by the Pleadings.

Mr. St. Laurent:—"Defendant has refused to abide by its undertaking in this regard and has charged the Plaintiff on the basis of the sawn lumber, instead of in the round".

Mr. Geoffrion:—The whole Allegation is:

> "Defendant agreed to furnish the said Plaintiff with logs in the round at McCabe's Mill, at $20 per thousand feet board measure, Quebec Log Scale, but it has refused to abide by its undertaking in this regard, and has charged the Plaintiff on the basis of the sawn lumber instead of in the round".

There is no usage alleged on that point. My learned friend is trying to bolster up a case based on an express contract by trying to base it on an entirely different footing : an implied contract. Which is not alleged. Paragraph 33 is a clear case of expressed contract.

Mr. St. Laurent:—But it is not an Allegation that the words "Quebec Log Scale" were used in making the contract. It is an Allegation that it is the legal effect of the contract.

Mr. Geoffrion:—Then, if I say "I made a contract to the following effect....." I can prove all the usage in the world.

Mr. St. Laurent:—It is proving the only way in which the "thousand feet B. M." as applied to logs can be ascertained.

Mr. Geoffrion:—By usage, or otherwise.

His Lordship:—I think it is sufficiently close to Paragraph 33 that I could take the evidence under reserve.

By Mr. St. Laurent, continuing:—

MARSHALL C. SMALL (for Plaintiff) Examination in chief.

Q.—How are the feet board measure ascertained when dealing with logs in the round?

A.—There is only one rule for measurement of logs in Quebec, and that is the Quebec Log Scale.

Q.—And, how do you do it ? What is the physical operation you perform?

Witness:—To reach the measurement?

Counsel:—Yes.

A.—Logs under 18 feet in length.....

Mr. Geoffrion (interrupting):—Is that the practice, or the Regulation?

Mr. St. Laurent:—The Regulation.

Mr. Geoffrion:—If it is something which is in writing, my objection to the evidence would be all the stronger. It is not mere custom ; it is law.

Mr. St. Laurent:—It is law, just as 16 ounces to pound is law.

Mr. Geoffrion:—You do not need to bring a witness to establish that 16 ounces to the pound is law.

I now learn it is in the Statute, or Regulation, and I would rather have the Statute or the Regulation.

By Mr. St. Laurent:—

Q.—Will you file with your evidence, to that the accuracy thereof may be checked, a copy of the Lands and Forests Act, to which is annexed as an Appendix the Regulations dealing with Woods and Forests, and in which Regulations is contained the table which is the Quebec Log Scale?

Mr. Geoffrion:—He need not file it in support of his testimony. If it is a public document we do not need any testimony at all on it.

Mr. St. Laurent:—It is a convenient thing to have. Neither my learned friend nor I carry around the details of those things in our minds.

Mr. Geoffrion:—In any event, you will furnish us with the document?

Mr. St. Laurent:—We will file it as Exhibit P-94.

By Mr. St. Laurent, continuing:—

Q.—For our enlightenment and convenience will you state how it is applied to logs less than 18 feet in length?

Mr. Geoffrion:—Same objection.

Witness:—Logs less than 18 feet in length are measured by taking the length of the log, and the diameter at the small end inside the bark.

Q.—And, with respect to logs of 18 feet and over in length, how are they measured?

A.—The small end, and the large end, of the three are measured, and the two added together, and divided, and the result is the diameter of the log.

Q.—For purposes of convenience there is set out opposite each diameter, with the given length, the feet in board measure in the scale?

A.—Of each piece, yes

Cross-examined by Mr. Geoffrion, K. C., of Counsel for Defendant:—

Q.—What part of the river Lièvre do you say you know?

A.—The upper part.

Q.—Where does your knowledge begin, and where does it stop?

A.—I have been into the river from the Transcontinental, down I should imagine 30 or 40 miles.

Q.—Can you give me some landmark to locate where it strikes? Any village, or town?

A.—No, I could not. I did not reach any town.

Q.—You did not reach civilization?
A.—No.
Q.—You were far above Cedar Rapids and High Falls?
A.—Yes.
Q.—How many miles up?
A.—I could not say without looking at the map.
Q.—Hundred of miles?
A.—I could not say.
Q.—You say you drove down about thirty miles from the Transcontinental?
A.—No, I canoed down.
Q.—About thirty miles down?
A.—Yes.
Q.—Thirty miles following the course of the river not as the crow flies?
A.—In the river.
Q.—Did you do it once, or twice?
A.—I just make one trip, to look at a timber limit.
Q.—How many years ago was that?
A.—Seven or eight years ago.
Q.—You stated that in log driving men are employed to watch the logs, see how they behave, and help them along when they slow up or get in eddys?
A.—I do not think I said that.
Q.—I thought that was the effect of your statement. I took it to mean that when you make a drive you have to employ men to follow the logs and help them along?
A.—No. I said men were kept on the river at dangerous places, to keep the logs moving.
Q.—What do you call dangerous places?
A.—Where they would be liable to stop and cause jams.
Q.—Jams occur frequently?
A.—At certain places, yes.
Q.—And, when the jam has an opportunity to form, dynamite has to be resorted to?
A.—Not always.
Q.—Sometimes you can release them log by log?
A.—Yes.
Q.—Jams are something that happen in log driving?
A.—Yes.
Q.—And this occurs where the river narrows up, or get shallow?
A.—Or a boulder.

MARSHALL C. SMALL (for Plaintiff) Cross-examination.

Q.—Obstacles in the river?

A.—Yes.

Q.—Then there is an endeavour by the men in charge, and the men on the work watching those places, to try to take care of them?

A.—Yes. Everybody knows their river fairly well.

Q.—And, if a jam can be taken in time it may be prevented ?

A.—Yes, Sometimes.

Q.—When it begins to form it can be untangled without dynamitting?

A.—Yes.

Q.—By removing some of the logs?

A.—They pinch the logs with a peavey or cant dog, and push them out.

Q.—A peavey is a kind of hook?

A.—A hook on the end of a pole. Every driver carries a cant dog or peavey.

Q.—And, by pulling some of the logs out they may break the jam?

A.—Yes.

Q.—I suppose when you release the upper ones the others have a tendency to come up?

A.—Yes. It is usually the under log that causes the trouble. They call it the key log in those jams.

Q.—That key log, or under log, has been shoved down by the other logs ?

A.—Yes, when they roll on top of it with the current.

If they get the key log out, it is all right.

Q.—And, that is the usual way of undoing jams?

A.—Yes. They used boats also, for the centre of the river.

Q.—Those men in the boats also have the cant dogs, or hooks, or whatever you call them?

A.—Yes.

Q.—And, in a very serious situation they use dynamite?

A.—That is so, yes.

Q.—But, it is more infrequently?

A.—It is not very logical to use it, because you smash the wood.

Q.—So, it is not dont, if you can do it otherwise?
A.—Yes.
Q.—You try to disentangle the logs otherwise?
A.—Yes.
Q.—And, you generally succeed?
A.—Yes ; but there are cases in which, to save time, dynamite is used.
Q.—As regards the measuring you spoke of : at what sawmills have you had experience with comparing the measurements of sawn lumber with log measure?
A.—Recently at the Madawaska Corporation mill, at Carleton, Gaspé.
Q.—In the Baie des Chaleurs?
A.—Yes.
Q.—Whose mill is that?
A.—The Madawaska Corporation.
Q.—Is that where the fifteen million feet were sawn?
A.—Yes.
Q.—It is a very large mill?
A.—A good size mill.
Q.—A modern mill?
A.—Yes.
Q.—What sort of saws?
A.—Bandsaws.
Q.—What other mills had you experience in?
A.—Several other mills. For instance, we have our own mill at Pembroke.
Q.—And, you had the percentage of over-run you mentioned at your mill in Pembroke?
A.—Our logs in Ontario are under the Doyle Rule. They are not under the Quebec Rule.
Q.—Then, let us come back to a place where the Rules are the same, and you can compare. Have you any other Quebec mills in which you had experience?
A.—Yes. There is a small mill at Lessard, on the Transcontinental. That is a circular mill. It belongs to Howard Bienvenue.
Q.—Did you make any comparison there?
A.—Not except from the quantity of logs, and the lumber they have made.
Q.—You personally do not know?
A.—No.

MARSHALL C. SMALL (for Plaintiff) Cross-examination.

Q.—Have you any others?
A.—No, not of being with the mills and making measurements. At the same time, it is generally known in the trade.

By Mr. St. Laurent:—

Q.—What about Grande Mère and Price Brothers?

Mr. Geoffrion:—He can tell us if he made any measurements there.

Witness:—In the days of Price Brothers our over-run was around 20%.

By Mr. Geoffrion:—

Q.—What mill was that?
A.—The Matane Mill.
Q.—A big mill?
A.—Yes, a good size mill.
Q.—What sort of saw?
A.—A circular saw.
Q.—What is the capacity of the Madawaska Mill?
A.—140,000 feet a day.
Q.—What is the capacity of the Matane Mill?
A.—Around 60,000 feet.

Those are days of eleven hours.

Q.—And, how many hours in the Madawaska Mill?
A.—Eleven hours.

And further deponent saith not.

DEPOSITION OF JOHN C. REIFFENSTEIN

A witness examined on behalf of the Plaintiffs.

On this twenty second day of February, in the year of Our Lord one thousand nine hundred and thirty three personally came and appeared John C. Reiffenstein, of the City and District of Montreal, Engineer, aged 35 years, a witness produced and examined on behalf of the Plaintiff, who, being duly sworn, deposes as follows:

Examined by Mr. St. Laurent, K. C., of Counsel for Plaintiff:—

Q.—How long have you been an engineer?
A.—I started about 1919 on engineering work.
Q.—With what Companies or firms have you been?
A.—I worked four summers for the Department of National Defence in their Topographical Survey, as level man.

I was with the Wayagamac Pulp and Paper Company for three years as instrument man, on various surveys, and as Resident Engineer on Road Construction and on other work such as driving dam and river improvements.

Q.—Road construction, driving dams, and river improvements?
A.—Yes.
Q.—What was this road construction?
A.—It was just a dirt road. It was not a paved road.
Q.—An automobile and trucking road through the forest?
A.—It was built principally for wagon driving, but to haul heavy loads over it we had to have a good grade and a fairly good surface.
Q.—What was the nature of those river improvements?
A.—Dams to facilitate floating logs.
Q.—And, what did you do after that?
A.—Then I went with the St. Lawrence Paper Mills. I was on construction there for a year.
Q.—In what capacity?
A.—As Assistant to the Resident Engineer on mill construction.

J. C. REIFFENSTEIN (for Plaintiff) Examination in chief.

By Mr. Geoffrion:—

Q.—Where?
A.—At Three Rivers.

Then I was up at Shawinigan Falls, as Resident Engineer on the construction of some bridge piers for the C. P. R. I was only there about two and a half months.

Then I was with the Atlas Construction Company, on the construction of some concrete cribs for the Bickerdike Pier in the Harbor of Montreal.

By Mr. St. Laurent, continuing:—

Q.—In what capacity were you there?
A.—As engineer for the contractor.
Q.—And, what did you do after that?
A.—Then I went down to Newfoundland, as instrument man on a survey there.

From there I went up to Cedar Rapids, on the construction.

Q.—You went up to Cedar Rapids for the Bishop Construction Company?
A.—Yes. I was also in Newfoundland for the Bishop Construction Company.
Q.—You were brought from Newfoundland to the Cedar job by the Bishop Construction Company?
A.—Yes.
Q.—When did you arrive on the job at Cedar?
A.—On or about November 4th. I am not definitely sure of the exact date, but I know it was about that time.
Q.—What year?
A.—1928.
Q.—In what capacity?
A.—As Resident Engineer for the Bishop Company.
Q.—How long did you occupy that position of Resident Engineer at the Cedar works?
A.—Until about May 10th, 1930.
Q.—From November 4th, 1928, to about May 10th, 1930?
A.—Yes.

Q.—Had the work been started when you arrived, on November 4th, 1928?

A.—Yes, some work had been started there. A derrick had been set up to take out the excavation, and there was a gang of carpenters at work on the temporary buildings on the south shore .

Q.—Did you reside right there during the whole course of the work?

A.—Yes, I was there at Cedar Rapids. For the first month I lived at the Village of Notre Dame du Laus, about a mile and a half away from the job ; but, the rest of the time I lived right at the site of the works.

Q.—And, you were there all the time?

A.—I was there all the time, with the exception of perhaps a day or two now and again.

Q.—But, there was no interruption?

A.—No long interruption.

Q.—How long may you have been away altoghether during the course of those eighteen months?

A.—Possibly three or four weeks.

Q.—A day or two at a time, and possibly three weeks in all ?

A.—Yes.

Q.—And, that would be over the eighteen months period?

A.—Yes.

Q.—As Resident Engineer what had you to do with the measurements and the keeping of records, and the location, etc.?

A.—I had nothing to do with the laying out of the work. That was done by the owners' engineer.

Q.—Did you do any engineering work there, or keep any records of what was going on?

A.—I kept track of the quantities of work done, in order to check the Resident Engineer's estimates.

Q.—Had you anything to do with the preparation of the plan a blueprint of which has been filed here as Plaintiff's Exhibit P-37?

A.—Yes. I prepared this plan.

Q.—Is it drawn to scale?

A.—Yes.

Q.—It shows the positions of the various cribs?

A.—Yes.

Q.—What is meant by the dates that are written on each of those cribs?

A.—The two shore cribs — the north shore, and the south shore — the dates on them are the dates of completion of those cribs. The others are the dates on which the cribs were placed, with the exception of No. 5, which was built in place. The date on No. 5 is the date it was completed.

Q.—So, with respect to the north shore crib, March 27th, 1929, is the date that crib was completed?

A.—Yes.

Q.—And the date March 18th, 1929, on the south shore crib, is the date that crib was completed?

A.—Yes.

Q.—The date June 15th, 1929, appears on crib No. 1. That was the date it was let down and seated at that place?

A.—Yes.

Q.—No. 2, July 16th, 1929 That was the date it was let down and seated in that position?

A.—Yes.

Q.—Crib No. 3, July 22nd, 1929. That was the date it was let down and seated in that position?

A.—Yes.

