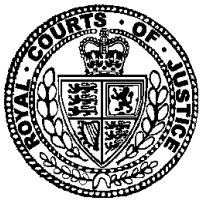

Neutral Citation Number: [2019] EWCA Civ 711

Case No: 2018/0895

IN THE COURT OF APPEAL (CIVIL DIVISION)
ON APPEAL FROM THE HIGH COURT OF JUSTICE
QUEENS BENCH DIVISION
THE HONOURABLE MRS. JUSTICE NICOLA DAVIES
TLQ17/0043

Royal Courts of Justice
Strand, London, WC2A 2LL

Date: 17/04/2019

Before :

THE PRESIDENT OF THE QUEEN'S BENCH DIVISION
(SIR BRIAN LEVESON)
LORD JUSTICE MCCOMBE
and
LORD JUSTICE BEAN

- -

Between :

CHRISTOPHER GOLDSCHEIDER	**Claimant** **Respondent**
ROYAL OPERA HOUSE COVENT GARDEN FOUNDATION	**Defendant** **(Appellant)**
- and -	
(1) ASSOCIATION OF BRITISH ORCHESTRAS **(2) SOCIETY OF LONDON THEATRE** **(3) UK THEATRE ASSOCIATION**	**Interveners**

- -
- -

David Platt QC and **Alexander Macpherson** (instructed by **BLM LLP**) for the **Appellant Defendant**
Theodore Huckle QC and Jonathan Clarke (instructed by **Fry Law**) for the **Respondent Claimant**
Patrick Limb QC and Kam Jaspal (instructed by **Weightmans**) for the **Interveners**

Hearing dates : 19-20 March 2019

- -

Approved Judgment

Lord Justice McCombe and Lord Justice Bean:

Introduction

1. Paragraphs 2 to 59 of this joint judgment have been drafted by Bean LJ; paragraphs 60 to 79 have been drafted by McCombe LJ.

2. The 2012-13 season at the Royal Opera House ("ROH"), Covent Garden, London opened with four cycles of Wagner's *Der Ring der Nibelungen.* Rehearsals began on Thursday 30 August 2012. Christopher Goldscheider was among the viola players in the orchestra. By the end of the third day of rehearsals, 1 September 2012, he had suffered injury to his hearing which ended his professional career.

3. Mr Goldscheider brought a claim for damages for personal injuries against the ROH. The claim was issued on 11 December 2015. On 11 November 2016 Master McCloud directed a trial of the preliminary issues of breach of duty and causation of injury. Following an eight day trial Nicola Davies J (as she then was) gave a reserved judgment dated 28 March 2018 finding that the Defendant was in breach of duty and that the breaches had caused the Claimant's injury.

4. On 3 October 2018 Hamblen LJ, after considering the case on the papers, granted the Defendant's application for permission to appeal. Subsequently the three interveners, who had not taken part in the trial, jointly applied for permission to intervene in the appeal, essentially supporting the Defendant's case. Hamblen LJ granted the application, again on the papers, on 4 February 2019. He did not give the interveners permission to adduce fresh evidence on appeal, and accordingly we did not consider the witness statements filed with the interveners' submissions.

5. Orchestra members at the ROH are on a full-time, first call, non-exclusive contract for 1,000 hours per season. They are required to play 860 hours per annum for the ROH with an option to play additional hours if available. As long as the player prioritises ROH work he/she is free to do additional paid work with other orchestras. Approximately six months before a season commences a provisional schedule is sent to each orchestra member setting out the various productions scheduled for the coming season. Orchestra members work in a buddy system with another member of their section to play their schedules for the coming season, it ensures one or other will be in the pit for each performance. Accompanying the provisional schedule would be a letter. In March 2012 the Orchestra Manager sent the letter which included the following:

> "When looking through the schedule, please try and bear in mind the following points:
>
> 1. Your own personal workload
>
> It may be tempting to work in blocks, but please take a realistic look and consider the effects this will have on you and your buddy in terms of workload and noise exposure. Please also remember to schedule yourselves carefully around the mid-point in the season as this is often when people find themselves very tired……..…

> 6. Noise Exposure
>
> For your information we have included noise readings in the Production Book where we have them. As noted these are the average noise exposure if the session is the only one you play in in any given day. Please consider your exposure to noise where possible when planning your season.
>
> For shows where the average noise exposure is over 80 dB we would recommend that you wear hearing protection when possible.
>
> *For shows where the average noise exposure is over 85 dB you should wear hearing protection for the whole of the session…*" [emphasis added]

6. The ROH orchestra pit is below the level of the stage, part of it overhung by the stage itself. The *Ring* was produced in 2012-13 with an orchestra of 96 players, 6 of them at the orchestra end of the stalls circle and 90 in the pit.

7. Each cycle of the *Ring* contains four operas: *Das Rheingold*, *Die Walküre*, *Siegfried* and *Götterdämmerung.* The operas are rarely performed on consecutive days; so four complete cycles, excluding rehearsal time, occupy 16 evenings spread over several weeks. The Claimant signed up for the four cycles. Included in the advance schedule were notes relating to individual performances and rehearsals. If the ROH had previously taken sound measurements from a performance of the opera, this data would be included in the advance notification of the schedules. The notes in respect of *Das Rheingold* and *Die Walküre* gave no indication of noise levels. No measurements were taken until 1 September.

8. Rehearsals commenced upon the orchestra's return from the summer break on Thursday 30 August 2012. There were morning and afternoon sessions each day. *Das Rheingold* was rehearsed for both sessions on 30 August. On 31 August they rehearsed *Das Rheingold* in the morning, *Die Walküre* in the afternoon.. The Claimant sat in the second desk of the violas at position 4 for *Das Rheingold*, in the third desk, position 5 for *Die Walküre.* In this position he was immediately in front of the trumpets when he returned after lunch for the *Die Walküre* rehearsal on 31 August.

9. The trumpets were part of a brass section which comprised 18 brass instruments: four trumpets, four trombones, nine French horns and one tuba. They were located immediately behind the claimant with hardly any space between them. The claimant had not anticipated this configuration. He had previously played in the ROH's production of the *Ring* cycle in 2005 and 2007 and could tell from the layout that the rehearsal was going to be noisy, as it proved to be, although not as loud as the next day, 1 September.

10. At the lunchtime break on 31 August one of the viola players, a health and safety representative for the orchestra, told Matt Downes, the ROH Orchestra Operations Manager, that the rehearsals had been loud but not out of the ordinary. During the afternoon rehearsal the claimant gestured to him that the rehearsal was loud by putting his fingers in his ears. Mr Downes' evidence was that he would have expected any

orchestra member who had difficulty with the noise levels to get up and leave if necessary

11. The judge found that the ROH had provided the claimant with custom moulded earplugs shortly after he joined in 2002. They were fitted by a specialist in Harley Street. 9 dB filters were agreed to provide sufficient attenuation for his work at the ROH. Hanging at the entrance to the orchestra pit were foam earplugs which provide up to 28 dB of attenuation. (In this court we were told that the correct figure is 24-25 dB, but nothing turns on this distinction). The claimant kept a pair of the foam earplugs in his viola case or pocket so he could put them on if required. For short bursts of noise from nearby instruments the 28 dB earplugs provide better protection than the 9s. The 28s made it difficult to hear other instruments, particularly in quiet passages, instructions from the conductor and his own instrument. The claimant did not regularly use the 9 dB earplugs as they did not offer sufficient protection when the music was very loud. The claimant would wear earplugs if he believed the music was too loud for safety or comfort or if loud music was coming up. He had no means of assessing if the earplugs were effective. He did not remember wearing earplugs through an entire performance. He did not remember any discussion about the wearing of earplugs with Sally Mitchell, Orchestra Administrative Director.