Q.—Crib No. 4, August 3rd, 1929. That was the date it was let down, and seated in that position?

A.—Yes.

Q.—Crib No. 5, you say, was built right where it is?

A.—Yes, built right there.

Q.—And, August 10th, 1929, was the way it was completed?

A.—Yes.

Q.—What is this rectangle marked "B-D", at the north shore crib?

A.—That was a sort of shaft which we dug. That was dug to try to locate a leak which we thought was coming through this corner.

Q.—You were in Court when Mr. Steele gave his evidence yesterday?

A.—Yes.

Q.—Is that the shaft he was speaking about, that he went down into?

A.—So far as I know.

Q.—Is that the shaft that was above the crib work?

A.—Yes that is the shaft?

Q.—Is is correctly located on your plan?

A.—Yes, sir.

Q.—The position in which that shaft was on the works is correctly shown on this plan by the lines B-D?

A.—Yes.

Q.—I understand at that time the cribs had all been put in, and the sheathing put on. What effect had that had on the level of the water?

A.—It raised the water very considerably above the cofferdam.

Q.—The placing of the sheathing raised the water?

A.—Yes.

Q.—Did that have any effect on the shore line of the river ?

A.—Certainly. It moved the shore line of the river back.

Q.—And, had that taken place when this shaft B-D was put down ?

A.—Yes.

Q.—Have you a chart on which you have shown by a graph the effect of the placing of the cribs on the level of the water?

A.—Yes.

Q.—Will you file this chart as Plaintiff's Exhibit P-95 ?

A.—Yes.

Q.—I understand on the left hand side you have the gauge readings. Did you have a gauge in the river there?

A.—Yes.

Q.—Where was the gauge?

A.—At first it was on the north shore crib of the cofferdam. Then when we started putting in toe filling in there I moved it out in the river, on a small crib which we had to protect the intake for our water supply pumps.

Q.—Who used to read that gauge?

A.—I used to read it, or my rodman used to read it.

Q.—I understand you have here a table showing the elevations, 94, 95, 96 and so on, upwards?

A.—Yes.

Q.—And, the lower line shows the months of April, May, June, July, and so on — April to December, inclusively, 1929?

A.—Yes.

Q.—What is the lowest line? The green line, which intersects the writing at the bottom?

A.—Those are the readings of the second gauge, which I placed some distance down below the lower cofferdam after the upper cofferdam was first put in place.

Q.—What is indicated by the red line?

A.—The red was the gauge I had on one of the piers in the bypass.

Q.—What is indicated by the black line?

A.—The black line was the level of the river in the big pool above the coffer, after the cofferdam was placed. Before, it was just the natural level of the river.

Q.—I understand each square indicates, in the vertical direction, one tenth of a foot?

A.—Each small square.

Q.—Each small square indicates one tenth of a foot, in the vertical direction?

A.—Yes.

Q.—And, each small square indicates one day of the month, in the horizontal directions?

A.—Yes.

Q.—So, your black line — and that is the one we are most concerned with — shows that were the actual readings on your gauge on the days in question?

A.—Yes.

That gauge was only read once a day, and the points shown.

Q.—The point shown on the gauge was put on this chart, and it is those points which together form the black line?

A.—Yes.

Q.—I see at the end of July the last crib was placed, and the elevation of the water shot right up from 98½ to 107½ roughly?

A.—Yes.

Q.—And, at that time you commenced to take readings of the elevation of the water in the by-pass?

A.—Yes.

That gauge was on one of the concrete piers for the Stony Gates.

Q.—One of the concrete piers which ultimately formed part of the permanent dam?

A.—Yes.

Q.—When Mr. Steele went there, after Mr. Bishop got back from Newfoundland and went to the hospital, the main

section of the river had been closed, and the water had gone up to this high elevation?

A.—It was on the way up.

Q.—It went up from the second of August to about the 24th of August?

A.—About that, yes.

By Mr. Geoffrion:—

Q.—Is the scale the same for the three levels?

A.—The vertical scale is the same for the three levels.

Q.—The same basis of measurement for the three?

A.—Yes.

By Mr. St. Laurent, continuing:—

Q.—So, when the water shot up in the main river to 107 the elevation at which it was flowing by the pier in the by-pass is shown by the red line on Exhibit P-95?

A.—At the point where the gauge was.

By Mr. Geoffrion:—

Q.—The gauge was on the pier?

A.—Yes.

By Mr. St. Laurent, continuing:—

Q.—And, the pier was in the line of the permanent dam, and formed part of the permanent dam?

A.—Yes.

Q.—So that the difference between the level of the water in the river and that point was the difference between the black line and the red line on Exhibit P-95?

A.—Yes.

Q.—That would indicate, then that there was a slope from the top end of the by-pass to this pier, of the number of feet shown by Exhibit P-95?

A.—Approximately, yes.

Q.—Had any excavating been done when you arrived on the job?

A.—I am not absolutely sure of that. I think they had started, and done a little, but very little.

Q.—Very little, if any?

A.—Very little, if any.

Q.—Did you see the material which has been called hardpan in this case?

A.—Oh, yes.

Q.—Will you briefly describe what it was?

A.—It was a hard mass of material, composed of boulders, gravel, and partially cemented with a fine mixture of clay.

Q.—What had to be done with it in order to handle it with this heavy duty orange-peel?

A.—We had to drive holes, and dynamite it.

Q.—Did you see this orange-peel being dropped on it, and attempting to grapple with it, without breaking it up?

A.—Yes.

Q.—What happened to it?

A.—It would hardly scratch it.

Q.—Did you take measurements of the quantity of excavation that had to be performed in this material?

A.—Yes.

Q.—And, did you plot your cross-sections on charts which you have here?

A.—Yes.

Q.—You have now before you the charts on which you plotted your cross-sections from which you made your calculations to determine the respective quantities of what you treated as hardpan, and of earth, both in the by-pass and in the dam excavations?

A.—Yes.

Q.—What did you find to be the yardage of hardpan in the by-pass excavation?

A.—4600 cubic yards.

Q.—What did you find to be the earth excavation in the same by-pass?

A.—5049 yards.

I did not calculate the volume of the earth in that case. I deducted the volume of hardpan from the estimate of the Resident Engineer of the volume of work.

Q.—As I understand it, what you did was to calculate the total excavation, and then calculate what you treated as hardpan (and which you found to be 4600 yards), and you left the difference as the earth?

A.—Yes.

Q.—How did your total quantity check with the quantity of the Resident Engineer?

A.—It checked very closely with total quantity.

Q.—Is it possible for two engineers measuring or cross-sectioning an uneven surface to get exactly the same figures?

A.—It is possible, but it is not very probable.

Q.—I understand your observation points are picked more or less at random, and one man may put his instrument a little higher up, or a little lower down, than the other man?

A.—Yes. Even if you all use the same points, you probably would not agree on the final figure.

Q.—Because of the irregular contour of what you are measuring?

A.—Yes.

Q.—It is not practical, is it, to measure every point ? You measure a certain number of points, and connect them together?

A.—We measure the points which we think will give us the closest approximation to the shape of the section.

Q—And, you plot that approximation on your charts, and by triangulation you get out your quantities?

A.—We usually use a perimeter to take the areas of those sections, and from the areas we calculate the volumes.

Q.—Have you here the Engineer's estimate No. 13, showing his total quantity for the by-pass?

A.—Yes.

Q.—What do you find the total excavation allowed by the owners' Engineer for the by-pass?

A.—9649 cubic yards.

Q.—I understand your own calculations came so close to it that you did not dispute it, but took 9649 yards?

A.—Yes.

Q.—Of which you calculated that 4600 yards was hardpan, and the rest was the earth?

A.—Yes.

Q.—In order to make that calculation you put on your chart a line to which you considered the hardpan as reaching?

A.—Yes.

Q.—What result did you get for the quantity of hardpan in the dam excavation, or in the excavation for the dam itself?

A.—8335 yards.

Q.—What did you get as a total treated as earth excavation by the owner's Engineer?

A.—14,140, as per their estimate No. 13.

Q.—Their estimate No. 13 shows 14,140?

A.—Yes.

Q.—How did your own cross-sectioning and calculations compare with that?

A.—I do not remember my total figure, but it was very close to that.

Q.—So close that no dispute was raised?

A.—Correct.

Q.—You found by the same method that 8335 yards, of the 14,140 yards, was hardpan?

A.—Yes.

Q.—And, you have your cross-sections here, to give any further explanation on the manner in which you distributed the common earth, and the hardpan, if my learned friends wish to have it?

A.—Yes.

Q.—With respect to the yardage of rock excavation, a claim is made in Paragraphs 22 to 26 inclusively of the Declaration. Where do we get the 21,565 cubic yards of rock excavation ?

A.—It is taken from the Resident Engineer's estimate No. 19.

Q.—How is it made up in estimate No. 19 ?

A.—It is made up of an item, rock, 20,869 cubic yards ; and then, between elevations 85 and 77 in the by-pass (Stony Gate Section), there are 276 cubic yards ; between elevations 77 and 71, in by-pass 98 cubic yards ; below elevation 78, in the river — that is the main channel — 321 cubic yards.

Q.—That totals 21,564 yards?

A.—Yes.

Q.—So, in claiming 21,565 yards in the Declaration we made a mistake. It is only 21,564 the owner's Engineers estimate shows?

A.—Yes.

Q.—What was the estimated quantity?

A.—The estimated quantity was 8060 yards.

Q.—And, the actual quantity shown by the owner's Engineer was 21,564?

A.—Yes.

Q.—I understand the accounting of the cost was kept by Mr. Griffiths?

A.—Yes.

Q.—You gave him your figures with respect to all that?

A.—I gave him the quantity of work done, for him to show on his Monthly Summary.

Q.—And the quantity in material?

A.—No ; I have nothing to do with the material, except as regards cement, sand and stone for the concrete, and reinforcing steel, and structural steel.

Q.—Let us now pass to Claim No. 7 : frozen material in river bed. Where in the owner's Engineers estimate do we get the figures with respect to the exact quantity of material that was taken out from the river bed?

A.—Nos. 14 and 15.

Q.—Estimate No. 14 shows what quantity taken out?

A.—710 cubic yards.

Q.—When?

A.—During the month of November.

Q.—710 cubic yards taken out in November?

A.—Yes.

Q.—Do you remember during what part of November that was taken out?

A.—That would be in the latter part of November.

Q.—Where does the rest show?

A.—The rest shows in certificate No. 15, for December.

Q.—How many yards for December?

A.—101 cubic yards in December.

Q.—That is, 811 cubic yards for the two months? And that is the figure shown in Paragraph 30 of the Declaration?

A.—Yes.

Q.—In what condition was that material when it was taken out ?

A.—It was frozen.

Q.—What had to be done to it in order to take it out?

A.—We had to blast it.

Q.—Was that done in your presence?

A.—Not all of it. I saw them working on it at various times.

Q.—Did you see them carrying out the blasting operations?

A.—Oh, yes, I saw them using dynamite there.

Q.—The next thing I want to take up with you is the yardage of concrete which we claim was poured under winter conditions. My understanding is estimate No. 19 gives you the total quantity ?

A.—Yes.

J. C. REIFFENSTEIN (for Plaintiff) Examination in chief.

Q.—Will you please state the figures, for the Record ? What is the total quantity shown on Estimate No. 19 for Class 2 concrete?

A.—1272 cubic yards.

Q.—And, for Class 1 ?

A.—30,437.

Q.—And, that estimate No. 19 is of what date, or up to what date?

A.—Up to the end of April, 1930.

Q.—What was the amount that had been poured up to the 31st of October, as shown by estimate No. 13 ?

A.—The total quantity was 16,362 cubic yards. That is all classes.

Q.—How is it divided?

A.—There were 16,041 cubic yards of Class 1, and 321 cubic yards of Class 2. I think that arithmetic is correct.

Q.—So that the difference between what had been poured up to the 1st November, and what was shown by estimate No. 19 at the end of April, would be 14,396 cubic yards for Class 1, and 951 cubic yards for Class 2?

A.—Yes.

Q.—That is the quantity of concrete shown by the owner's Engineer as having been poured between the first of November and the end of April?

A.—Yes.

Q.—Those are the figures which are shown in Paragraph 32 of the Declaration?

A.—Yes.

Q.—Can you tell us how much of that was poured during the month of November? You should have it in Estimate No. 14.

A.—1482 cubic yards : all classes. 67 cubic yards of Class 2, and 1415 cubic yards of Class 1.

Q.—Will you look at estimate No. 19, and tell us how much was poured during April? This estimate shows the total including April, but I would like to know how much was poured during April?

A.—301 cubic yards.

Q.—Of both classes?

A.—All class 2.

Q.—No class 1 poured in April?

A.—No.

Q.—Do you remember giving monthly to Mr. Griffiths the tonnage of the structural steel erected each months?

A.—Yes, sir, I gave him those quantities each month.

Q.—Do you remember whether or not you verified the entries of those quantities he made on his Monthly Summaries ?

A.—I usually entered those quantities on the Monthly Summary myself.

Q.—I suppose you cannot tell us from memory what the quantities were?

A.—No.

Q.—But, can you say the figures which Mr. Griffiths has on his Summaries were properly taken and properly entered ?

A.—I entered them myself.

Q.—Did you make proper calculations at the time?

A.—I calculated those weights from the Dominion Bridge Company's drawings.

Q.—As far as you were able to get them, are they accurate ?

A.—Yes, they are reasonably accurate.

Q.—So, we will have to get the details of the 470.36 tons from Mr. Griffiths. He has the details for each of the months of November, December, January, February, and March?

A.—Yes.

Q.—Prior to the placing of crib No. 4 what was the minimum width of the opening there was at any time in the main channel of the river?

A.—About 28 feet.

Q.—What was the width of the permanent log sluice provided in the finish work?

A.—10 feet, if I remember rightly. That could be verified from the drawings.

Q.—I notice there are three log sluices shown on the drawing No. 2571 of Exhibit P-2. What is the width of each opening ?

A.—I do not see any dimension given on this.

Q.—Can you determine it by the scale?

A.—10 feet, by scaling.

Q.—I notice there are three of them, and in each one figures are given. In the left hand one, it is 109 ; the next one is 116 ; and the third, 123. What do those figures mean?

A.—Those are the elevations of the fill at the bottom of the sluice.

Q.—What does that mean in practice as to the possibility of using them?

A.—When the water is high you use the highest ones and you do not have to get too much water through your sluice. When the water goes down, and there is not enough water coming through the upper one, you use the next one.

Q.—They are intended not to be used simultaneously, but alternatively, according to the level of the water in the pond?

A.—That is what I would gather from it.

Q.—That is what you would gather from the manner in which they are built?

A.—Yes.

Q.—What was the minimum width of the opening of the by-pass at any time after the cofferdam was put completely across the river?

A.—The by-pass itself — that is, the earth channel — the minimum width was 35 feet. At the piers and the main structure of the dam it was 24 feet.

Q.—How many openings were there in the by-pass between those piers?

A.—There were four openings in the by-pass. Four 24 foot openings.

Q.—The by-pass widened out at that place, and there were four 24 foot openings?

A.—Yes.

Q.—And, the narrowest point was 35 feet?

A.—Yes.

Q.—Will you look at the book of photographs containing Exhibits P-67 to P-92 inclusively, and will you say by whom those photographs were taken? I understand the last ones, showing the completed job, were taken by a commercial photographer ?

A.—Yes.

Q.—That is, the four which constitue Exhibit P-92 were taken by a commercial photographer?

A.—As far as I know. I did not take them, or I did not see them taken.

Q.—What about the others?

A.—I took P-91.

Q.—With respect to the others, may I take it that you either took them yourself or had them taken by your assistant ?

A.—I did not have them taken by my assistant. He took them for his own information and pleasure. He had a small camera, with which he took them ; and these are enlargements from his pictures.

Q.—Who made up the list Exhibit P-93?

A.—I marked each picture with its date, and its title, and when they were stuck in the book this list was made from that.

By Mr. Geoffrion:—

Q.—Where are the dates marked in the book?

A.—They are marked on the backs of the pictures.

By Mr. St. Laurent, continuing:—

Q.—You put the dates on the backs of the pictures, and the list Exhibit P-93 is made up from those dates?

A.—Yes.

Q.—In view of the fact that you say you did not have them taken, we will start at the beginning. Will you tell us those you can identify as being photographs taken on the dates mentioned in Exhibit P-93, and representing the condition each photograph shows?

A.—I took Nos. 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, and 34.

My assistant took Nos. 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, and 46.

I took No. 47 myself.

Q.—With respect to Nos. 35 to 46 inclusively, taken by your assistant ; do you recognize them as pictures of part of the works that were in the job under you as Resident Engineer ?

A.—Yes.

Q.—When we looked at Exhibit P-37, the plan of the cofferdams and cribs, you said you had put those dates on yourself. Am I do understand you were there when this work was done?

A.—Yes.

Mr. Geoffrion:—What work?

Mr. St. Laurent—The work of placing the cribs, and the cofferdam.

J. C. REIFFENSTEIN (for Plaintiff) Examination in chief.

By Mr. St. Laurent, continuing: —

Q.—Did any of the holding cables on any of the cribs break at any time?

A.—None of the holding cables on the cribs broke while we were placing the cribs.

Q.—Did any other cable break at any time?

A.—On No. 2 crib one of the guy cables broke.

Q.—Was that the only cable that broke while the cribs were being placed?

A.—That was the only cable I know of that broke.

Q.—Were you there?

A.—I was there most of the time.

Q.—And, if any break had occurred would it have come to your knowledge?

A.—Yes, I think so.

Q.—Have you prepared a chart showing the actual performance of the work, as compared with the progress schedule that had been laid out?

A.—I made a diagram of the progress of the concreting operation as it went along, as compared with what we had hoped to make from the date we started concreting.

Q.—Have you that diagram here?

A.—Yes, I have.

Q.—I notice it is a chart consisting of two sheets, one covering from May to October, 1929, and the other from November 1st, 1929, to the end of April, 1930?

A.—Yes.

Q.—On those two diagrams there is, first of all, a red line running diagonally from the lower left hand corner towards the upper right hand corner?

A.—Yes.

Q.—What does that red line represent?

A.—It represents progress at the rate of about 4500 cubic yards a month.

Q.—What does the black line represent?

A.—The black line represents the actual progress we made.

Q.—Does each square horizontally represent one day of the month?

A.—Yes.

Q.—And, each square vertically represents one hundred yards?

A.—One hundred cubic yards.

Q.—The black line on the first sheet of the plan hugs the red line pretty closely up to July 31st, 1929?

A.—Yes.

Q.—Then, during August it commences to fall away from the red line, and during September and October it falls very far away from it?

A.—Yes.

Q.—Will you file these two sheets as Exhibit P-96?

A.—Yes.

Q.—From the end of November you start a new red line ?

A.—Yes.

Q.—And that is followed pretty closely up to the middle of March?

A.—Yes.

Q.—After the middle of March what amount and kind of concreting did you have to do there?

A.—We had just a small amount of reinforced concrete in the gatehouse — Class 2 concrete, in small forms.

Q.—The mass concrete had been poured before the black line commences to fall away from the red line in the spring of 1930 ?

A.—Yes.

Q.—Were those charts prepared from day to day?

A.—Yes, each day.

Q.—Each day you put down on those charts what had been accomplished?

A.—Yes.

Q.—And, that makes up the black line?

A.—Yes.

Q.—Can you tell us what was the maximum over-burden found in the river bed? Have you cross-sections of the river bed showing that ?

A.—Yes.

Q.—You now have before you a chart on which you have a large number of cross-sections of the river?

A.—Yes.

Q.—What did you find by actual measurement to be the maximum depth of the over-burden?

A.—9 feet.

Q.—Is there anything else but cross-sectioning of the river bed on this?

J. C. REIFFENSTEIN (for Plaintiff) Examination in chief.

A.—I am not just sure of the extent of those cross-sections, but they are all cross-sections taken for excavation. Some of those are up on the high land.

Q.—Will you file these cross-sections as Plaintiff's Exhibit P-97?

A.—Yes.

Referring to Exhibit P-27, those cross-sections extend from station 0+60 south, to 1+70 south, inclusively.

Q.—And that takes in the log sluice No. 3 on the north side, and goes over to spillway No. 9 on the south side?

A.—Yes.

Q.—Who prepared this plan which has been filed as Exhibit P-27?

A.—I did.

Q.—And, is it in accord with your actual findings on the ground?

A.—Yes.

Q.—Your cross-sections show you got a maximum overburden of 9 feet?

A.—Yes. That is on the downstream side.

Q.—On the downstream side of the upper cofferdam?

A.—On the downstream side of the dam. Those are the excavation we made for the dam.

By Mr. Geoffrion:—

Q.—The maximum of 9 feet is on the cross-section taken on the downstream side of the dam proper?

A.—It is on the downstream end, taken transversely across the river.

Q.—In the line of the downstream side of the dam?

A.—Yes.

Q.—And, that was where you found 9 feet?

A.—Yes.

By Mr. St. Laurent, continuing:—

Q.—Where does it show 9 feet?

A.—1+30 south, and 1+20 south both show 9 feet.

Q.—What is shown by the top black line?

A.—That is the surface of the river bottom, as we found it.

J. C. REIFFENSTEIN (for Plaintiff) Examination in chief.

Q.—In this case would that be the surface of the overburden?

A.—Yes.

Q.—And, what is shown by the green line?

A.—The green line, where it is shown, is the top of the rock surface as we found it.

Q.—And, is the red line the depth to which the excavation was carried?

A.—Yes.

The black is the original bottom of the river, and the green line is the top of the ledge as we found it. Where there is no green line, then the original surface and the original top of the ledge are the same.

Q.—The black line is the original top?

A.—Yes.

Q.—Where there is a green line under it it means the ledge was shown by the green line as it appears in the cross-section. Where there is no green line it means the black line was the ledge?

A.—On these particular cross-sections.

And it being 12.30 o'clock, the further testimony of the witness is continued to 2.30 o'clock in the afternoon.

And further deponent saith not.

J. H. Kenehan,

And at 2.30 P. M. personally came and reappeared John C. Reiffenstein, and his examination in chief was continued by Mr. St. Laurent, K. C., of Counsel for Plaintiff as follows:

By Mr. St. Laurent:—

Q.—Looking at the plan B-2444 on exhibit P-2, can you tell me if you found ledge at any point where ledge is shown in the original channel, on this plan?

A.—Yes, we found it at some points.

Q.—Can you tell me what those points are?

A.—I can point out on the plan approximately where they are. That point seems to be correct.

Q.—You are showing me how it is marked?

A.—883.7.

Q.—It is marked 883.7, and it is between the two parallel lines, and is at about twenty-five feet from the heavy white line that is shown as the north shore line?

A.—It is about thirty feet from the white line shown as the north shore line, and about twenty-three feet east of the face line of the dam.

Q.—Was this first one you spoke of bare ledge, or was there any over-burden above it?

A.—There was bare ledge when we came down to it.

Q.—Is that the only elevation where ledge is shown and that you actually found bare ledge when you proceeded with the unwatering, and with the operation?

A.—That is the only one I can find.

Q.—What is it that you find at the other places where elevations are shown with ledge indicated on B-2444 where your cross section intersects them?

A.—Either they do not agree with the elevation of the ledge as we found it, or else there was over-burden over the ledge at those points.

Q.—Before I pass to another point, I would just like to ask you one other question with respect to exhibit P-96. I see that there is above the red line, 4,500 cubic yards per month. Is that the capacity to which the red line has been plotted?

A.—Yes.

Q.—Up to the 31st July you had poured then 10,591.8 cubic yards of concrete from about the 18th of May?

A.—That would be very close to what we were allowed by the Resident Engineer. I am not sure that that particular figure is exactly the same, but it is very close.

Q.—So close that you had no discussion over it?

A.—No.

Q.—I understand that this figure was taken from your calculations, and that the owner's Engineer gave you something which was so close to it, that you did not have any discussion?

A.—Yes.

Q.—Then, during the month of August, the quantity poured had been increased by about 3,500 yards?

A.—Yes sir.

Q.—At the rate of 4,500 yards per month, up to what time

would it have taken you if there had been no cause of delay intervening, to pour the total quantity which was returned in the final estimate, No. 19 ? I understand that that total quantity is about 31,600 or 31,607 yards — 30,437 of Class 1 and 1,272 Class 2 ?

A.—It would have taken us approximately seven months from the time we started.

Q.—The time you started I think, was the 18th of May?

A.—The 18th of May.

Q.—Up to the 18th of December?

A.—Approximately.

Q.—Was the 4,500 cubic yards per month the most that could be done?

A.—Oh no. We exceeded that in two particular months, in one case 1,700 yards I think, and in the other case about 1,000 yards, or 1,400 yards.

Q.—Have you a chart showing the water levels inside the enclosed space between your upstream cofferdam and your lower stream cofferdam?

A.—Yes.

Q.—You now show me a chart on which you plotted, in the same manner as on the other one, the readings of water gauge between the cofferdams?

A.—Yes, except that this is on a slightly different scale. We took four readings a day on that gauge.

Q.—You took four readings a day, and you plotted the four readings on your chart?

A.—Yes.

Q.—Each day has four squares horizontally?

A.—Each day has four squares horizontally.

Q.—And each square vertically is one-tenth of a foot?

A.—Yes.

Q.—And the zig-zagging line shows the variations in the elevation of the water between the cofferdams?

A.—Yes.

By Mr. Geoffrion:—

Q.—That is when the cofferdam was placed?

A.—Yes, after we started the dam.

Q.—When you finished the placing of your pumping?

A.—Yes.

J. C. REIFFENSTEIN (for Plaintiff) Examination in chief.

By Mr. St. Laurent: —

Q.—You got down to 77 and a fraction on the 19th December ?

A.—Yes.

Q.—Will this chart or any other one you have, enable you to fix the date when you got started on construction work on that section of the dam which was between the cofferdams ?

A.—No. We had reduced the level of the water to a point where we could start working there on the 15th November. We reduced the water level down to 86. and a fraction on the 15th November, which enabled us to do a certain amount on either side of the river.

Q.—And then, when was it that you got the bottom of the river unwatered so that you could go ahead with the preparation of your foundation?

A.—We were continually reducing the water level there and working at the same time up till some time in December when we had it pretty well beaten.

Q.—Can you say on what date in December you got it to a point where you were no longer retarded by the water?

A.—I cannot say definitely from this that date, because we were working all the time in there ; we were reducing the water gradually and pulling it down.

Q.—So your work was following the decreasing elevation of the water ?

A.—Yes.

Q.—And you cannot say whether or not from the 15th November until the 19th December you were making the progress you would have been making, if the water had been there, or can you?

A.—We would have made better progress if we had not had the water there to contend with. We had to continually make arrangements to take the water down a bit lower as we went along.

Q.—Can I take it that this is the situation : up to the 15th November you were not able to do anything with respect to that from the 15th November to the 19th of December you did work, but you did not make as good progress as if the water had been right down, and then, on the 19th December you got it down to a point where it no longer interfered with you?

A.—It always interfered with us to a certain extent as long as we had to work in there.

J. C. REIFFENSTEIN (for Plaintiff) Examination in chief.

Q.—Perhaps you would rather put it this way : your unwatering problem had been solved by the 19th December, but you still had to maintain it until you got up above a certain elevation?

A.—Oh yes.

Q.—Will you file this chart as exhibit P-98?

A.—Yes.

Q.—When did this No. 3 Crib move out of position ? What date was it ?

A.—It was the night of July 22nd 1929.

Q.—Were you present on the works that day?

A.—I was present on the works when the Crib was put in position.

Q.—Can you tell us what position it was in when the day shift quit work at six o'clock on July 22nd?

A.—It was in the position that we wanted it.

Q.—Can you say whether, with respect to the sinking of it, it was grounded or not?

A.—No, I could not say. I did not see the bottom of it.

Q.—Could you tell from the action, or inaction, of the Crib, when stone was dumped in, whether it had yet settled, or do you remember anything about it?

A.—I do not remember that very clearly.

Q.—What were the dimensions of that crib?

A.—About 25 x 30.

Q.—Do you remember what the height or depth of it was ?

A.—It would be about 20 feet.