12. On the following morning 1 September 2012, the claimant thought he would experiment by continuously wearing his 9 dB earplugs. Within three seconds of entering the pit for the warm up prior to the start of rehearsal the claimant realised the earplugs were ineffective so he switched to the 28s before the start of the rehearsal. He used them during those parts of the rehearsal when he felt he needed them but even then the noise was overwhelming. Having played in orchestras throughout his professional life the claimant was used to noise but the sensation from so many brass instruments playing directly behind him, in a confined area, at the same time at different frequencies and volumes, created a wall of sound which was completely different to anything he had previously experienced. The lack of space and the proximity of the trumpets to the claimant's ears meant that he was in the brass section's direct line of fire. It was excruciatingly loud and painful. His right ear was particularly painful because the principal trumpet was directed at that side of his head. The Principal is the predominant player of the trumpets, playing at a higher frequency and making a very powerful sound, two trumpets were to his left, one to his right. The noise gradually increased during Saturday morning. The claimant felt weird, overwhelmed and confused but finished the session. The earplugs were ineffective to protect him from the noise. At lunch he complained to colleagues about the noise; they complained to management.

13. Following the rehearsal on the morning of Saturday 1 September Angela Bonetti, a viola player and health and safety representative, told Mr Downes that she thought the noise levels were too high. Mr Downes decided to take sound level readings for the viola and trumpet players during the afternoon rehearsal of *Die Walküre*. He placed dosemeters on individual viola players in order to ascertain how the distance from the trumpets affected noise levels.

14. Following the claimant's complaint on 1 September 2012 an incident investigation was carried out by Mr Guy Lunn, interim health and safety adviser at the ROH. It records that:

> "[The claimant's] desk partner [Ms Yendole] wore personalised earplugs with 25 dB inserts throughout the entire rehearsal and performance period of the Ring. On 1 September she said the noise was unbearably loud even with her very heavy duty plugs in. Following the two rehearsals that day she felt physically sick and found that her hearing was affected. She [became] much more sensitive to noise for a number of weeks after these rehearsals. She did say, though, that the creation of the one metre gap between the brass and the back desk of the violas where she was sitting led to a definite decrease in the noise level …."

15. On 3 September Ms Mitchell attended a meeting with Mr Downes, the principal trumpet player, the principal viola player and other members of the viola section. They discussed the noise issues which the viola section had experienced and the measurements taken at the afternoon rehearsal of 1 September. In consultation with the conductor, Sir Anthony Pappano, the orchestra layout was rearranged. A gap of one metre was created between the brass and the violas, and some of the brass were relocated to another part of the pit. Noise measurements taken after the rearrangement at a rehearsal on 11 September showed that the noise levels had significantly decreased. We set out the comparative tables for 1 and 11 September later in this judgment.

Aftermath

16. The evidence of the claimant was that prior to the rehearsal on 1 September 2012 he had no problems in his right ear nor had he suffered any of the symptoms which developed following the rehearsal on that day. Audiometry in 2010 had demonstrated noise-induced hearing loss in the left ea and some unremarkable high frequency loss in the right ear. The audiometry following the 2012 incident, by contrast, demonstrated a high frequency hearing loss in the right ear and a change in the claimant's hearing. The claimant's evidence was unequivocal; it was the rehearsal on the Saturday afternoon which caused his symptoms to develop and led to his inability to work. It has not been suggested that his symptoms, as described by himself and found by treating clinicians and independent experts, are anything other than genuine.

17. Following the incident in September 2012 the claimant attempted to return to work on a number of occasions but found it impossible. If he attempted to sit and play in the orchestra his symptoms worsened. He would feel nauseous and extremely unwell from the pain in his right ear; he felt dizzy and found it difficult to walk.

18. The last time the claimant played in an opera was May 2013. Even practising on his own was difficult because the noise from his own instrument triggered the same symptoms. In evidence he stated that "almost three years later I am unable to bear being around noise". His employment at the ROH ended in July 2014.

19. The claimant is no longer able to play in an orchestra. As a result of his sensitivity to noise and other symptoms he is unable to look for alternative work. He now lives a relatively quiet life, he has learned to avoid the noises which trigger the symptoms, for example the vibrations from a large supermarket fridge, the noise in a restaurant. The claimant and his family have moved to the country to avoid the triggers which

cause or exacerbate his symptoms. Now that he knows what causes his symptoms they are not as acute as they were in 2013. The claimant has been advised by the medical team at the Royal National Throat, Nose and Ear Hospital that he will not be able to return to orchestral playing.

Noise

20. In *Baker v Quantum Clothing Group Ltd* [2011] 1 WLR 1003 Lord Mance JSC said:-

> "2. Noise is generated by pressure levels in the air. The loudness of a noise depends on the sound pressure level of the energy producing it, measured in decibels (dB). The decibel scale is logarithmic, so that each 3dB increase involves a doubling of the sound energy, even though a hearer will not actually perceive a doubled sound pressure as involving much, if any, increase in sound. Noise is rarely pure, it usually consists of a "broadband" combination of sounds at different frequencies, and the human ear is more sensitive to noise at some (particularly middle) frequencies than at others. The sound pressure level across a range of frequencies is in a general industrial context commonly expressed by a weighted measurement described as dB(A). Apart from very loud, immediately damaging noise … damage to the human ear by noise exposure depends upon both the sound pressure level from time to time and the length of exposure, as well the individual susceptibility of the particular individual. Sound pressure level averaged over a period is described as dB(A)leq. Exposure at a given dB(A)leq for 8 hours is described as dB(A)lepd. …
>
> 3. Sound is perceived by the hearer as a result of the conversion by the ear drum of the sound pressure variations in the air into mechanical vibrations. These are conveyed by the middle ear to the cochlea, which, by a process of analysis and amplification, translates these vibrations into nerve impulses which are then transmitted to the brain's auditory nerve. Hair cells in the cochlea play a vital part in the process, and noise-induced hearing loss (described as sensorineural) is the result of damage to such hair cells resulting from exposure to noise over time. Other causes of hearing loss include decline in the conductive function of the outer and/or inner ear, due for example to disease, infection, excess wax or very loud traumatic noise, as well as loss due to simple ageing (presbyacusis). …"

21. We emphasise the point made by Lord Mance that each 3 dB increase involves a doubling of the sound pressure. A speed of 91 mph is only about 7% faster than a speed of 85 mph; but a noise level of 91 dB(A) creates sound pressure quadruple that created by a noise level of 85 dB(A).

22. We have already noted that during the afternoon rehearsal at the ROH on Saturday 1 September 2012 the noise levels were measured and recorded by Mr Downes. The

measurements relied upon by the claimant as representing exposure to noise levels which gave rise to a substantial risk of injury are as follows:

i) The average noise level to which the claimant was exposed during the three hours, 15 minutes and 24 seconds representing the total measuring period was 91.8 dB(A)Leq;

ii) At such a level the "lower EAV" (an eight-hour average of 80 dB(A)Lepd ignoring the effects of personal hearing protectors) was reached within 0.52 hours;

iii) The "upper EAV" (an eight-hour average of 85 dB(A) Lepd ignoring the effects of personal hearing protectors) was reached within 1.6 hours;

iv) The "exposure limit value" (an eight-hour average of 87 dB(A) Lepd taking into account the effects of personal hearing protectors worn) would have been reached within 2.64 hours if no personal hearing protectors had been worn.

v) The average exposure during the two hours and 58 minutes measurement period between the cursors was 92.2 dB(A)Leq;

vi) The lower EAV was reached within 0.477 hours;

vii) The upper EAV was reached within 1.52 hours;

viii) The exposure limit value would be reached within 2.41 hours if no personal hearing protection was worn.

These figures do not take account of the exposure during the morning rehearsal.

23. Mr Downes also took measurements during a later rehearsal of the same opera on the afternoon of 11 September 2012, by which time the Claimant was no longer at work. The Leq reading for Ms Yendole was 83dB(A) (in contrast with 91dB(A) on 1 September); the Lepd was 79dB(A), again contrasting with 87dB(A) on 1 September. (It appears that noise measurements were also taken during the public performance of *Die Walküre* on 28 October, but we were not told what the results were.) The lower figures for the 11 September rehearsal were said by the ROH to be due to two factors: the conductor was rehearsing less noisy sections of the opera and it was a stop-start rehearsal.