Q.—How much rock would it take to completely load that crib?

A.—About 340 cubic yards.

Q.—Would that be allowing anything off the space for the timbers?

A.—That would be allowing 25 per cent for timbers.

Q.—Is that what is usual in such cases? Is that enough?

A.—It seems about enough in losse rock.

Q.—Is it your opinion, from your experience, that to load that crib would require about 340 yards of rock?

A.—About that, yes.

Q.—How was that rock being handled?

A.—By a derrick.

Q.—How many yards per hour could that derrick handle?

A.—About 20 cubic yards.

Q.—So that it was a matter of about seventeen hours to load the crib?

A.—Yes, to fill it right full.

Q.—When you next saw that crib, after the afternoon of July 22nd, what had happened to it?

A.—It was about fifteen downstream out of its original place.

Q.—Was there anything up against it?

A.—A big pile of logs.

Q.—Were those logs only against one pier, or how did they affect the whole situation there?

A.—They were piled against all the cribs that were there.

Q.—Am I to understand that the river at that point was blocked from side to side with the jam of logs?

A.—Not when I saw it. The logs were piled up against the Crib for a considerable distance back in the river. They were piled in against the Cribs, and extending back up the river and some over in the eddy, above the bypass.

Q.—How far back would they extend?

A.—Five or six hundred feet.

Q.—Can you give us any idea of how many hundreds or thousands of logs were in there ?

A.—I could not say.

Q.—Were you able to ascertain then, or at any other time, how deep this mass of log was where it was up against the cribs?

A.—No, except that we took some logs out of there quite deep down below the surface of the water.

Q.—How deep down?

A.—Seven or eight feet.

Q.—How were they piled up against the crib ? What had happened to them? Did they get into the intersticies of the Crib, or anything of that kind?

A.—They were sticking in between the Crib timbers, and the logs put in there, some of them were sticking up in the air.

Q.—Was there much current there?

A.—Yes, there was a pretty swift current.

Q.—Did that current flow through the open space or did any flow through the intersticies between the timbers and the rocks in the Cribs?

A.—It was going all through the Cribs.

J. C. REIFFENSTEIN (for Plaintiff) Examination in chief.

Q.—How long then, did it take to remove the mass of logs from around there?

A.—I do not remember how long.

Q.—Was it a matter of hours or days?

A.—We were working at that for days to try and get the logs out.

Q.—Were the logs thrown over the cribs, or were they pushed back and sent down to the bypass?

A.—They were pushed out and sent through the opening.

Q.—The opening between the Cribs?

A.—Yes, where No. 4 Crib is.

Q.—After you got the bulk of the logs away in that fashion, can you express any opinion or not, as to whether it would have been safe to put a diver down there?

A.—I would not have liked to go down myself.

Q.—You are not a diver?

A.—I am not a diver. I would not like to ask a man to go down there.

Q.—You would have feared it was dangerous?

A.—Yes.

Q.—Was there any other occasion where you got a nasty log jam?

A.—We had a jam in the by pass.

Q.—When was that?

A.—That was in August, about August 22nd or 23rd.

Q.—How did the things usually occur with respect to these logs : how did they come down and what time of the day or night?

A.—They usually came down at night.

Q.—In what form, just loose stray logs, or in masses of logs ?

Mr. Geoffrion:—Was he there at night?

Mr. St. Laurent:—I will ask him that.

Witness:—I did not see them coming down at night.

By Mr. St. Laurent:—

Q.—Well then, what is it you would see?

A.—Oh, I would see them in the morning.

Q.—And would they be just loose logs floating on the surface of the water, or in what condition would you see them in the morning?

A.—On this particular occasion they were jammed into the bypass and against the piers, and the bypass was very nearly plugged tight. There was very little water going through below the logs.

Q.—How did that affect the level of the water?

A.—It made it rise.

Q.—Does that appear from your chart P-95?

A.—Yes.

Q.—Can you show us the effect of this jam on the bypass, on P-95?

A.—From the morning of August 22nd to the morning of August 24th, the water had risen slightly over two feet.

Q.—From the morning of August 22nd to the morning of August 24th the river in the pond rose about two feet?

A.—Yes.

Q.—And how long did it hang at that elevation or just a tenth or less under it?

A.—The next day it had dropped off about two-tenths, and stayed there for two days and went up a tenth, and started to drop again.

Q.—Is that the time when you got the jam in the bypass?

A.—Yes, that is the time.

Q.—The 22nd of August, or between the 22nd and 24th of August ?

A.—Yes.

Q.—Between the morning of the 22nd and the morning of the 24th ?

A.—Yes.

By Mr. Geoffrion:—

Q.—You cannot say closer than that?

A.—The jam was broken on the morning of the 24th.

By Mr. St. Laurent:—

Q.—Does that enable you to say when the jam occurred? Would it be on the night of the 22nd to the 23rd, or on the night of the 23rd to the 24th?

A.—It was the night of the 22nd to the 23rd.

Q.—But the effect of it was being felt on the morning of the 22nd and 23rd, and continued to be felt on the morning of the 24th?

A.—Yes.

Q.—There is one other point with respect to the elevation you had reached for your excavation in the Stony Gate section, at the time the work of putting in the by-pass cofferdam was started. I understand that that by-pass cofferdam was started on the 5th April 1929?

A.—About then.

Q.—Have you in your notes the elevations which you reached on the 19th March 1929?

A.—We took some cross sections of the original rock in that Stony Gate section on the 19th March.

Q.—At what elevation were you down to?

A.—We were down as far as 93.1 in the sections I took that day.

Q.—Looking at exhibit P-27, that would be about the vicinity of the blue line?

A.—That is approximately.

Q.—Then, on the 19th March you had got down to the original rock surface?

A.—Yes.

Q.—As it is shown on Exhibit P-27 over the cut-off trench?

A.—Yes.

Q.—Have you got another note of elevations taken on the 28th March?

A.—On the 28th March we were down to 92 in the same section as was 93.1 before.

Q.—Down to 92 over this cut-off trench?

A.—Yes, on the same section.

Q.—At station plus 60?

A.—At plus 60.

Q.—In the third spill-way.

A.—Yes.

Q.—You were down to 92?

A.—Yes.

Q.—Have you the date when you got down to, say, 88?

A.—On April 30th we took some sections there which show an 88. That may not be the date we got there. That is the date we took the measurements.

J. C. REIFFENSTEIN (for Plaintiff) Examination in chief.

Q.—You cannot say on what date the excavation of that cut-off trench was commenced?

A.—It would be sometime subsequent to the 30th April.

Q.—Did you examine the quality of the rock when you got down to the original rock surface?

A.—I saw it there. I did not make a particular examination of it.

Q.—You know the trouble was encountered at that place?

A.—I know that the rock was not very good there.

Q.—Can you tell us when it was discovered that there was going to be unusual depth of excavation at that place?

Mr. Geoffrion:—By whom?

Mr. St. Laurent:—By the witness, or by those who were there with him

Witness:—No, I don't know when that was decided.

By Mr. St Laurent:—

Q.—And you have no recollection as to when it first came to your knowledge?

A.—I have not any particular knowledge.

Q.—Why was the wood sheeting put on in front of these cribs which constitute the cofferdam as shown on exhibit P-37 away upstream from the face of these cribs?

A.—On account of the logs that were sticking out from the faces of the cribs.

Q.—What, if anything, was put in between the cribs and the wood sheeting?

A.—You mean in order to put the sheeting there, or after the sheeting was placed?

Q.—First of all, in order to put the sheeting there?

A.—We had a system of struts, walers.

Q.—I understand that is a frame work of quite heavy timbers going out from the cribs on a cross piece along, to which your sheeting was nailed, or was bolted?

A.—Yes, or supported on there.

Q.—What kind of sheeting did you put on at those places where wood sheeting is shown?

A.—We used what is known as Wakefield sheeting, three pieces of plank fastened together to make a tongue and grove.

J. C. REIFFENSTEIN (for Plaintiff) Examination in chief.

Q.—Three pieces fashioned so that the middle piece would stick out on one side and leave a groove on the other side?

A.—Yes.

Q.—What was the thickness of these pieces?

A.—I don't remember exactly, but I think they were two inch plank.

Q.—Was it anything less than two inch plank.

A.—I don't know. It might have been less. I have no recollection of that to say distinctly.

Q.—After this sheeting was put on, was there anything then put in between the sheeting and the front of the cribs?

A.—We put rock in there.

Q.—Was it the same kind of fill that was put in between the sheeting and the cribs as had been put in the cribs themselves?

A.—About the same.

Q.—Then, did you put on this plan P-37 a line showing the approximate edge of the toe fill?

A.—Yes.

Q.—The dotted line?

A.—Yes.

Q.—Had you ever seen as much toe fill put in as that before that cofferdam operation?

A.—I had never seen it on a cofferdam. I had seen timber crib dams with toe fill used on them, but never to anything like that extent.

Q.—What were these dams that you had seen with toe fill, but not to that extent?

A.—Just timber crib dams used to facilitate the floating of logs.

Q.—Were there structures places across the river to intercept the flow of the water?

A.—To store the water.

Q.—And were they effective?

A.—Pretty effective. There was very small leakage to them.

Q.—Can you tell us how many pumps were employed in the effort to unwater the site of the dam in the main channel?

A.—We had twelve pumps altogether which were used on that work, but I think only ten of them were used at one time; two others came in later.

Q.—As a standby?

A.—They replaced pumps we had been using before. They were gasoline driven pumps.

J. C. REIFFENSTEIN (for Plaintiff) Examination in chief.

Q.—They are the pumps referred to in the correspondence where Mr. Bishop says they are going to be used, because they are less expensive, and that steam pumps will be held in readiness should anything happen to them?

A.—.....

Q.—Can you give us the yardage of the toe fill that was placed above the wooden sheeting?

A.—Approximately 11,000 yards.

Q.—What was the effect of placing this toe fill?

A.—It did not do very much good.

Q.—How did you ascertain that it did not do very much good?

A.—Because it did not stop the water going through our cofferdam.

Q.—Did you, after placing this, attempt to pump the cofferdam out?

A.—Oh yes.

Q.—And how far down did you get it?

A.—We were able to lower the water about six and a half feet at one time. That is the best we could do.

Q.—You got it down to elevation 89.2 ?

A.—To 89.2.

Q.—And then, it shot right up again to 94.8 ?

A.—Yes.

Q.—And when you stopped pumping it went back to 95.5 ?

A.—Yes.

Q.—Then, when you tried your second pumping, you got it down to 90.2 ?

A.—Yes.

Q.—And you were unable to get it down any further?

A.—We could not go any lower than that.

Q.—I see it shot right back. When you saw you could not get it down any further you stopped pumping?

A.—In that particular case we pumped in order to place some concrete in pier 30, one of the stop log piers, and when we had that concrete placed we stopped the pumps.

Q.—And it went right back to the former elevation?

A.—Yes.

Q.—Then, the last pumping operation seems to have started on the afternoon of November 14th?

A.—Yes, we started about November 14th.

Q.—And on the 16th, you got it down to about 87 and one half ?

A.—Yes.

Q.—And then, you had more or less success, and you have a note here, "Five steam pumps disabled". What happened to these five steam pumps ?

A.—They broke down temporarily, and the water came up a little bit, and we got running again.

Q.—At what rate were they being run during that time?

A.—They were being run for all they were worth. They were being forced.

Q.—And then, from that point onward you apparently were being successful. There was one little handicap which occurred on the 9th December where it shot up about a foot and a half ?

A.—Yes. We lost a little there.

Q.—And then gradually you got it down to the final elevation of 77.2 ?

A.—Yes.

Q.—On the 19th December?

A.—On the 19th December.

Q.—Were you there when the sheet piling was driven?

A.—Oh yes.

Q.—Can you tell us when the heavy sheet piling which is shown by C-D on the plan P-37 was put in?

A.—The dates shown on the plan showing the profile of the sheet steel piling. I have the sheet number and the dates shown above.

Q.—The sheets were driven from the 4th November to the 16th November?

A.—Yes.

Q.—Will you just see how that compares with your water level. What happened at that period? When is it that you appear to have started pumping? Twelve o'clock noon?

A.—Twelve noon on the 14th.

Q.—And within the 24 hours you had pulled the water down how many feet?

A.—Down to about nine feet.

Q.—Then, when was the light sheet piling put in on the downstream side of the cofferdam?

A.—I cannot say off hand. I think it will show in my note books.

Q.—Well, see if you can give us the date?

A.—I have a note on that other plan there. We were working on that around the 9th and 10th December. I do not say that those are the only days on which we drove that light sheet piling, but we were working at about that date, or on that date.

Q.—Or just after you got the next rise in water?

A.—Yes.

Q.—You saw this cofferdam in the by-pass both being built and being removed?

A.—Yes.

Q.—And did you have anything to do with the distribution of the cost charges on the monthly summaries?

A.—No, not for them.

Q.—Did you give any information to the accountant in that connection?

A.—No.

Q.—Did you say what the material that was removed from the river channel consisted of?

Mr. Geoffrion:—He said it was frozen.

By Mr. St. Laurent:—

Q.—But what was it?

A.—Boulders, gravel, sand and some clay?

Q.—What kind of boulders.

A.—Just boulders, round boulders.

Q.—Were they recently broken by rock, or were they water worn boulders?

A.—Water worn boulders.

Q.—Do you know if any extra cement had to be brought in because of the construction of the apron?

A.—Yes, we had to bring in some extra cement for that.

Q.—And do you know what the condition of the road over which that cement had to be brought in was?

A.—I was not over the roads at that time, but I know the condition of the roads nearer to the job at that time.

Q.—At what season was it?

A.—It was in the late spring. Perhaps I should say early spring and late winter.

Q.—Had they commenced to remove any of the plant when you left the job?

A.—A good deal of the plant was dismantled, but none of it had been removed.

Q.—And you said that you left in May?

A.—In May.

Q.—Of course, there were no winter roads at that time?

A.—Oh no.

Q.—They had to wait till the following winter to get winter roads to remove the plant?

A.—Yes.

Q.—Did you have anything to do with the preparation of this part of the claim which deals with the standby and overhead expenses during the delay?

A.—No.

Q.—You were there when the winter concreting was being done ?

A.—Yes.

Q.—Were there any precautions being taken at that time which were not taken during the summer concreting?

A.—We had to heat the materials, sand, stone and water, and we also had to keep the concrete covered up and warm after it was placed, using stoves, salamanders and tarpaulins to cover it, and also shavings.

Q.—Was there any difference in the length of time that the forms had to remain on?

A.—We had to keep our forms on about two weeks.

Q.—And during the concreting under ordinary weather conditions, how long did the forms remain on?

A.—Just a few days — two or three days.

Q.—Before placing any concrete during the winter concreting, did you have to do anything special as to preparation for the foundation?

A.—We had to clear off the cover of the material.

Q.—I will put the direct question. I don't know whether it was done. In some of these cases, I understand that before pouring concrete under winter conditions they make you even warm the foundation with steam. Did you have to do that?

A.—Oh yes, we had to go over the rock foundation with steam to remove any ice.

Q.—To get a good joint between the rock foundation and the concrete?

A.—Yes, surely.

Q.—Is that something which has to be done under ordinary weather conditions?

A.—Not in the summer time.

J. C. REIFFENSTEIN (for Plaintiff) Cross-examination.

Q.—Have you got your progress schedule showing the dates when each piece of concrete was poured?

A.—Yes.

Q.—I understand you prepared a chart which shows the actual dates when each block of concrete, separately coloured, was poured?

A.—Yes.

Q.—Will you file that progress schedule as exhibit P-99 ?

A.—Yes.

Q.—And there are four or five different colours used on this?

A.—Yes.

Q.—And each blocked off mass is of one colour, and there is a date on it. Does that mean that that is the actual date when that concrete was poured?

A.—Yes.

Q.—As taken from your records?

A.—Yes sir

Q.—I understand that the same colours are used on various dates, and the purpose of putting them in there is only to make one block contrast with the other?

A.—Yes.

Cross-examined by Mr. Geoffrion, K. C., of Counsel for Defendant:—

Q.—I gather (I may be wrong and you will correct me if I am) that from what you have stated, that this was cofferdam work ?

A.—Yes.

Q.—When you say that you had worked at the cribs for the log floating, these were not intended for unwatering, but only in order to direct the logs?

A.—They were intended to store the water above those dams so that later on when logs were being sent down the river they could have sufficient water to float them.

Q.—They were storage dams?

A.—Yes.

Q.—But they had to be fairly water-tight?

A.—They had to be fairly water-tight. They did not have to be as water-tight as a cofferdam would be.

Q.—The more water you store the better?

A.—Yes.

J. C. REIFFENSTEIN (for Plaintiff) Cross-examination.

Q.—You say that as a reason why this material that you classify as hardpan, was hardpan is, the fact that it was hard enough, that the orange peel could not get into it?

A.—No, I did not state that. I said the orange peel could not dig it, but I did not say that was the reason it was hardpan, or one reason that it was hardpan.

Q.—What reason did you give for it being hardpan? What was the test you saw there that you came to classify it as hardpan — that you classified it yourself as hardpan or, may I withdraw that question temporarily and ask you how you, yourself, claim to be a judge that this was hardpan, or is that to be decided by others?

Q.—I am not criticizing you, but as a matter of fact, in your cross sections, and in the figures you gave, you differentiate between ordinary earth and hardpan?

A.—Yes.

Q.—What basis did you take to differentiate to make the difference between the two?

A.—The different appearance of the material.

Q.—What different appearance?

A.—One was a light sand, and the other was a hard tracked mass of boulders and gravel.

Q.—Let me see if I understand. Do I understand that the orange peel first stripped the upper layer of earth, we will say, the softest part from one end to the other, and then tackled the hardpan afterwards. Is that it?

A.—We took off the soft material when we could not dig the hardpan with the orange peel, until we got some dynamite, and then we started to dynamite the hardpan, or the hard material.

Q.—When did you begin dynamiting?

A.—About the middle of November.

Q.—You had started excavating with the orange peel and with no dynamite from the middle of October?

A.—No. We started about the beginning of November.

Q.—Can you tell us how much earth you had excavated when you started dynamiting?

A.—No, I don't know. I had not measured it.

Q.—But what had been excavated till then would be classified as earth, according to you?

A.—Yes.

Q.—The derrick with the orange peel attachment started from the lower end of the by-pass going upward, is that it?

A.—Yes.

J. C. REIFFENSTEIN (for Plaintiff) Cross-examination.

Q.—How far up did it go before dynamite was applied?
A.—About sixty feet.
Q.—Upwards?
A.—Yes.
Q.—Where did that dynamiting begin?
A.—About sixty feet from the lower end of the by-pass. At least, there is where the derrick started to work.
Q.—You started dynamiting where the derrick was. You did not go back?
A.—Yes, we started the dynamite where the derrick was, surely.
Q.—Well then, when did you remove the top layer of soft material? Was that not removed before dynamiting?
A.—We would take off what we could with the derrick in one position and then we would loosen the hard stuff, and take some of that .
Q.—I understand that the top layer was taken off entirely up, at least to the time of the dynamiting. I thought one of the witnesses said that. I may be wrong, but is that the case?
A.—No. We took some of that hardpan out on the way back, on the first trip up the by-pass?
Q.—What do you mean by up?
A.—When the derrick was started to work there, they were backing it as they went along.
Q.—What do you mean by the way back on the first trip up ?
A.—I said on the way backing up.
Q.—When you said, on the way back, I understood differently. Do you mean on the first trip upwards it was going backwards ?
A.—It was backing up.
Q.—You say there was some hard material stripped then ?
A.—Yes.
Q.—You did not start stripping it from the beginning at the lower end. You left some on the first trip up?
A.—We left some hard material at that time, yes.
Q.—There was hard material right down to the lower end of the by-pass, was there?
A.—Up to very near the lower end.
Q.—Before you began dynamiting, you left that part behind ?
A.—Yes.

J. C. REIFFENSTEIN (for Plaintiff) Cross-examination.

Q.—You say there were only sixty feet that was done at that time?

A.—I don't know the exact distance, about sixty feet.

Q.—For these sixty feet the soft material only had been stripped according to you?

A.—Yes.

Q.—Leaving the hard material under it?

A.—Yes.

Q.—The hard material was exposed there, was it?

A.—Yes.

Q.—It was visible to you that is was hard material?

A.—Yes.

Q.—You had tried it without success?

A.—Yes.

Q.—And you broke an orange peel with it?

A.—We ruined one orange peel. We had to get another one. We had to get two subsequent to that.

Q.—Ruined, or broken, there is not much difference between the two?

A.—Not much.

Q.—I said broken.

By Mr. St. Laurent:—

Q.—Did that occur at that time, or was it at a later date you ruined the orange peel?

A.—I don't know just the date, but I know we had to get another bucket.

By Mr. Geoffrion:—

Q.—On account of wear and tear?

A.—It was worn out.

Q.—Then, after about sixty feet you started dynamiting — after they had progressed sixty feet?

A.—Yes.

Q.—And you say they began dynamiting on the 15th November?

A.—I am not sure about the 15th, but I know it was sometime in November, about the middle, because we took out considerable of that red material after we got powder there.

Q.—Did you take out much before the winter came?

A.—We took out quite a lot of it, yes.

J. C. REIFFENSTEIN (for Plaintiff) Cross-examination.

Q.—Did the derrick take out at the same time the soft over-burden and the hard material under it. When I say at the same time, I mean in the same cut. Did it go forward for the soft material and go back afterwards?

A.—It took part of the hard material with it on the first cut, and then subsequently was brought back.

Q.—Right down to the lower end?

A.—No, not quite to the lower end.

Q.—How did you handle the lower end?

A.—We used men with picks and shovels, carts in there. We also had to use dynamite in there to loosen it sufficiently for the men to shovel it. They could not dig it.

Q.—Did you observe carefully and sufficiently to say that the hardpan underlayer was the whole distance from one end of the by-pass to the other?

A.—It was not the whole distance.

Q.—It was the whole width of the by-pass?

A.—No, not over the whole length of the by-pass.

Q.—Have you some of your cross sections there. We will begin by the one in the dam site itself.

Mr. St. Laurent:—I would suggest if you are going to have him speak from it that we had better have it marked and filed.

Mr. Geoffrion:—I thought I would put my question and if either of us want it we can put it in afterwards.

By Mr. Geoffrion:—

Q.—Please look at this series of six cross sections which you gave us this morning, and which, I understand, was prepared by you from your own observation, is that right?

A.—Yes.

Q.—They are cross sections of the by-pass where it crosses the dam site, is that right?

A.—Yes, cross sections of the dam site where the dam site crosses the by-pass.

Q.—Let us put it this way : this is a cross section of the dam site?

A.—Yes.

Q.—It is a cross section of the dam site, so therefore, it is across the dam, but along the by-pass?

A.—Yes.

J. C. REIFFENSTEIN (for Plaintiff) Cross-examination.

Q.—You have six of them here. They are numbered 0 plus 80, north, 0 plus 90, north, 1 plus 0, 110 north, 120 north and 130 north. Are those feet?

A.—That is just a method of designation the distances in feet.

Q.—Therefore, they would be 10 feet apart?

A.—Ten feet apart.

By Mr. St. Laurent:—

Q.—And they correspond with the stations on P-27?

A.—Yes.

By Mr. Geoffrion:—

Q.—These figures, therefore, correspond with the figures on P-27?

A.—Yes.

Q.—So we can locate them?

A.—Yes.

Q.—I suggest the first point that may happen is, that the top of your hardpan is extraordinarily level. Was it that way? It is almost like a sea?

A.—Well, this hardpan had all been taken out, or the top of it had been taken out before I tried to ascertain how much there was of it ; therefore, the only way I could get it, was to get the height of the hardpan and assumed it was approximately straight.

Q.—When did you take those cross sections?

A.—The cross sections were made from time to time as the job progressed.

Q.—Take for example the cross section 0 plus 80. There is hardpan there on the north side?

A.—On the east side.

Q.—You are right and I am wrong. I am mixing up the directions. On the east side there is a little bit there?

A.—Yes.

Q.—Anyway, all these you say were taken after the excavation had taken place, and that is why you give up a straight line?

A.—All these sections, or all the determining of the hardpan.

Q.—The hardpan determination. That is what I want to know. How long after the excavation had been made there did you go and take your cross sections?

J. C. REIFFENSTEIN (for Plaintiff) Cross-examination.

A.—These cross sections, the bottoms of them, the outline of them, were made from time to time as the work progressed.

Q.—What do you mean by the bottoms?

A.—Take for instance here in some cases, we went over and took two or three cross sections. There is one that shows three lines.

Q.—0 plus 90 north, shows three lines. Let us take 0 .80 north, shows two lines, is that right, a blue and a black. I want to understand this if I can. 0 plus 90 only shows three lines ; the top line is blue. That is the bottom of the hardpan according to you?

A.—That is the top of the rock.

Q.—Or the top of the rock?

A.—Yes.

Q.—And what is the black line below?

A.—The black one in that particular section represents the bottom of the excavation at one stage of the work.

By the Court:—

Q.—If I understand, these were made from time to time as the work progressed?

A.—Yes, exactly.

Q.—You took three observations, and that is why there are three lines?

A.—Yes.

By Mr. Geoffrion:—

Q.—Did you take these three observations at the same time?

A.—No.

By the Court:—

Q.—As the work progressed?

A.—As the work progressed.

By Mr. Geoffrion:—

Q.—Well, did you pass over this place several times?

A.—First of all we uncovered the rock, and we had to cross section the next. Then, at the end of some month we would

cross section that cut again in order to determine how much was taken out during that month.

Q.—What is the third one?

A.—The third one is the final.

Q.—Have you any date on this chart when you took cross section, particularly once showing the top of the rock ? Give me only one. I want to understand your method exactly. I suppose it is the same thing afterwards for the others, but I want one in detail?

A.—It may take me some time to run through.

Q.—You can give it to me tomorrow for one section?

A.—I might be able to find a later section.

Q.—At all events, we will drop that for the present. If I need it tomorrow, I will ask you for it. The first section you took at that point, north plus 90 was the blue line showing the top of the rock?

A.—Not necessarily. We may have taken some other cross sections in there for the purpose of checking the monthly estimate. It is not shown there.

Q.—The first one you indicate is that one. The two upper lines have never been taken on the ground?

A.—I did not take them.

Q.—I want to know this, as far as these cross sections go, at a certain moment, whatever the date, when all the earth was gone, and rock was arrived at, you took the level of the rock?

A.—Yes.

Q.—And then in some way that we will consider in a minute, you then arrived at what time, according to you, the top of the hardpan — I am not saying you are right or wrong — when you did determine how much hardpan there was, it was at a time when the rock level was reached?

A.—At the time that I started to calculate the quantity. At the time I determined the elevation of that hardpan the rock might not necessarily.....

Q.—When did you determine it. You say it was gone. What is the cross section that you took indicating the top of the hardpan?

A.—I took the top of the hardpan where it showed on the sides of the excavation.

Q.—And you drew a straight line?

A.—Surely.

Q.—But where you hit rock is not on each side?

A.—Where the hardpan started.

Q.—So I will say this, your top line and hardpan is to that extent, and you explain it, arbitrary and not accurate?

A.—Yes.

Q.—That applies throughout your cross section?

A.—Yes.

Q.—In the dam location and elsewhere in the by-pass?

A.—Practically, yes.

Q.—Will you file this plan as P-100?

A.—Yes.

Q.—I would like to have one. I think one will be enough. At any rate I hope so — one of the cross sections in the by-pass proper. You are handling me a sheet containing cross sections of the by-pass proper?

A.—Yes.

Q.—You have sixteen cross sections here?

A.—Yes.

Q.—Are those taken across the by-pass?

A.—Those are taken transversal of the by-pass.

Q.—Your figures as to location : one (1) plus 80 east ; then, 1 plus 60 east. Does that appear on this plan?

A.—No. Those are distances east of the base line of the dam.

Q.—Those are taken at twenty feet apart?

A.—Yes.

Q.—You start from zero, 10 west and you go to 0 plus 10 east and so on by 20's down to 1 plus 80 east?

A.—Not necessarily. There are some 10 foot sections in there. These changes are measured from the base line of the dam parallel with it.