24. It is convenient to set out the noise measurement readings for a number of the viola players and for the principal trumpet taken on the afternoon of 1 September and the morning of 11 September 2012:-

Rehearsal from 14:00-17:00 on 1 September 2012	**Badge Number**	**Leq in dB(A)**	**Lepd**
Viola Desk 1 No 2	(2725)	88	84
Viola Desk 2 No 4	(2724)	87	83

Viola Desk 3 No 6	(2718)	91	87
Viola Desk 3 No 5	(2726)	92	88
Viola Desk 4 No 7	(2722)	86	82
Viola Desk 5 No 10	(2719)	92	88
Trumpet 1	(2721)	93	89
Rehearsal from 11:00-14:00 on 11 September 2012	**Badge Number**	**Leq in dB(A)**	**Lepd**
Viola Desk 1 No 2	(2718)	82	78
Viola Desk 2 No 4	(2719)	82	78
Viola Desk 3 No 6	(2721)	83	79
Viola Desk 5 No 9	(2722)	81	77
Viola Desk 5 No 10	(2724)	83	79
Viola Desk 4 No 8	(2725)	82	78
Trumpet 1	(2726)	86	82

25. Mr Goldscheider was at viola desk 3 No 5 and his desk partner was at No 6. The Lepd figure of 88 for his position on 1 September 2012 reflected only one three hour session. It was accepted that if both the morning and afternoon rehearsals were taken into account the figure would be 91.

26. Mr Kevin Worthington, a consulting engineer called as an expert witness on behalf of the Defendant, agreed that high frequency sound is more directional than low frequency sound, although the intensity of the noise will reduce over a distance. Noise being funnelled from a brass instrument is highly directional. The bell of a trumpet being played relatively close to the head of another player will produce relatively high frequency and directional noise.

Sound Advice

27. In 2008 the Health and Safety Executive published a document entitled "Sound Advice: Control of Noise at Work in Music and Entertainment" following consultation and collaboration with members of the Music and Entertainment Sector Working Group. The ROH were members of the Working Group and contributed to the research and the production of the Guidance.

28. *Sound Advice* contains practical guidelines on the control of noise at work in music and entertainment. As the judge said in her judgment:

> *"*The aim [was] to help those in the field control or reduce exposure to noise at work without stopping people from enjoying music. It acknowledged that lowering noise levels is an enormous challenge for an industry whose purpose is the creation of sound for pleasure. Orchestral sound is not an unwanted secondary by-product of a primary process but the product itself. The difficulty for the ROH as opposed to orchestras which perform on the concert platform is that the latter have considerably more options for spacing sections widely apart and for using risers to allow vertical separation between the sections which assist in lowering noise levels. These are impractical in the pit due to space constraints."

29. The judge continued:

> "The recommendations in Sound Advice as to possible ways to reduce noise by physical means were considered by the ROH. Examples of attempts to reduce noise at the ROH are:
>
> i) Moveable light screens which attach to walls, the idea being that they would absorb some of the sound. Musicians felt they could not judge how loudly they were playing, as a result they played louder to compensate;
>
> ii) Soft Australian GoodEar acoustic screens, a concave shape which go behind and around the sides of the musician's head. They are large, not transparent, they can obstruct other players' views of the conductor and take up a lot of space between the players which affects the layout of other parts of the pit;
>
> iii) A3 sized transparent acoustic screens on a stand, positioned between different sections. They are of limited use because they reflect the sound back to the player who is playing into them, thereby increasing the noise exposure;
>
> iv) The most effective and efficient way to reduce overall noise levels is to create space between the sections but this is very difficult in a crowded pit. The ROH has attempted to enlarge the pit by taking out seats in the stall circle and lowering the lifts on which they sit into the pit. This creates significant loss of ticketing to the ROH, in the 2015/16 season the loss was £343,000."

Breach of duty

The Control of Noise at Work Regulations 2005

30. The 2005 Regulations, so far as material, provide:

> "2. Interpretation
>
> (1) In these Regulations –

… "noise" means any audible sound; …

3. Application

(1) These Regulations shall have effect with a view to protecting persons against risk to their health and safety arising from exposure to noise at work.

(2) Where a duty is placed by these Regulations on an employer in respect of his employees, the employer shall, so far as is reasonably practicable, be under a like duty in respect of any other person at work who may be affected by the work carried out by the employer except that the duties of the employer…

…

4. Exposure limit values and action values

(1) The lower EAVs are—

(a) a daily or weekly personal noise exposure of 80 dB (A-weighted); and

(b) a peak sound pressure of 135 dB (C-weighted).

(2) The upper EAVs are—

(a) a daily or weekly personal noise exposure of 85 dB (A-weighted); and

(b) a peak sound pressure of 137 dB (C-weighted).

(3) The exposure limit values are—

(a) a daily or weekly personal noise exposure of 87 dB (A-weighted); and

(b) a peak sound pressure of 140 dB (C-weighted).

(4) Where the exposure of an employee to noise varies markedly from day to day, an employer may use weekly personal noise exposure in place of daily personal noise exposure for the purpose of compliance with these Regulations.

(5) In applying the exposure limit values in paragraph (3), but not in applying the lower and upper exposure action values in paragraphs (1) and (2), account shall be taken of the protection given to the employee by any personal hearing protectors provided by the employer in accordance with regulation 7(2).

5. Assessment of the risk to health and safety created by exposure to noise at the workplace

(1) An employer who carries out work which is liable to expose any employees to noise at or above a lower EAV shall make a suitable and sufficient assessment of the risk from that noise to the health and safety of those employees, and the risk assessment shall identify the measures which need to be taken to meet the requirements of these Regulations.

(2) In conducting the risk assessment, the employer shall assess the levels of noise to which workers are exposed by means of—

(a) observation of specific working practices;

(b) reference to relevant information on the probable levels of noise corresponding to any equipment used in the particular working conditions; and

(c) if necessary, measurement of the level of noise to which his employees are likely to be exposed,

and the employer shall assess whether any employees are likely to be exposed to noise at or above a lower EAV, an upper EAV, or an exposure limit value.

(3) The risk assessment shall include consideration of —

(a) the level, type and duration of exposure, including any exposure to peak sound pressure;

(b) the effects of exposure to noise on employees or groups of employees whose health is at particular risk from such exposure;

(c) so far as is practicable, any effects on the health and safety of employees resulting from the interaction between noise and the use of ototoxic substances at work, or between noise and vibration;

(d) any indirect effects on the health and safety of employees resulting from the interaction between noise and audible warning signals or other sounds that need to be audible in order to reduce risk at work;

(e) any information provided by the manufacturers of work equipment;

(f) the availability of alternative equipment designed to reduce the emission of noise;

(g) any extension of exposure to noise at the workplace beyond normal working hours, including exposure in rest facilities supervised by the employer;

(h) appropriate information obtained following health surveillance, including, where possible, published information; and

(i) the availability of personal hearing protectors with adequate attenuation characteristics.

(4) The risk assessment shall be reviewed regularly, and forthwith if—

(a) there is reason to suspect that the risk assessment is no longer valid; or

(b) there has been a significant change in the work to which the assessment relates,

and where, as a result of the review, changes to the risk assessment are required, those changes shall be made.

(5) The employees concerned or their representatives shall be consulted on the assessment of risk under the provisions of this regulation.

(6) The employer shall record—

(a) the significant findings of the risk assessment as soon as is practicable after the risk assessment is made or changed; and

(b) the measures which he has taken and which he intends to take to meet the requirements of regulations 6, 7 and 10.

6. Elimination or control of exposure to noise at the workplace

(1) The employer shall ensure that risk from the exposure of his employees to noise is either eliminated at source or, where this is not reasonably practicable, reduced to as low a level as is reasonably practicable.

(2) If any employee is likely to be exposed to noise at or above an upper EAV, the employer shall reduce exposure to as low a level as is reasonably practicable by establishing and implementing a programme of organisational and technical measures, *excluding the provision of personal hearing protectors*, which is appropriate to the activity. [emphasis added]

(3) The actions taken by the employer in compliance with paragraphs (1) and (2) shall be based on the general principles of prevention set out in Schedule 1 to the Management of Health and Safety Regulations 1999(1) and shall include consideration of—

(a) other working methods which reduce exposure to noise;

(b) choice of appropriate work equipment emitting the least possible noise, taking account of the work to be done;

(c) the design and layout of workplaces, work stations and rest facilities;

(d) suitable and sufficient information and training for employees, such that work equipment may be used correctly, in order to minimise their exposure to noise;

(e) reduction of noise by technical means;

(f) appropriate maintenance programmes for work equipment, the workplace and workplace systems;

(g) limitation of the duration and intensity of exposure to noise; and

(h) appropriate work schedules with adequate rest periods.

(4) The employer shall—

(a) ensure that his employees are not exposed to noise above an exposure limit value; or

(b) if an exposure limit value is exceeded forthwith—

(i) reduce exposure to noise to below the exposure limit value;

(ii)identify the reason for that exposure limit value being exceeded; and

(iii) modify the organisational and technical measures taken in accordance with paragraphs (1) and (2) and regulations 7 and 8(1) to prevent it being exceeded again.

…

(7) The employees concerned or their representatives shall be consulted on the measures to be taken to meet the requirements of this regulation.

7. Hearing Protection

(1) Without prejudice to the provisions of regulation 6, an employer who carries out work which is likely to expose any employees to noise at or above a lower EAV shall make personal hearing protectors available upon request to any employee who is so exposed.

(2) Without prejudice to the provisions of regulation 6, if an employer is unable by other means to reduce the levels of noise to which an employee is likely to be exposed to below an upper EAV, he shall provide personal hearing protectors to any employee who is so exposed.

(3) If in any area of the workplace under the control of the employer an employee is likely to be exposed to noise at or above an upper EAV for any reason the employer shall ensure that—

(a) the area is designated a Hearing Protection Zone;

(b) the area is demarcated and identified by means of the sign specified for the purpose of indicating that ear protection must be worn in paragraph 3.3 of Part II of Schedule 1 to the Health and Safety (Safety Signs and Signals) Regulations 1996(1); and

(c) access to the area is restricted where this is practicable and the risk from exposure justifies it,

and shall ensure so far as is reasonably practicable that no employee enters that area unless that employee is wearing personal hearing protectors.

(4) Any personal hearing protectors made available or provided under paragraphs (1) or (2) of this regulation shall be selected by the employer—

(a) so as to eliminate the risk to hearing or to reduce the risk to as low a level as is reasonably practicable; and

(b) after consultation with the employees concerned or their representatives

8. Maintenance and use of equipment

(1) The employer shall—

(a) ensure so far as is practicable that anything provided by him in compliance with his duties under these Regulations to or for the benefit of an employee, other than personal

hearing protectors provided under regulation 7(1), is fully and properly used; and

(b) ensure that anything provided by him in compliance with his duties under these Regulations is maintained in an efficient state, in efficient working order and in good repair.

(2) Every employee shall—

(a) make full and proper use of personal hearing protectors provided to him by his employer in compliance with regulation 7(2) and of any other control measures provided by his employer in compliance with his duties under these Regulations; and

(b) if he discovers any defect in any personal hearing protectors or other control measures as specified in sub-paragraph (a) report it to his employer as soon as is practicable.

9. Health Surveillance

(1) If the risk assessment indicates that there is a risk to the health of his employees who are, or are liable to be, exposed to noise, the employer shall ensure that such employees are placed under suitable health surveillance, which shall include testing of their hearing.

(2) The employer shall ensure that a health record in respect of each of his employees who undergoes health surveillance in accordance with paragraph (1) is made and maintained and that the record or a copy thereof is kept available in a suitable form.

(3) The employer shall—

(a) on reasonable notice being given, allow an employee access to his personal health record; and

(b) provide the enforcing authority with copies of such health records as it may require.

(4) Where, as a result of health surveillance, an employee is found to have identifiable hearing damage the employer shall ensure that the employee is examined by a doctor and, if the doctor or any specialist to whom the doctor considers it necessary to refer the employee considers that the damage is likely to be the result of exposure to noise, the employer shall—

(a) ensure that a suitably qualified person informs the employee accordingly;

(b) review the risk assessment;

(c) review any measure taken to comply with regulations 6, 7 and 8, taking into account any advice given by a doctor or occupational health professional, or by the enforcing authority;

(d) consider assigning the employee to alternative work where there is no risk from further exposure to noise, taking into account any advice given by a doctor or occupational health professional; and

(e) ensure continued health surveillance and provide for a review of the health of any other employee who has been similarly exposed.

(5) An employee to whom this regulation applies shall, when required by his employer and at the cost of his employer, present himself during his working hours for such health surveillance procedures as may be required for the purposes of paragraph (1).

10. Information, instruction and training

(1) Where his employees are exposed to noise which is likely to be at or above a lower EAV, the employer shall provide those employees and their representatives with suitable and sufficient information, instruction and training.

(2) Without prejudice to the generality of paragraph (1), the information, instruction and training provided under that paragraph shall include—

(a) the nature of risks from exposure to noise;

(b) the organisational and technical measures taken in order to comply with the requirements of regulation 6;

(c) the exposure limit values and upper and lower exposure action values set out in regulation 4;

(d) the significant findings of the risk assessment, including any measurements taken, with an explanation of those findings;

(e) the availability and provision of personal hearing protectors under regulation 7 and their correct use in accordance with regulation 8(2);

(f) why and how to detect and report signs of hearing damage;

> (g) the entitlement to health surveillance under regulation 9 and its purposes;
>
> (h) safe working practices to minimise exposure to noise; and
>
> (i) the collective results of any health surveillance undertaken in accordance with regulation 9 in a form calculated to prevent those results from being identified as relating to a particular person.
>
> (3) The information, instruction and training required by paragraph (1) shall be updated to take account of significant changes in the type of work carried out or the working methods used by the employer.
>
> (4) The employer shall ensure that any person, whether or not his employee, who carries out work in connection with the employer's duties under these Regulations has suitable and sufficient information, instruction and training."

31. We begin with regulation 6, which seems to us to be the most significant for present purposes.

The judge's findings on Regulation 6

Regulation 6(1)

32. The judge found (at paragraphs 200-202);

> "The defendant could not eliminate the risk from the exposure of noise at source at the rehearsal on 1 September 2012 given that it emanated from an instrument or instruments of the defendant's orchestra. HSE Sound Advice recommends playing quieter at rehearsals. The defendant concedes that it would be physically possible to have performed the piece at a lower level of sound but averred that playing quieter would have unreasonably compromised the artistic output of the orchestra. There is no evidence that such a course was contemplated at the rehearsals on 1 September. In the meeting between Sir Antonio Pappano and Mr Downes, which resulted in the revised orchestral configuration, there is no note of any discussion regarding the safety of the musicians in the new configuration. In the 2012 BBC Publication "Musicians' guide to noise and hearing, Toolkit for managers" the rearrangement of sections to reduce noise includes:
>
> > "Single vs. double ranking the brass: ideally the trumpets and trombones should be in a straight line as it is preferable to have more space in front; if there is limited space (and if risers permit it) a curved line can help to increase lateral

> space. On the other hand if there is too much space the brass ensemble suffers and it increases the number of string players in the firing line."
>
> There is no evidence to suggest this issue was considered. Following the complaints on the Saturday morning and knowing the pit was cramped the afternoon rehearsal could have been postponed to allow for reconfiguration. This was not considered practical. The afternoon rehearsal could have been monitored from the outset using handheld noise meters in the area of the violas to provide live time readings. This would have been a limited physical presence in a specific area of the orchestra which could have produced an immediate reading of sound levels in the area of the complaint. This was not done. Dosemeters do not provide live time readings, thus no live time readings were taken during the entirety of the rehearsal notwithstanding the viola players' complaints. Had they been done the noise levels which caused particular difficulty to the claimant and his desk partner could have been immediately identified and steps taken to remove or reduce the problem.
>
> The primary duty pursuant to Regulation 6(1) is to be judged not only by reference to the EAVs, it is a general obligation to do everything reasonably practicable to remove the risk of any form of noise injury. By reason of the matters set out in paragraph 200 and 201 above, in particular the failure to obtain live time readings, I am not satisfied that the defendant did everything that could reasonably practicably have been done to reduce the risk of noise at the rehearsal on the afternoon of 1 September 2012."