Q.—You have the line of the dam ; you have some east and west, and the distances are given?

A.—Yes.

Q.—I understand it now. When did you take those cross sections? Were they taken after the work had been done?

A.—These with the solid green line were taken on November 30th. Those with the solid red line were taken on December 31st. Those with the solid blue line were taken January 31st.

Q.—You give there .....

A.—The original ground which was taken from plan B-2444, which an elevation plan. That applies to all cases.

J. C. REIFFENSTEIN (for Plaintiff) Cross-examination.

By the Court:—

Q.—That is, the original plan?
A.—That is the original plan.

By Mr. Geoffrion:—

Q.—On each of these cross sections, you give the date of each of the lines marked ?
A.—Yes.
Q.—The dotted line, I take it, indicates, according to you, the top of the hardpan?
A.—That green dotted line.
Q.—And that you say was taken on February 24th?
A.—No.
Q.—That one of course, is not a cross section, that was taken. Does the same remark apply to these?
A.—The same remark applies to these in this particular case of these sections. You will notice the green dotted line coincides.....
Q.—Your green line actually taken on the ground on November 30th 1928 coincides with your hardpan line?
A.—Yes.
Q.—I assume that it is because the excavation was stopped right there at the date you took your cross section on that level?
A.—On that level.
Q.—And where the line appears only as an independent dotted line, that is something that you surmise from the sides of the by-pass?
A.—Yes.
Q.—The slopes you give are the correct slopes?
A.—The correct distances from this line which we used as a base line, offsetting from the base line, from the top of the cut, offsetting from the base line to the bottom of the wall on the bottom of the cut.
Q.—In other words, your slopes would be deduced from the comparison of your two lines?
A.—Yes.
Q.—Did you make observations as to the slope, or did you simply draw it approximately.
A.—There may have been one or two points determined up the side here.

J. C. REIFFENSTEIN (for Plaintiff) Cross-examination.

Q.—You say your slopes are approximate then?
A.—Yes .
Q.—Then, I understand that what you claim as hardpan is hatched?
A.—Yes.
Q.—Will you file this plan as exhibit P-101?
A.—Yes.
Q.—Does exhibit P-101 represent all the cross sections you took of the by-pass proper?
A.—There are some others.
Q.—Beyond 1 plus 80?
A.—No.
Q.—Or zero?
A.—To the westward.
Q.—Have you got it here?
A.—I have not got that one here.
Q.—Did you have any duties in connection with placing the cribs?
A.—No, I had nothing to do with the placing of them.
Q.—There were no quantities to be measured there, or anything of that sort?
A.—No, there were no quantities to be measured.
Q.—Your only function in connection with the cribs was to locate the place where they were to be placed? What were your duties about getting the data as to where they were to be placed and plotting on the plan where they were placed?
A.—I took soundings of the site where we proposed to place the cribs, and furnished our crib foreman with sketches to show approximately how he should arrange his bottom courses of logs according to the soundings.
Q.—You are the one who took the soundings?
A.—Yes, I took the soundings.
Q.—You took them with a lead and line or with a rod?
A.—I took them with an iron rod.
Q.—How many soundings did you take?
A.—I took four lines of soundings, one on the line where we proposed to put the face of our cribs, cofferdam, one ten feet upstream and one ten feet downstream from that face, and one twenty feet downstream from that face.
Q.—What distance was each sounding?
A.—I took the soundings at ten feet each across the river channel.

J. C. REIFFENSTEIN (for Plaintiff) Cross-examination.

Q.—That is, lines ten feet apart and crosswise, across the river, ten feet apart?

A.—Yes.

Q.—And on that basis you gave the sketch to the crib foreman of what would be the shape of the base of the crib?

A.—Yes.

Q.—Does that scale still exist?

A.—I do not think so. It was only made on thin paper, and I suppose it is used up.

Q.—Did you keep a diary of your occupation there?

A.—Yes.

Q.—Have you got it?

A.—No.

Q.—What has become of it?

A.—I don't know.

Q.—Then, you said, taking soundings and giving the proper sketches from those soundings. I suppose your sketches were based on those soundings?

A.—Yes.

Q.—And you gave those to the crib foreman. Then, I see you noted the date when they were located on the plan?

A.—Yes.

Q.—And you drew that plan which shows other things ; it shows the dates when the cribs were placed, and one of them was completed on the spot. That is the date you made at the beginning? Including the abuttment cribs there would be three completed on the spot?

A.—Yes.

Q.—You take the dates when these events happened and also their final situation?

A.—Yes.

Q.—When did you take the observations for the actual final location?

A.—As it is plotted?

Q.—Yes.

A.—I did not make that survey. That was made by the Engineer of the Quebec Streams Commission, and I used his drawing to make this one.

Q.—Then, you have added one duty I have forgotten to mention, and you knocked off one. In other words, I had forgotten you had taken soundings, and you did not make a survey of the location of the cribs?

A.—No, I did not make a survey.

J. C. REIFFENSTEIN (for Plaintiff) Cross-examination.

Q.—Did you, yourself, locate the place indicated on this plan P-37 where the shaft is driven?

A.—Yes.

Q.—Was that shaft driven in water or on dry land?

A.—It was driven through the toe fill.

Q.—The toe fill was there?

A.—Yes.

Q.—Was that the only shaft that was driven?

A.—There was another one started a short distance from that one, but we only went down five or six feet ; then, we abandoned it. We thought it was too dangerous.

Q.—It was further up the river ?

A.—Yes.

Q.—What was the measurement of this shaft?

A.—As shown on there. I don't know just what they are now.

Q.—The depth?

A.—I don't know the depth exactly.

Q.—Can you tell me when that was done ?

A.—When I made the plan ?

Q.—When the shaft was driven?

A.—No, I do not remember the exact date.

By Mr. St. Laurent: —

Q.—Was it before the steel sheet piling was put in?

A.—Oh yes.

By Mr. Geoffrion:—

Q.—Dealing with plan P-37, can you tell me where you got your information respecting the toe fill? What do you show on this plan about the toe fill? Is that from the Quebec Streams Commission?

A.—No, I took my own measurements for that.

Q.—For the top of the toe fill?

A.—For the top of the toe fill, and also for the approximate edge of it.

Q.—How did you get the approximate edge?

A.—I took a boat and went out to the sounding ledge.

Q.—The steel sheeting, and wood sheeting and the light steel sheeting, is that from your own observations also?

A.—The heavy sheet piling upstream and the light steel sheet piling downstream are from my own observations.

Q.—The wood sheeting?

A.—The wood sheeting was from the Quebec Streams Commission.

Q.—You were examined in connection with exhibit P-95. You spoke of water rising in the by-pass at the date of the log jam? Do I understand that according to this chart there had been in April, or in the spring flood, I suppose, quite a steep rise, though not as high?

A.—Yes, during April.

Q.—Then, you placed a crib. This chart shows you placed a crib in July. What crib was that?

A.—That would be crib No. 2.

Q.—That crib seems to have been provoking water, because there is a terrible fall in the river immediately after. There may be a very simple explanation. What is it?

A.—I don't know — natural causes, I suppose.

Q.—It was a very steep collapse compared to the others. What is the next? I see another crib placed. When was that?

A.—That would be No. 3.

Q.—That provoked a slight rise apparently, and then, the down trend followed. It looks a good deal like a stock exchange chart so, for my information the stock went up, but the bulls could not hold. There was another collapse?

A.—Yes.

Q.—Then there starts a very sudden rise. It is the rise in one day when you placed the last crib?

A.—Yes.

Q.—It practically continues without any interruption, according to your notes, while you put the rock filling in?

A.—Yes.

Q.—Then, there is a slight wavering for a fortnight, and then, when you put your sheeting in

A.—A couple of days. Each of those small squares represents only one day.

Q.—There is only a week with ups and downs, with not much change?

A.—Yes.

Q.—And then, towards the middle — is it the middle of August?

A.—August 22nd.

Q.—You have a note, placing sheeting, and you get a very steep uprise, uninterrupted till after the log jam?

A.—Yes.

J. C. REIFFENSTEIN (for Plaintiff) Cross-examination.

Q.—It seems as if when the log jam occurred the rise was coming quite as steady before the log jam as during it?

A.—It was steeper while the log jam was in there, considerably steeper.

Q.—Do you call that considerably steeper. I see a little difference?

A.—While the point is starting to flatten off this way.

Q.—Your point is that this line shows a considerable intensifying of the rise?

A.—Yes.

Q.—Then, when you come to the top of it, curiously enough, the water practically does not fall, but as it is at the higher level for months, with a very slight fall in November : does that seem to you as if the whole thing was due to log jam ? The log jam was out a few days after. There may be an explanation, and if there is, give it to me. There is practically no fall. In fact, it goes higher towards the end of September ; it then starts to fall, but does not reach the level of this before the log jam, according to you, until the end of November ; is that right?

A.—Yes.

Q.—The log jam was out long before?

A.—Yes.

Q.—Do you still say that that last rise which stayed until the end of November was due to the log jam?

A.—I say that a great deal of this log rise (I don't say exactly all of it, but a great deal of it) was due to the log jam because the water was cut off from the river.

Q.—It must have frozen there since it stayed there?

A.—Not necessarily. Once the water is there, it is not going to run away as fast as it would collect there.

Q.—Do you think it would take three months to take that out ?

A.—It takes longer to run it off than it would to collect it in there, — rain and one thing and another.

Q.—This may have been the continuation of what was happening before?

A.—It starts to fall within two days.

Q.—We will give you the two days.

A.—And falls considerably, until we get some rain probably, and then goes up again.

Q.—If you limit the log jam influence to the fall that happened during the last two weeks, I have nothing to say, but

that is not what you suggest. At all events, that is your explanation. Incidentally, at the same time, it is interesting to watch the operations in the by-pass below the jam because, as I take it, your red line is below the jam?

A.—Below the jam.

Q.—In the by-pass below the jam the water was falling extremely rapidly for some days : that is right?

A.—Yes.

Q.—And the fall continues until what date — the 25th ?

A.—The same time that we broke the jam?

Q.—But there is a fall there of how many feet? Four or five feet?

A.—The maximum fall there is about 1.9 feet.

Q.—I mean from the 23rd to the bottom, there is a fall of one foot nine inches?

A.—No. There is only a fall of about less than a foot.

Q.—So therefore, in the lower part of the by-pass the water fell less than a foot?

A.—Yes sir.

Q.—And an almost similar fall was taking place in the lower reach of the river proper if we take your third line?

A.—Yes.

Q.—And you still suggest that the log jam is largely responsible for that rise?

A.—Yes.

And it now being 4.30 P. M. the further testimony of this witness was adjourned until tomorrow, Thursday the 23rd day of February instant at 10.30 A. M.

And further for the present deponent saith not.

DEPOSITION OF JOHN C. REIFFENSTEIN (*continued*)

And on this twenty-third day of February, in the year of Our Lord, one thousand nine hundred and thirty-three, personally came and appeared John C. Reiffenstein, and his cross-examination was continued by Mr. Geoffrion, K. C., of Counsel for Defendant as follows:

By Mr. Geoffrion:—

Q.—When was it you prepared these cross sections of the by-pass on the plan that is filed?

A.—While the work was going on.

Q.—Were the cross sections themselves prepared at that time? When were the cross sections themselves prepared?

A.—They were prepared while we were working on the job.

Q.—When did you add the theoretical line showing the top of the hardpan ?

A.—I do not remember what date it was.

Q.—How long after?

A.—It was while the work was going on, while we were up at Cedar Rapids.

Q.—I want to know when you were told to indicate the hardpan on the plans?

A.—It was February 1929.

Q.—When did you put on the hatching?

A.—That pencil hatching I put on the other day, so that that would show up on the plan.

Q.—Then, I take the hatching was put on a few days ago, but you say that the straight line, the top section of the hardpan, was put on in February?

A.—I don't know whether it was put on in February. I know I was asked to make that estimate some time in February, and I had to put the line on to distinguish one from the other.

Q.—The east cross section in respect of the over-burden is situated at 97 ?

A.—Yes.

Q.—There again you have eleven cross sections?

A.—Yes.

Q.—Under each you have the location?

A.—Yes.

J. C. REIFFENSTEIN (for Plaintiff) Cross-examination.

Q.—What is the base? Is it the line of the dam? What is the zero?

A.—The zero is station 5 which is shown on B-2444.

Q.—Of course, the cross section is across the river?

A.—Those are longitudinal with the river, transversal with the dam and longitudinal with the river.

Q.—Will you look at exhibit P-96, which is the chart, comparing your actual performance in concrete with your expected performance? Until the end of July you are practically following your plan, are you?

A.—Yes.

Q.—You are only behind by how much? By five days, is it?

A.—Two or three days there, or three or four days — four days.

Q.—Perhaps five?

A.—Yes.

Q.—How many cubic yards per square?

A.—One hundred to a small square.

Q.—Then, you are not quite 600 cubic yards behind, and a couple of days?

A.—Yes.

Q.—At the end of August you have lost about ten days more ?

A.—Ten days altogether.

Q.—So that in August you were going still at 75 or 80 per cent of your efficiency?

A.—Yes.

Q.—I would gather that the trouble begins at the end of August, except a slight decrease in August, the big trouble is at the end of August, is that right?

A.—It startes at the end of August.

Q.—In September you are about fifty per cent of your efficiency, is that right?

A.—Less than fifty per cent of our efficiency in September. We have only recorded 600 yards as against 500 yards.

Q.—In October how much?

A.—October is a little less than that.

Q.—September about one-third and October a little less than a third?

A.—Yes.

Q.—How does November compare?

A.—Forty per cent efficiency.