Regulation 6(2)

33. The judge found (at paragraphs 203-205):

> "Regulation 6(2) was engaged by reason of the claimant's exposure to the noise levels in excess of 85 dB(A)Lepd. It required the claimant's noise exposure to be reduced by measures appropriate to the activity excluding the provision of personal hearing protectors. The only measure introduced by the defendant to reduce the claimant's exposure to noise was the provision of personal hearing protectors. Prima facie, the defendant is in breach of Regulation 6(2). This was a large orchestra, 96 players plus one conductor. 90 were in the orchestra pit, 6 were adjacent to or raised above the pit. The statement in the risk assessment that "the orchestra pit has been laid out to maximise available space between musicians…" represents wishful thinking rather than practical application. I find that the defendant was in breach of Regulation 6(2).

> From the time of the meeting between the Musical Director and Mr Downes, the management and Musical Director would have known that a large orchestra was to be employed, they would have known the pit would be cramped, they knew the opera contained loud passages. Save for the provision of earplugs, left to the discretion of musicians as to when they should be worn, no steps were taken to immediately reduce the noise of the Saturday afternoon rehearsal even when the problem had been brought to the attention of management. The primary consideration of the new orchestral configuration was artistic. There is a stated wish to maintain the highest artistic standards in order to maintain the ROH's reputation and attract internationally renowned singers and conductors. Of itself this is laudable. The difficultly arises when such artistic requirements result in a risk to the health and safety of the ROH's employees. This tension was acknowledged. I accept that the ROH took steps to genuinely address its obligations pursuant to the 2005 Regulations. I read and listened to the honest and earnest evidence of Ms Mitchell and Mr Downes. I read the unchallenged statement of Mr Beard. Having done so I am left with a sense that the ROH's wish to maintain the highest artistic standards and uphold its reputation coupled with the deference accorded to the artistic aims of leading conductors were factors which had the potential to impact upon its obligations pursuant to the 2005 Regulations. However laudable the aim to maintain the highest artistic standards it cannot compromise the standard of care which the ROH as an employer has to protect the health and safety of its employees when at their workplace."

Discussion: Regulations 6(1)-(2)

34. It is common ground, as the skeleton argument on behalf of the ROH accepted, that Regulation 6(1) imposed a duty upon the Defendant to reduce the risk from exposure to noise to as low a level as was reasonably practicable. Similarly, it was accepted that under Regulation 6(2), once noise levels were likely to be above an upper exposure action value (as was the case on 1 September in relation to the daily exposure dose, but not the peak noise levels) the Defendant came under a duty to reduce noise exposure to as low a level as reasonably practicable by means of a programme of organisational and technical measures (excluding the provision of hearing protectors). There is no exemption under the Regulations for the music and entertainment sectors: they were given a two year period of grace by Regulation 1(a), but that expired on 6 April 2008.

35. It is also beyond dispute that on 1 September 2012, the Claimant and others were exposed to noise with a dB(A) Lepd value of between 91 and 92, at least quadruple the upper EAV of 85dB(A) Lepd, and that management were well aware that exposure to noise above 85dB(A) Lepd was likely. The critical question thus becomes whether the ROH had reduced exposure to as low a level as was reasonably

practicable, and in particular taken all reasonable steps to reduce it to below 85dB(A) Lepd.

36. Before considering the Defendant's case on this issue we should mention two points of law. The first is that in *Baker v Quantum Clothing Group Ltd* the Supreme Court reaffirmed (at paragraph 76) the rule laid down by the House of Lords in *Nimmo v Alexander Cowan and Sons Ltd* [1968] AC 107 that "if the workplace is unsafe, then the burden shifts to the employer to show that it was not reasonably practicable to make and keep it safe"; the same applies where it is shown that the employer is in prima facie breach of any other statutory duty subject to the defence of taking all reasonably practicable steps to avoid a breach. (Whether any of this has been changed by section 69 of the Enterprise and Regulatory Reform Act 2013, and if so to what extent, remains to be seen, but the Act does not apply to the present case).

37. The second is that the employer's duty under Regulation 6(2) is independent of its duties under Regulation 7. The duty under Regulation 6(2) is to reduce exposure to as low a level as is reasonably practicable by measures *excluding* the provision of personal hearing protectors (PHPs). If the Defendant establishes that it took all reasonably practicable steps then the debate moves on to Regulation 7. But if it does not, the Claimant establishes his case before one even gets to Regulation 7. It is not a defence to the claim under regulation 6 to say that if the claimant had worn PHPs throughout the rehearsal, or whenever loud music was being or was about to be played, his exposure to noise would never have reached 85 dB(A).

38. The Defendant submits in its skeleton argument that the judge failed to deal with (and wrongly failed to accept) the Defendant's pleaded case and evidence that it had taken all reasonably practicable steps to reduce the risk of noise exposure, and the relevant noise levels, for the purposes of Regulations 6(1) and 6(2). The pleaded Defence conveniently summarises the steps relied on:-

> "11.1 The Defendant's careful consideration of the risks posed to orchestral players by noise exposure, and its close involvement in the development of national guidance dealing with the same;
>
> 11.2 The preparation of detailed written risk assessment specific to the production and the carrying out of the control measures identified;
>
> 11.3 The pit planning process and the organisation of the orchestra which the Defendant undertook to reduce noise risks;
>
> 11.4 The continuing responsive attitude to risk which encouraged players to inform the Defendant of any concerns or problems so that improvements could be considered;
>
> 11.5 The comprehensive training, instruction and information provided to the players;
>
> 11.6 The promulgation of national guidance to all relevant employees;

> 11.7 The variety of hearing protection provided to the players, including expensive ear plugs which offered variable attenuation;
>
> 11.8 The programme of regular health surveillance, including the taking of audiograms to monitor the hearing levels of players."

The Defence goes on to plead that the ROH did take all organisational and technical measures (other than the provision of hearing protection) which were reasonably practicable to reduce noise exposure, but adds that the scope of these measures was "necessarily limited by the nature of the Defendant's undertaking and the physical constraints of the orchestral pit".

39. We are not surprised that the judge rejected these submissions. In our view the ROH fell well short of establishing the defence at the trial. The most damning single piece of evidence is the comparison between the two tables of noise measurement readings which we have set out at paragraph 24 above. The dB(A) exposure level for the period of the 1 September 2012 afternoon rehearsal was 92 for the Claimant and 91 for his desk partner Ms Yendole (with similar or even greater levels for viola desk 5 no. 10 and the principal trumpet), whereas on the afternoon of 11 September 2012, by which time the Claimant was off sick, the figures were all sharply reduced, in Ms Yendole's case to 83. The Defendant's explanation of the difference was that it was due to two factors; the conductor was rehearsing less noisy sections of the opera, and it was a stop/start rehearsal. But this assertion was not supported by detailed evidence; and ignores the reconfiguration of the brass instruments within the pit.

40. The judge rightly accepted that the Defendant had taken a number of steps (such as the use of hearing screens) in an attempt to reduce noise levels in the pit. She also noted, and apparently accepted, the evidence of Mr Alex Beard, the Defendant's Chief Executive, that to expand the pit by removing the front two rows of the stalls would involve a closure of the ROH for six months, with a loss of income and capital cost which the House could not afford: there was also evidence that apart from the cost such a step might in any event have had relatively little effect on the noise problem.

41. However, this evidence was insufficient to establish the defence to the allegation of breach of Regulation 6. If the Defendant wished to show that it was not reasonably practicable to reduce the daily exposure to 85dB(A) one might have expected evidence on the following lines. Firstly, it might have been shown that a level of 91-92dB(A) is regularly reached in public performances of Wagner operas at the ROH whatever the configuration of the pit, whatever the number of brass instruments used and whoever is conducting. Secondly, evidence might have been led to show that to keep within the upper EAV would mean that Wagner could not be performed at all at the ROH, or that his works could be performed only in a way which would compromise artistic standards to an unacceptable extent. Thirdly, the Defendant might have attempted to prove that the only way in which the rehearsals could have been scheduled is on the basis of six hours rehearsal per day on consecutive days, with no consideration being given to whether it was essential for the loudest passages to be played again and again throughout the day at full volume.

42. It is in our judgment particularly significant that the pit was reconfigured after 1 September with the brass instruments being split up. There is no evidence that this caused an unacceptable reduction (or indeed any reduction at all) in the artistic standards of the *Ring* Cycle when it came to be performed in public. Alterations made by defendants after a workplace accident do not necessarily demonstrate liability retrospectively, but they do make it very difficult for the defendant to prove that all reasonably practicable steps had already been taken.

43. The Defendant relied on s 1 of the Compensation Act 2006, which provides:-

> "*Deterrent effect of potential liability*
>
> A court considering a claim in negligence or breach of statutory duty may, in determining whether the defendant should have taken particular steps to meet a standard of care (whether by taking precautions against a risk or otherwise), have regard to whether a requirement to take those steps might—
>
> (a) prevent a desirable activity from being undertaken at all, to a particular extent or in a particular way, or
>
> (b) discourage persons from undertaking functions in connection with a desirable activity."

44. Whether or not this alters the common law as laid down by the House of Lords in *Tomlinson v Congleton BC* [2004] 1 AC 46 (as to which there is an interesting discussion in *Clerk and Lindsell on Torts*, 22nd edition (2018), at 8-180), we do not consider that it assists the ROH. It might have done if the evidence had demonstrated that nothing more could have been done to reduce noise without the ROH having to abandon the Wagner repertoire entirely. But we are a long way from that in the present case.

45. We shall come later to the issues of factual and medical causation, but for the moment will mention the Defendant's argument on foreseeability. The Defendant argued before the judge and before us that "the noise readings taken by Mr Downes at the index rehearsal of 1 September 2012 only reached the exposure action values which related to long term exposure over an extended period of time.". It was conceded that "the exposure of 92dB(A) Lepd if continued over the long term, and if not mitigated by the wearing of hearing protection or other measures, posed a well-recognised risk of gradually causing NIHL over several years." But that, it was argued, was quite different from what occurred in the present case.

46. We accept that it was not foreseen by anyone, and perhaps was not reasonably foreseeable, that exposure to noise levels of 92dB(A) (as opposed to peak noise levels in excess of 137dB(C)) would cause sudden injury. But in our view this is irrelevant in law. The Regulations were enacted in order to protect employees against the risk of injury to their hearing caused by excessive noise at work. It was foreseeable that if the upper exposure action value was exceeded by a factor of four the musicians would suffer injury to their hearing. Once the Defendant has failed to show that it reduced the noise exposure to as low a level as was reasonably practicable, and that it took all reasonably practicable steps to reduce it to 85 dB(A), the fact that the foreseeable risk

was of long term rather than traumatic injury is in our view neither here nor there: *Hughes v Lord Advocate* [1963] AC 837; *Page v Smith* [1996] 1 AC 155.

47. For these reasons, we agree with the judge that the Defendant was in breach of its duty under both Regulation 6(1) and 6(2).

48. In many cases it would be sufficient to say nothing about other breaches of duty. However, the judge's findings about hearing protection have caused considerable concern in the industry, and we will therefore deal with the alleged breaches of regulations other than Regulation 6.

Regulation 7

The judge's findings on hearing protection

49. The judge found (at paragraphs 207-209):

> "The wording of Regulation 7(3)(a) and (b) is clear. If an employee is likely to be exposed to noise at or above an upper EAV the employer **shall ensure** that the area is designated a Hearing Protection Zone, is demarcated and identified by means of the sign specified for the purpose of indicating that hearing protection must be worn…….. In the detailed evidence given by Ms Mitchell and Mr Downes as to the steps attempted or taken by the ROH over the years to reduce noise there appears to have been no consideration given to the requirements of Regulation 7(3)(a) to (c). In my view this is a matter upon which Mr Lunn, the Health and Safety Advisor of the ROH, could have been questioned had Mr Platt QC called him to give evidence.
>
> I do not accept the defendant's contention that the alleged breach of Regulation 7 is a sterile allegation. The mandatory requirements have been breached. The Regulations recognise no distinction as between a factory and an opera house. As at the date of the claimant's accident a breach of the 2005 Regulations provided a basis for a claim in civil liability. Breaches of Regulation 7(3)(a) and (b) are directly relevant to the instruction given to employees for the wearing of personal hearing protectors in the orchestra pit. This Regulation places a more onerous duty on the employer not only in terms of demarcation but in the context of the signage, the instruction it gives to its employees prior to entering the demarcated area, namely that ear protection must be worn. I find that the management of the ROH had not focused properly or at all on these provisions, the instruction given to its employees did not reflect the stringent requirements of Regulation 7(3)(b).
>
> The failure to properly consider the provisions of Regulation 7(3) and the need to give instruction consistent with it impacts upon Regulation 10, namely the information, instruction and

> training provided to employees. There is no evidence from the claimant or the defendant that advice or training consistent with the requirements of Regulation 7(3) and the imperative to wear hearing protection in a Hearing Protection Zone was given to any employee.
>
> A consistent theme throughout the evidence of Ms Mitchell and Mr Downes was that musicians will judge for themselves when to wear hearing protection provided by the ROH and that monitoring the use of the same in the orchestra pit is unrealistic. I accept the spirit and honesty of their evidence. It meets the requirements of Regulation 7(1). Insofar as the claimant is concerned, hearing protection was provided, Regulation 7(2) is met. The problems for the defendant are Regulations 7(3)(a) to (c). If management does not fully appreciate or take steps to implement the requirements of the Regulations it cannot fully or properly inform and instruct its musicians as to the imperative nature of the need to wear the protection within what should have been a designated area. This is where the defendant failed."

50. The judge reinforced the final point in paragraph 212, where she said:

> "I find that the ROH did not inform the claimant, nor it would appear other orchestra players, of the mandatory requirement to wear hearing protection when the noise was likely to be above the upper EAV. It is not enough to leave the issue to the musicians to judge for themselves, they should have been informed of the strict requirement and the need for it, an instruction which should have been replicated in signage in and around the orchestra pit at the time of the rehearsal on 1 September 2012. For these reasons I find that there is a breach of Regulation 10(1)."

Discussion

51. The judge was right to find that the orchestra pit should have been designated a Hearing Protection Zone in compliance with Regulation 7(3) of the 2005 Regulations and that an appropriate sign should have been displayed. Subparagraphs (a) and (b) of regulation 7(3) are categorical and appear to us to admit of no exceptions. But the duty imposed in the final part of regulation 7(3) to ensure the wearing of PHPs by any employee entering the area is qualified by the words "so far as is reasonably practicable".

52. We noted early in this judgment the Orchestra Manager's letter to players in March 2012 advising them that where noise levels were likely to exceed 85d(B)A, PHPs should be worn at all times. Nevertheless it is clear that there was a consensus at the trial that it was *not* reasonably practicable for members of the orchestra to wear PHPs throughout performances or rehearsals, since to do so during quieter passages of the music would mean they could not hear sufficiently clearly.

53. The claimant's evidence (as set out by the judge at paragraphs 13-14 of the judgment) was that he would wear earplugs if he believed the music was too loud for safety or comfort or if he thought loud music was coming up. He had been provided with two types of earplugs, 9 dB and 28 dB. The 9 dB earplugs did not offer sufficient protection when the music was very loud: the 28 dB provided better protection for short bursts of noise from nearby instruments, but made it difficult to hear other instruments (particularly in quiet passages), instructions from the conductor and his own instrument.

54. In the case of brass players the evidence went further: because of the phenomenon of occlusion caused by blowing into an instrument while wearing earplugs, they find the wearing of PHPs unbearable. The judge heard evidence from Mr Ashley Wall who was a principal tuba player at the ROH for 37 years until his retirement in 2010. The ROH supplied him with a pair of 15 dB earplugs. The plugs caused his perception of his sound to be distorted to an unacceptable degree, a recognised phenomenon (occlusion) where the player's skull is in contact with a brass instrument. It was not practicable to wear earplugs 100 per cent of the time if one wanted to perform at the highest levels.