J. C. REIFFENSTEIN (for Plaintiff) Cross-examination.

Q.—And then, you practically recover your efficiency?
A.—Then we come back.
Q.—From the beginning of December?
A.—Yes.
Q.—Then, you lost practically two-thirds of your efficiency in September, a little more than two-thirds in October and sixty per cent in November?
A.—Yes, about that. That is all concrete.
Q.—This deals only with concrete?
A.—Yes.
Q.—You were asked if you had sent a diver down under certain conditions. Do you know anything about divers?
A.—I have worked with divers on one other job. We had two divers on one job that went on for about three months practically every day.
Q.—Did you have a diver available there then?
A.—We had no diver there.
Q.—Did you ask for any diver or not?
A.—We had no diver.
Q.—You did not ask any diver to go there?
A.—No, I could not ask him.
Q.—Could you tell me through what part of the cofferdam the leaks were while you were pumping unsuccessfully?
A.—There was a certain amount of leakage at the North end, but we had no means of knowing whether that was all, or only a part of the leakage.
Q.—You stopped the leakage by your steel sheeting?
A.—Steel sheet piling.
Q.—That was on the north side?
A.—It extended from the north side out some distance into the river. It was at the north end.
Q.—That would stop it?
A.—That stopped the bulk of it.
Q.—Then, there would be nothing further? Of course, you took care of the cofferdam by pumping?
A.—Afterwards, yes.
Q.—At all events, I have no doubt the leakage which you could not take care of by pumping, came from the north side?
A.—Some of it — most of it.
Q.—Did you locate any of the leaks so as to show under what crib, or through what crib, or between what crib they came?

J. C. REIFFENSTEIN (for Plaintiff) Cross-examination.

A.—We located one small leak along the north wing of our cofferdam, which we took care of with the flume.

Q.—You cannot tell us through which crib the worst leak were?

A.—No.

Q.—Was that part of your particular job? Did you make any investigation yourself with regard to that?

A.—Yes, I made some investigation.

Q.—Was the stopping of the leakage in any way part of your duties ?

A.—No.

Q.—You said that you first put Red Cross wood sheeting for a certain distance out ?

A.—Yes.

Q.—Was that nailed or bolted?

A.—I am not sure about that.

Q.—You said you put it at a certain distance higher up than the face of the crib. I am showing you sheeting marked on your plan P-37 ; that was put a certain distance from the crib. What reason did you give for doing it that way?

A.—Because of logs that were tangled in there.

By Mr. St. Laurent:—

Q.—Between the sheeting and the face of the crib?

A.—Between the sheeting and the face of the crib.

By Mr. Geoffrion:—

Q.—Where abouts particularly?

A.—Particularly in front of crib No. 2 at that stage.

Q.—When you made your sheeting, the bulk of the logs were placed at crib No. 2?

A.—Yes.

Q.—Was there any opposite crib No. 4?

A.—Yes.

Q.—There were very few, if any, opposite crib No. 5 and crib No. 1.

A.—There were some logs in under crib No. 5.

Q.—Is that your answer to my question?

A.—There were not as many opposite No. 1 and 5 as there were opposite No. 2.

J. C. REIFFENSTEIN (for Plaintiff) Cross-examination.

Q.—In fact, your wood sheeting opposite No. 1 and 5 is practically as close as it could be under ordinary circumstances?

A.—No, it is not where it would be under ordinary circumstances.

Q.—I am speaking of the circumstances of the crib as irregular in outline as this. You would not put it much closer than that?

A.—We would put it right on the face of the crib.

Q.—Even with an irregular crib like this?

A.—Yes.

Q.—Where were logs 5 and 1 fastened? Were they on the face or under it?

A.—They were under.

Q.—Under the crib?

A.—Under the surface of the water. On the face there we could not know they were there. We could not work sheeting down the face of this crib No. 1 and No. 5. We could not get it down.

Q.—Did you try?

A.—Yes, we tried to put it down there.

Q.—Did you try to remove the logs?

A.—Yes, we tried to remove the logs all along there.

Q.—Did you remove any?

A.—We removed some.

Q.—And you thought it would be cheaper to build the sheeting that way?

A.—We could not get all the logs out. There were logs down there that could not be moved.

Q.—Where were the logs that could not be moved?

A.—They were down under the surface of the water.

Q.—If the logs down there had been taken, they would come up ?

A.—They were stuck in the face of the crib.

Q.—How do you know if you did not go down?

A.—Well, we would pull them with the derrick. We could not move them.

Q.—You tried to pull them?

A.—We tried to pull them with the derrick.

Q.—You tried to pull out logs with the derrick?

A.—Yes.

Q.—Is that the way you tried to move the logs? Where were those which you tried to pull with the derrick? Which side of the river?

J. C. REIFFENSTEIN (for Plaintiff) Cross-examination.

A.—Opposite cribs Nos. 1, 3 and 2. That was before No. 5 was put in place.

Q.—On what did No. 5 crib rest?

A.—We don't know. It may have rested on the bottom. It was most probably resting on logs. There were logs still in there.

Q.—You don't know ?

A.—No.

Q.—How many logs did you try to pull out with your derrick ?

A.—They were working at it there for several days. I don't know how many logs were actually pulled out. I did not count them.

Q.—You do not know how many logs they tried to pull out and failed?

A.—No, I do not.

Q.—There were no logs in front of No. 4?

A.—I don't know for certain.

Q.—You said that the inside of the spaces between the cribs and the sheeting was filled with loose rock to support it ?

A.—It was filled with some loose rock.

Q.—Anything else?

A.—I think it was mostly loose rock.

Q.—Where did you take that rock from?

A.—We took some from both sides of the river.

Q.—On the shores?

A.—On the shores. We had spoil piles.

Q.—What was your toe fill that you put outside made of ?

A.—That was made of material taken from both sides of the river upstream.

Q.—What sort of material?

A.—It was material consisting of sand, a certain amount of clay and gravel, some small boulders. By small, I mean what a man could pick up in his hand.

Q.—Pardon me, if I do not understand you. Did your toe fill not rest against the sheeting?

A.—That is the top of the toe fill. There was that width of toe fill showing above water, that is, the toe fill extended out above water to that solid white line.

Q.—To the wood sheeting?

A.—To the wood sheeting out.

J. C. REIFFENSTEIN (for Plaintiff) Re-examination.

Q.—Did you make all your toe fill continuously, or did you make it by degrees, testing its efficiency?

A.—We made it by degrees, that is, we put in some toe fill, and then we added more to it from time to time trying to stop the leak.

Q.—How much did you put in the first time?

A.—Oh, I don't know. I did not measure it at all.

Q.—Have you any idea how much toe fill under ordinary circumstances it would take to fill that? Do you know how much would be necessary?

A.—I should think about a maximum of a thousand yards would fill that.

Q.—Do you know, or are you guessing?

A.—Well, from similar work that I have seen, I should think a thousand yards would be ample.

Q.—How did you measure your 11,000 yards sections to get the approximate size of the extent of the toe fill?

A.—Just calculating the volume in the usual way.

Q.—The cross section from the top down to the toe?

A.—From the top to the toe.

Q.—How do you get to the toe?

A.—By soundings.

Q.—You took soundings from the toe?

A.—Yes.

Q.—How did you get the toe that way?

A.—When we were on the toe fill, the bottom was soft and yielding ; we could feel it ; when we got beyond the toe fill, then the bottom was much harder ; when we struck the hard material we knew that was the toe fill.

Q.—You made sections ? You simply took the top of it ?

A.—We simply took the top of it.

Q.—And the bottom?

A.—The top of it, and various soundings out till I decided I was that the edge of the toe fill.

Re-examined by Mr. St. Laurent, K. C., of Counsel for Plaintiff:—

Q.—With respect to these cross sections where you put the line on, indicating the hardpan, you said this morning in cross-examination, that you were asked in February to ascertain the quantity of hardpan ?

A.—Yes.

Q.—February of what year?

A.—1929.

J. C. REIFFENSTEIN (for Plaintiff) Re-examination.

Q.—I understand that at that time some considerable portion of the hardpan had been excavated?

A.—Oh yes.

Q.—And what you took was the shape and depth of the excavation?

A.—Yes.

Q.—How is excavation usually measured in engineering practice?

A.—The usual practice is to cross section the ground before any material is removed, and then to cross section the ground again after the material is taken out.

Q.—You measured the hole and not the quantity you have taken out, and put in your embankment?

A.—Exactly.

Q.—I suppose the quantities in the embankment vary after it has been thrown out, according to the nature of the material ?

A.—Well, it does.

Q.—When you got these instructions to ascertain the quantity of hardpan, how did you go about in order to fix the elevation which you put on your sections as the top of the hardpan ?

A.—As the material had already been removed, or a large proportion of it had already been removed, I could not cross section the top of the material, but I took the points on the side slopes where there was a distinct line showing a division between the two materials ; I took the elevations of those points on both sides of the cut, and then I assumed a line connecting the two points.

Q.—With respect to the surface of the ground, I understood you to say that you took that, not in every case from actual measurements, but from the levels shown on B-2444?

A.—Yes, I took those measurements.

Q.—Did you, before using the measurements shown on B-2444 as surface levels, ascertain whether they substantially conformed with what was there?

A.—I had occasion to check elevations in different parts of the site.

Q.—Did you satisfy yourself that what you were taking, was substantially correct?

A.—Yes.

Q.—How did the thickness of the soft layer run? Was it a varying thickness or practically uniform thickness?

A.—In the cross sections it was fairly uniform.

Q.—And was there a clear line of demarcation between the soft strata and the harder strata below it?

A.—There was a very distinct line between the two.

Q.—Even after you got the instructions to ascertain the quantity of hardpan, was it practicable to get the top elevation of the hardpan right straight through?

A.—No.

Q.—Why?

A.—Because it had been removed.

Q.—But for the rest of the work that was done at a later date?

A.—Well, the only piece that was done at a later date was the west end of the by-pass, and there was a very small area ; the derrick working in there with the orange peel bucket, if we wanted to measure that we would have to hold up the work to go and measure it.

Q.—As a matter of fact, was there ever any attempt after you got through soft material to clean off and make sure just what was the exact shape of the surface hard material?

A.—No, that was not done.

Q.—Do you know of any better method of ascertaining the quantity of that hardpan than the method you adopted for practical purposes?

A.—No, not under those circumstances.

Q.—You said that efforts had been made for several days to pull out the logs in front of the cribs after the jam of the 22nd July 1929, and that a derrick was even used. What instrument had you to remove those logs?

A.—We were using the orange peel bucket part of the time, and most of the time.

Q.—You would just drop this bucket down and close it, and have it grab on to whatever there was, and pull it up?

A.—Yes.

Q.—Was it at all possible to go down and fasten a rope or cable on any of these logs?

A.—No.

Q.—All this was below the surface of the water?

A.—Yes.

Q.—Was that very clear water, or while you were working, was it muddied? Could you see through it?

A.—You could not see through it very well on account of the swift current and the surging of the water around the crib.

D. W. O'SHEA (recalled for Plaintiff) Examination in chief.

Q.—Is your statement that there were logs still remaining, based on the fact that you tried to put sheathing down on the face of the crib, and it would not go down?

A.—It would not go down anywhere near to the depth at which we knew the bottom of the cribs were situated.

Q.—Where, with respect to the shores was the top part of the channel in the river in the vicinity of the cofferdam and dam site ? On what side?

A.—The deepest part was at the north side.

Q.—Is that part where this steel sheet piling shows on P-37?

A.—Yes.

Q.—When you got the water down, were you able to see whether or not there were any other leaks than the one you had cut off with the steel sheet piling?

A.—Yes, there was water trickling through the gravel under the cribs, all across the cofferdam.

And further deponent saith not.

DEPOSITION OF DANIEL W. O'SHEA

A witness recalled on behalf of the Plaintiff.

On this twenty-third day of February, in the year of Our Lord, one thousand nine hundred and thirty-three, personally came and reappeared Daniel W. O'Shea, a witness already examined, now recalled on behalf of the Plaintiff, who being duly sworn, doth deposes and say as follows:

Examined by Mr. St. Laurent, K. C., of Counsel for Plaintiff:—

Q.—You were kind enough to let us look at your field notes, but I have no doubt that they mean a great deal more to you than they do to us, so I would like to have you give us some further information in connection with these test pits which you had made there. Do the dates on which the work was done show on your field notes?

A.—They should. I don't know if they do in every case. Well, here is one on 6-5. That would be June 15th.

D. W. O'SHEA (recalled for Plaintiff) Examination in chief.

Q.—Which one is that?
A.—Twenty feet downstream, 2 plus 0 0. It would be that one.
Q.—The one that is marked "5"?
A.—Yes.
Q.—That was put down on the 15th of June?
A.—Well, that is the date my note shows.
Q.—The day you have it in your notes?
A.—Yes.
Q.—How deep was that one?
A.—101.
Q.—But how deep a hole was dug from the surface to the bottom of the pit?
A.—I think it went right down.
Q.—Have you anything in your notes which show that?

Mr. Geoffrion:—What do you mean by right down?

Mr. St. Laurent:—Right down to the bottom of the elevation shown.

Witness:—Well, that one was excavated down to elevation 101.

By Mr. St. Laurent:—

Q.—That was excavated down to elevation 101 from what elevation?
A.—I have 119 here.
Q.—From 119 to 101. That would be 18 feet ?
A.—Yes.
Q.—Was it excavated down, or was it an augur that was put down?
A.—Not that one.
Q.—That one was excavated down five feet square or thereabouts?
A.—Five feet square.
Q.—Have you anything in your notes with respect to the nature of the material?
A.—I have, "Two feet of loam" ; then, "Eight feet of mixture, boulders, loam and sand ; balance in gravel".
Q.—Was that pit shored in any way ?
A.—I think it was.

Q.—You think it was shored?

A.—Yes.

Q.—Have you anything in your notes dealing with that, or is that from memory?

A.—That is from memory. That is all.

Q.—How was the material taken from that? Eighteen feet is quite a depth?

A.—They built shelves as they went down ; they cast the stuff from one shelf to the other.

Q.—There would have to be at the very least, two shelves? It would have to be cut into three sections, would it not, if there were eighteen feet?

A.—I imagine so.

Q.—But the distance would not be more than six feet to the top of the shelf?

A.—About that.

Q.—There would not be much working room left if there were two shelves put in a five foot hole?

A.—No.

Q.—There would have to be really a shelf for each man to stand to throw the stuff up on to that shelf, or to put it on to the upper shelf?

A.—Yes.

Q.—Have you anything in your notes with regard to that?

A.—No, I have nothing describing that.

Q.—Here, there is a line in the note opposite which we took the liberty of putting the figure "2" with a little circle around it. That is "Water flooding pit"?

A.—Yes.