55. It was submitted on behalf of the ROH before the judge and before us that the approach which the defendant adopted with its musicians in the light of these difficulties was collaborative and cooperative. The approach resulted in an increase in the extent to which hearing protection was worn and is consistent with the industry guidance published by the HSE, the BBC and the Association of British Orchestras. It would be impossible to enforce the wearing of hearing protection unless a member of the defendant's staff was standing next to the players in the pit itself: moreover, it would not be possible to walk around the employees at work and check they are wearing the hearing protection. The plugs are transparent and cannot easily be seen even when placed in the ear.

56. Mr Huckle's submission, accepted by the judge, was that the closing words of Regulation 7(3) mean exactly what they say. The defendant was required to enforce the blanket wearing of PHPs for all players in the pits at all times if in the course of the rehearsal or performance any member of the orchestra was likely to be exposed over the upper EAV. (As an internal memo at the ROH pointed out, this would apply to most, though not all, of the operatic repertoire.) He derived support from paragraph 91 of the Health and Safety Executive's 2005 guidance document L108, *Controlling Noise at Work,* which states that "before entering a hearing protection zone people must put on suitable hearing protection and must wear it all the time they are within the zone. You should instruct employees and other people of these requirements, and put a system of supervision in place to ensure these instructions are followed". When asked how the rule would apply to brass players he was unable to give a convincing answer.

57. We do not agree with the judge's apparent conclusion that Regulation 7(3) is to be interpreted in the absolutist way put forward by Mr Huckle, at least in its application to the playing of classical music and opera. "Reasonably practicable" is not the same as "physically practicable". We accept the ROH's case that it was not reasonably practicable for players in their orchestra pit to perform if they were to be required to wear PHPs at all times. We set aside the judge's finding of a breach of Regulation 7(3), and the consequential finding at paragraph 212 of a breach of Regulation 10(1).

Regulation 5

The judge's findings on risk assessment

58. The judge found (at paragraphs 78-79 and 197-199):

> "Mr Downes undertook an orchestra specific risk assessment in respect of the *Das Rheingold* and *Die Walküre* performances prior to rehearsals commencing in 2012. The risk assessment is an electronic document. He omitted to sign or date the document or identify himself as the "manager responsible". It was his evidence that the assessments fully considered the implications of noise and set out recommendations to safeguard orchestra members which were implemented where possible.
>
> The risk assessment states that the following control measures were in place. The orchestra pit had been laid out "to maximise available space between musicians". A variety of hearing protection earplugs was available for the musicians to use. Acoustic screens were used "where appropriate". There would be the "removal of any synthesized sounds from the orchestra pit if appropriate". The orchestra would be aware of all additional noise hazards (such as gunshots on stage). The side elevators were to be lowered in order to increase the size of the open area of the pit. Under the hearing "additional control measures required" the document stated:-
>
> > "Encourage the musicians to wear their plugs for the duration of each production, as this is the only way to realistically reduce exposure."
>
> …….I find that the failure to: (a) identify the area as a Hearing Protection Zone together with the absence of appropriate signage; and (b) impose more stringent requirements for the wearing of hearing protection does represent a breach of Regulation 5(1) in that the risk assessment failed to fully identify the measures which needed to be taken to meet the requirements of the 2005 Regulations.
>
> I find there was a breach of Regulation 5(3)(a) in that the risk assessment did not include specific consideration of the level, type and duration of exposure including peak sound pressure. Regulation 5(4) requires the assessment to be regularly reviewed and if there is reason to suspect that it is no longer valid changes should be made. No amendment was made to the original risk assessment when changes were made to the orchestral configuration following the claimant's incident…….
>
> The identified breaches of Regulation 5 are such as to lead me to conclude that the risk assessment prepared by Mr Downes

> for the production of *Die Walküre* in 2012 was not a suitable or sufficient assessment of risk so as to comply with Regulation 5 of the 2005 Regulations."

Discussion

59. In view of our conclusions on Regulations 6 and 7 we will, without disrespect, deal only briefly with the judge's findings of breaches of Regulation 5. We agree with the judge that there was a breach in that the risk assessment undertaken before rehearsals began did not include specific consideration of the expected level, type and duration of exposure including peak sound pressure; and there was no review of the risk assessment as the rehearsals went on. We have already (as the judge did) considered the failure to designate the pit as a hearing protection zone and to put up an appropriate sign under Regulation 7, in the light of which that aspect of the risk assessment appears to us to be academic. We disagree with the judge that the risk assessment ought to have imposed more stringent requirements for the wearing of hearing protection.

Conclusion on breach of duty

60. For the reasons that we have given above, we are quite satisfied that the ROH was in breach of the duties imposed by Regulations 6(1) and 6(2). The remaining question is whether that breach caused the injury which the Claimant sustained.

Causation

61. We turn to the issues of causation.

62. The appellant argues that the judge failed to follow the necessary logical steps in deciding whether any breach of duty established was truly causative of the respondent's injury. It is argued that these steps are: (a) the breach of duty had to be identified; (b) it was necessary to identify how the breach would have resulted in increased noise exposure to the respondent; (c) it was then necessary to assess the increase in resulting noise levels resulting from the breach; and (d) whether the difference in exposure assessed caused the injury (Appellant's skeleton argument para. 119).

63. It is further argued, based upon *Clough v First Choice Holidays* [2006] EWCA Civ 15, that in cases involving a single specific incident (such as a fall), the claimant is required to show on the balance of probabilities that the injury would not have occurred but for the breach of duty established.

64. *Clough* was a case where the claimant (after consuming about six pints of lager) had slipped on a surrounding wall of a swimming pool which, in breach of local Spanish regulations, had not been coated in non-slip paint. Counsel for the defendant argued that non-slip paint would have made the surface less slippery, but not entirely non-slippery and would not, therefore, have removed the risk of a slip by someone walking on the wall with wet feet. The risk was inevitable and the fact that the claimant slipped did not of itself demonstrate that the slip resulted from the absence of the stipulated paint. Sir Igor Judge P (as he then was), with whom Richards and Hallett LJJ agreed, found this reasoning "persuasive" and held that the reality was that

the trial judge had not been satisfied that the accident would not have happened if non-slip paint had been used; the increased risk did not cause or materially contribute to the injury.

65. With this case, however, it is necessary to contrast *Ghaith v Indesit Company UK Ltd.* [2012] EWCA Civ 642, as commented upon in *West Sussex CC v Fuller* [2015] EWCA Civ 189.

66. In *Ghaith*, the claimant sustained a back injury which he claimed had resulted from lifting heavy "white goods" in the course of his employment. The employer had failed to carry out an adequate risk assessment to enable it to take appropriate steps to reduce the risk of injury from manual handling activities to the lowest level reasonably practicable as required by regulations. During a stock-taking of the claimant's delivery van, taking most of a single day between 9.30 a.m. and 4/4.30 p.m., the claimant suffered the injury. It was held that the employer had not taken all reasonable precautions to reduce the risk. As for causation, Longmore LJ (with whom Ward and Patten LJJ agreed) said this:

> "CAUSATION
>
> [23] This is not a separate hurdle for the employee, granted that the onus is on the employer to prove that he took appropriate steps to reduce the risk to the lowest level practicable. If the employer does not do that, he will usually be liable without more ado. It is possible to imagine a case when an employer could show that, even if he had taken all practicable steps to reduce the injury (though he had not done so), the injury would still have occurred eg if the injury was caused by a freak accident or some such thing; but the onus of so proving must be on the employer to show that that was the case, not on the employee to prove the negative proposition that, if all possible precautions had been taken, he would not have suffered any injury."