Q.—And "G 119" ?

A.—"G" means ground surface.

Q.—And the following line is?

A.—"Ground water coming about as fast as pump can handle".

Q.—So that you had a pump in this pit?

A.—Yes.

Q.—A little further down, opposite the figure "3"?

A.—That is another pit.

Q.—Does this line on the first page of your notes separate all that you have with respect to pit No. 5, from something concerning another pit?

A.—Yes.

D. W. O'SHEA (recalled for Plaintiff) Examination in chief.

Q.—The next one is on river bank?
A.—Yes.
Q.—Can you tell me which one that would be?
A.—No. 3.
Q.—That is the one that is marked No. 3?
A.—Yes.
Q.—And it starts : "River water coming through seam"?
A.—Yes.
Q.—"On account of"?
A.—"Debris in bottom last two feet, six inches".
Q.—Before that there is, "On account of debris in bottom last two feet, six inches in broken felspar". What does that, "Less six feet, two inches in broken felspar", mean? Will you put that into ordinary every day language for a layman?
A.—Well, I mean that the last two feet, six inches were in rock, broken rock that looked to me like felspar?
Q.—Was that excavated down to the depth shown, 99.7?
A.—Yes, we went to 99.7.
Q.—From a surface of 118.2?
A.—Yes.
Q.—That one then, is about 18½ feet deep?
A.—Yes.
Q.—And do you remember if you had to keep a pump going in that one?
A.—No, I do not remember. I know that the water was coming in there.
Q.—Was that one dug down, or was it an augur that was put down?
A.—That was dug down.
Q.—And does your note show what was the nature of the material found, with the exception of the 2½ feet of broken felspar ?
A.—No.
Q.—You have no note first with respect to the nature of the material ?
A.—No.
Q.—Then, below the figure "3" with a circle around it, deals with another pit?
A.—Yes.
Q.—Which one is that?
A.—This one here.
Q.—The one that is marked "4"?
A.—Yes.

D. W. O'SHEA (recalled for Plaintiff) Examination in chief.

Q.—"Pit and 1 plus 50 bottom elevation 101.5"?

Mr. Geoffrion:—"1 plus 50", what is that?

Mr. St. Laurent:—The station.

By Mr. St. Laurent:—

Q.—It is pit No. 4 on the plan?
A.—Yes. "Elevation at 101.5 ; drove augur down to 93.2 ; not sure if ledge was reached".,
Q.—Is that all that deals with that pit?
A.—Yes.
Q.—Then, it was excavated to 101.5, and an augur was used then to go from 101.5 to 93?
A.—Yes.
Q.—Did this augur turn out the material, or just go down through it ?
A.—It just went down.
Q.—So you did not actually see material below 101.5?
A.—No.
Q.—And you did not at the time know from your augur work whether you had reached, or gone through ledge or not?
A.—No.
Q.—When an augur does get to ledge, it becomes a pretty stiff job to turn it, does it not?
A.—Yes.
Q.—But the kind of work that had to be done to put that augur down did not enable you to say whether or not you had gone through any ledge?
A.—I could not say definitely.
Q.—Have you any note, or do you remember what day that was?
A.—No, I have no note.
Q.—How many days were you on this test pit work?
A.—I know that we started late in May and that things were carried on until — there is one on the 15th of June.
Q.—Were you residing there at that time or at some other point ?
A.—I was staying at Notre Dame de Laus
Q.—How many men had you working on that?
A.—Four or five probably.

D. W. O'SHEA (recalled for Plaintiff) Examination in chief.

Q.—We have dealt with 5, 3 and 4 ; then, there are two more that are down quite a bit lower. Have you notes concerning them?

A.—I have some notes on the first of June.

Q.—Which one would that concern?

A.—Pit No. 1.

Q.—"T. P. No. 1?

A.—Yes.

Q.—What is the extent of your note concerning that one ?

A.—I first have, "Down to 98".

Q.—What would that mean? That it was dug down to 98 ?

A.—On that day. Then, I say, "Doubtful if ledge has been reached".

Q.—Was that excavated, or ascertained by the use of an augur?

A.—That was excavated.

Q.—Were you down in the pit?

A.—I think I was. Yes, I was down in that pit.

Q.—If you went down in the pit, would it not be that you were free from doubt as to whether or not you were on ledge ?

A.—We found ledge on that pit afterwards.

Q.—I am just refering to your note. If you went down, why should you put in your book that you were doubtful whether you had reached ledge or not ?

A.—Because I thought we might be on a boulder.

Q.—You were down on something that covered the bottom of the pit, but you were not sure whether it was a part of the ledge bank or not?

A.—It covered part of the bottom of the pit.

Q.—Is that all?

A.—No.

Q.—What else have you in your note?

A.—"Gravel starts at about elevation 112. Seems to get coarser as hole deepens. Much trouble from water seeping in".

Q.—Was there blasting done anywhere with respect to these test pits?

A.—Yes.

Q.—Where?

A.—In No. 4.

D. W. O'SHEA (recalled for Plaintiff) Examination in chief.

Q.—Is that the only one where blasting was done?
A.—That is all I know of.
Q.—It was possible then to get the others down by shovel and pick?
A.—Yes.
Q.—Do you remember if any bars were used to loosen up the stuff?
A.—No, I do not remember.
Q.—As to test pit No. 2, have you any note concerning that ?
A.—Yes. I have "Drove down in three places two of which appear to be on something solid. Down to elevation 97". That is all.
Q.—"Drove down", what would that mean" That you put an augur down ?
A.—Yes.
Q.—From the surface?
A.—No. We opened the pit some distance.
Q.—You cannot say how deep you dug it down, and then, you put the augur down?
A.—No.
Q.—Have you any indication that would show how many feet your augur went down?
A.—No, I cannot find anything.

By Mr. Geoffrion:—

Q.—What is the 97 then? You were down to 97?
A.—Down to 97.
Q.—How much of that was excavation and how much augur ?
A.—I don't know.
Q.—Part was excavation and the rest was augur?
A.—Yes.

By Mr. St. Laurent:—

Q.—Are those the only parts of these notes concerning test pits ?
A.—Yes, the first four pages.
Q.—The first four pages concern the test pits?
A.—Yes.
Q.—I notice the first page was 6-15 and the second was 6-8-28 ; the third 5-31-28, and the fourth is 6-1-28, but these

are loose leaf pages. That probably explains why they appear to be in the reverse order?

A.—Yes.

Q.—On the page concerning the 31st of May I see there is a sketch showing some triangulations. Does that deal with the test pits at all?

A.—It locates the pit.

Q.—And it enables you now to tell us which one of these pits it refers to?

A.—Yes.

Q.—With respect to this one I see there is the note "Drove augur down 18", does that mean 18 feet, or am I reading it correctly ?

A.—You are right.

Q.—You drove an augur?

A.—An augur down 18 feet.

By Mr. Geoffrion:—

Q.—What page is that?

A.—I think that is No. 2.

By Mr. St. Laurent:—

Q.—You think that is No. 2?

A.—Yes.

Q.—That went down to 98.3, while No. 2 on the plan shows it to have gone down to 97?

A.—Yes — well, as I remember it, we first tried to drive an augur down, and then we opened the pit, and later on the next sheet, we got down to elevation 97 finally.

Q.—You finally got down to elevation 97?

A.—Yes.

Q.—"Doubtful if ledge has been reached. Gravel starts about 112. Seems to get coarser as hole deepens. Much trouble from water seeping in". Is that No. 1 or No. 2?

A.—That is No. 1.

Q.—So it is only the three first lines on that page which concern pit no. 2?

A.—Yes.

Q.—"Pit No. 2 down in three places, two of which appeared to be on something solid". Does not that rather show that it was still augur work?

A.—Yes. That is what I said.

D. W. O'SHEA (recalled for Plaintiff) Examination in chief.

Q.—That it was still augur work and that shows with respect to this pit No. 2?

A.—Yes.

Q.—Even on the 1st of June?

A.—Yes.

Q.—Is there anything which shows that you went back to it and dug into it?

A.—Well, this shows on the 31st.

Q.—The 31st of May is augur, "Drove augur down 18 feet"?

A.—Yes.

Q.—Is there anything in the note anywhere that shows that in driving the augur down there was any opening up of the put?

A.—No, there is nothing.

Q.—And from memory would you swear that it was done?

A.—Yes. You mean that this one was opened up?

Q.—That the one to which the three augur trials referred to, was ultimately opened up and excavated?

A.—Yes.

Q.—You remember that?

A.—Yes.

Q.—But you took no note concerning it?

A.—No.

Q.—Can you say to what depth it was excavated?

A.—No.

Q.—The rest of these notes concern other things than the test pits?

A.—Yes.

Q.—We have taken, have we, everything that may be of interest with respect to the test pits, from the notes? We have mentioned everything in the notes which has any interest with respect to these test pits?

A.—Yes.

Q.—Do you remember how far down from the top of the pit this blasting was done ?

A.—No, I do not remember.

Q.—And there is nothing in the notes which would help you ?

A.—No.

Q.—Do you remember if there was just one shot put in, or if you put in one shot, and went a certain distance and then put in some more ?

A.—Only one shot when I arrived.

D. W. O'SHEA (recalled for Plaintiff) Cross-examination.

Q.—You remember only one shot?
A.—That is all.
Q.—And you do not remember at what elevation it started, nor what was the depth of the hole you put the shot in?
A.—No.
Q.—That was for the purpose of loosening it up to facilitate the excavating?
A.—It was to get rid of the boulders.
Q.—The boulder that filled the hole?
A.—No, it did not fill the hole. It was partly in the hole.
Q.—Was all this stuff being thrown up by shovel to one shelf, and then to another, or was it being taken out with buckets?
A.—They may have used a pail. They used buckets when they got very deep, — a ten quart pail.
Q.—Was that in every one of them, or have you any vivid recollection about it at all?
A.—Not vivid, no.
Q.—Were these filled in immediately after you had seen what they revealed?
A.—No, they were filled in a few days afterwards.
Q.—There was one being worked at on the 15th of June, and when Major McEwen went there, which had been filled in, that one as well as the others?
A.—All the pits were filled in.
Q.—All the pits were filled in at the time Major McEwen went there?
A.—Yes.

Cross-examined by Mr. Geoffrion, K. C., of Counsel for Defendant:—

Q.—I suppose the fact that they were filled in was obvious?
A.—Yes, they were heaped.
Q.—Did you tell me that you read everything in these notes, on those four pages, that bears on the test pits?
A.—No, there is something on one page that was not all read.
Q.—What is this, "Ledge seems to have a high percentage of mica and is dipping away to the east at a sharp angle". That was not read. Has that anything to do with the question?
A.—It is all about the pits.

D. W. O'SHEA (recalled for Plaintiff) Cross-examination.

Q.—"Last two or three feet have been through is broken rock which consists of broken mica". Could you typewrite these notes and then we can read them?

Mr. St. Laurent:—The witness might file the original notes and also certify as correct a typewritten transcript.

Witness:—Do you want everyone of them?

Mr. Geoffrion:—Only those four.

Mr. St. Laurent:—Only those four which deal with the test pits.

Mr. Geoffrion:—If everything is already in I won't want them, but if everything is not in I want it all.

By Mr. Geoffrion:—

Q.—Is that all that is not in?

Witness:—That has not been read?

Counsel:—Yes.

Witness:—That is all.

Q.—Will you please file these four pages with a certified typewritten copy as exhibit D-7?

A.—Yes.

Q.—You stated, as to pit No. 5, there were five feet square, leaving aside the case where you took an augur. Was that the average size?

A.—Yes, at the bottom. By the time they got to the bottom they were five feet square.

Q.—You started them wider?

A.—We had to start some of them wider, whatever the ground could stand.

Q.—You say you think No. 5 was shored. Which ones were shored and which were not?

A.—Pits 1 and 2, 4 and 5 were shored.

Q.—At what depth? For the top or for the lower?

A.—For the top.

Q.—You said that water was filling the pits. Does that apply to several pits, or to which ones?

A.—We had trouble with water in every one.

D. W. O'SHEA (recalled for Plaintiff) Cross-examination.

Q.—Did you have to use pumps in all of them?
A.—Yes.
Q.—I understand you used an augur in pits No. 4 from the level 101.5 downward to 92?
A.—Yes.
Q.—With regard to No. 1, you have a note, "Gravel seems to get coarser". What do you mean by "Coarser"?
A.—Heavier and larger pebbles.
Q.—I am a little confused about No. 2. I don't understand it. You apparently excavated a few feet, since your augur went down 18 feet ; so there had been a little excavation there, is that right?
A.—Well, as I remember, what we actually did, was to first drive an augur down, and when we found that we were not locating rock, and we could not drive the augur any further, we opened up the pit and went down some distance, and then drove the augur again.
Q.—You say you drove down in three places?
A.—Three places in the pit.
Q.—Was that after excavating?
A.—After excavating.
Q.—You first drove the augur down as far as you could drive it, and could not get deep enough, and then excavated some rock, and drove the augur from the bottom of the excavation in these three places in the pit?
A.—Yes.
Q.—At what level did you get that water which was coming through?
A.—I do not remember.
Q.—Through to the surface?
A.—No.
Q.—Was it through the gravel, or through the soft sand?
A.—I don't know. I cannot tell you about that.
Q.—Was the surface dry?
A.—Surface was dry.
Q.—You do not remember how deep you had gone when you began to get the water?
A.—No.
Q.—Did you get water continuously?
A.—Yes.
Q.—So you cannot say from what strata it came ?
A.—In came in the gravel.

And further deponent saith not.

In the Privy Council.

VOL. 2

No. 72 of 1936.

ON APPEAL

FROM THE COURT OF KING'S BENCH FOR THE PROVINCE OF QUEBEC

BETWEEN

WILLIAM I. BISHOP LIMITED and
THE BANK OF MONTREAL
(Plaintiffs and Cross-Appellants before Court of King's Bench) ... ... *Appellants*

AND

THE JAMES MACLAREN COMPANY LIMITED
(Defendant and Cross-Respondent before Court of King's Bench) ... ... *Respondent*

RECORD OF PROCEEDINGS.

VOLUME 2.—PLAINTIFFS' EVIDENCE (CONTINUED).

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