67. In the *West Sussex* case Tomlinson LJ (with whom Moore-Bick LJ and Sir Robin Jacob agreed) commented upon this passage in Longmore LJ's judgment in *Ghaith* as follows (at paragraph 22):

> "22. It may be that this passage has been misunderstood. It is not perhaps the easiest passage to follow, perhaps because Longmore LJ has run together the two separate concepts, breach of duty and causation. It is however important to note the context in which he has done so, which is in a case where the very risk inherent in the operation of repeated lifting of heavy or awkward loads has eventuated, *viz*, back injury, and where the employer had carried out no sufficient risk assessment. So it is one of those plain cases where the claimant demonstrates without more a prima facie causal connection between the inherently risky operation and the injury. Furthermore, it is a case where the employer is in breach of duty in having failed to carry out a sufficient risk assessment,

> and in order to exonerate himself needs to show that he has nonetheless taken appropriate steps to reduce the risk of injury to the lowest level reasonably practicable. Those are the circumstances in which Longmore LJ said that causation was not a separate hurdle for the employee. It was not a separate hurdle because the employee had already made out a prima facie case, based on the occurrence of the risk inherent in the manual handling operation he was asked to undertake. Longmore LJ recognised that, even in such a case, and where the employer cannot show that he has taken appropriate steps to reduce the risk to the lowest level reasonably practicable, it is only "usually" that he will be liable without more ado. It is still open to the employer to show that his breach of duty has not in fact been causative of the injury, as where for example the employee suffers a heart attack which can be demonstrated to be wholly unconnected with the manual handling operation. Longmore LJ is simply making the point that once a prima facie connection is established between the risky activity and the injury, it is for the employer to disprove causation, not for the employee to prove that, if all possible precautions had been taken, he would not have suffered injury."

68. In the *West Sussex* case the claimant had lost her footing and slipped on stairs while carrying out her duties in distributing post around the defendant authority's offices. The defendant had failed to carry out any risk assessment and did not adduce evidence to show that it had taken appropriate steps to reduce to the lowest level reasonably practicable the risk of injury to the claimant arising out of her work in distributing post. This court rejected the submission that it was not necessary for the claimant to show that a breach of duty to take steps to reduce the risk of injury to the lowest lever reasonably practicable was causative of the injury sustained. The court found that the cause of the injury was simply that the claimant had misjudged her footing which was causally unconnected with the circumstance that she was carrying items of post; the carrying of post was "perhaps [to] be described as the occasion for her injury but it was not the cause of it": (Loc. Cit. paragraph 23).

69. In the present case before us, as in *Ghaith*, the respondent has established the occurrence of the risk inherent in the activity which he was carrying out at this rehearsal, namely the excessive exposure to noise. It is hard to see that this rehearsal was merely "the occasion for" the injury and not the cause of it. The failure to take the steps necessary to reduce that exposure to the lowest level reasonably practicable left it open still to the appellant to show that the breach was not causative of the injury, but subject to the rival medical evidence it did not do so. We consider this question below.

70. There is no doubt, as the judge found and was accepted, the respondent's symptoms arose immediately following this rehearsal. Similar symptoms were experienced by the respondent's desk partner, which one of the medical experts regarded as significant (see below). The judge said this, at paragraph 218:

> "218. The evidence is that the level of noise at the rehearsal on 1 September 2012 was such as to cause hearing difficulties and

> other symptoms to the two musicians seated in the last desk of the violas immediately in front of the trumpets and the banked brass section. I regard it as beyond coincidence that the two viola players should each complain of the level of noise and, resulting from it, problems with hearing. The symptoms suffered by the second viola player reflect two of those experienced by the claimant, nausea and the sensitivity to noise which continued for a number of weeks. This player was continuously wearing 25 dB earplugs. The fact that even these did not prevent injury/damage is a reflection of the high noise level at the viola desk which the defendant's submissions about likely noise levels fail to undermine. Critically each player identifies the loud noise as the only factor at the rehearsal. The female viola player reported upon the reduction in noise level following the reconfiguration."

71. There followed the clear evidence that noise levels reduced at the rehearsal on 11 September, when the pit configuration was changed. While it was suggested that less loud extracts were being rehearsed on that date, and in less concentrated spells, there was no evidence called to substantiate this. Subject to the medical evidence, it does not seem necessary to ignore the dictates of common sense in finding that the failure to

> "…reduce exposure to as low a level as is reasonably practicable…",

…by the stipulated measures in the regulations was the factual cause of the respondent's injury.

Medical causation

72. As amply set out by the judge there were rival theories as to the name by which the respondent's condition might be called. Mr Parker (instructed on behalf of the respondent) thought that it was "acoustic shock". Mr Jones (instructed by the appellant) wrote, following his meeting with Mr Parker, that,

> "…There is no good evidence that this syndrome [Acoustic Shock] exists. If it does it is not the cause of Mr Goldscheider's problems…".

A little earlier he had written,

> "My view from the start has been that with the exception of hyperacusis, which is described as a primary symptom of so-called acoustic shock, Mr Goldscheider's symptoms are all primary symptoms of and explained by only one of the possible diagnoses raised and that is Meniere's syndrome or endolymphatic hydrops".

73. The judge clearly preferred the evidence of Mr Parker as to the diagnosis of the respondent's condition, although (as we understand the medical evidence) neither

doctor was able to say that the condition that he observed met precisely all the customary criteria for those of the condition that he diagnosed. However, in the end, it is not the label that matters but rather the connection of the undisputed symptoms with breach of the regulations, arising from the sounds to which the respondent was exposed. We would add that we were taken to no significant extent to the direct medical evidence either in report form or in oral examination. Our analysis is essentially dependent on the evidence very fully summarised by the trial judge. However, to that extent, the judge had a distinct advantage over this court in weighing up the strength of the respective opinions.

74. There can be no doubt that the respondent truly suffers from the symptoms of which he complains or that they arose immediately after the relevant rehearsal. There is no dispute about the genuineness of the symptoms or the timing of their onset. Both experts were agreed on that point. Prior to the rehearsal, as the judge records (paragraph 216), the respondent had no problem with his right ear nor had he suffered any of the symptoms which he experienced immediately thereafter. Audiometry in 2010 had demonstrated apparently some noise induced hearing loss in the left ear and some unremarkable high frequency loss in the right ear. In contrast, audiometry in 2012, after this event, demonstrated an increase in the high frequency hearing loss in the right ear.

75. There can be no doubt either that this was, in material parts, a "loud" rehearsal, which attracted specific comment not just from the respondent but also from his desk partner. There is no need to overemphasise the report from the partner or to analyse precisely what hearing symptoms that other musician experienced. She reported what she reported (recorded at paragraph 217 of the judgment) and the judge was entitled to take it into account in making an overall assessment of the relevant noise. Further, it is not in dispute that the four trumpeters were positioned directly behind and close to the viola players, with the bell of the principal trumpeter's instrument in very close proximity to the respondent's right ear.

76. One can see why the judge found the report from the respondent's desk partner to be "beyond coincidence" It would, however, have been a significant coincidence that the symptoms should be ascribed to a sudden and unheralded development of Meniere's disease. The judge gave to our minds short and entirely coherent reasons for rejecting, as being the more probable, the onset of that disease. She said this (at paragraph 226):

> "226. The symptoms of which the claimant complains are genuine. One is capable of independent assessment that is the high frequency hearing loss in his right ear. This is significant. High frequency hearing loss is not one of the identified criteria for Meniere's disease. It is low/medium frequency hearing loss which is identified for "definite" or "probable" Meniere's disease. The symptom which has caused and continues to cause the claimant the greatest difficulty is that of hyperacusis. Hyperacusis is not identified as one of the criteria for Meniere's disease."

The judge continued (at paragraph 227) with this:

> "227. …The claimant has been the subject of detailed investigation by treating clinicians skilled and experienced in otology none of whom have diagnosed Meniere's disease. It is right to record that, save for Mr Rubin at the outset identifying acoustic trauma as the source of the claimant's symptoms, no treating clinician has diagnosed acoustic shock."

Finally, at paragraphs 228 to 229, the judge said:

> "228. I accept that some of the symptoms experienced by the claimant have fluctuated. However, I take account of the claimant's evidence that following medical advice and recognising the triggers for his symptoms he has changed his lifestyle and daily activities so as to avoid the activities which result in symptomatology. That is demonstrated by the events in 2013 when he attempted to return to work which triggered a deterioration in his condition, well documented in the medical records. I do not conclude that any such fluctuations are sufficient to undermine the finding of acoustic shock given the nature of the index exposure, the absence of low frequency hearing loss, the presence of hyperacusis and the absence in the extensive medical records of a diagnosis of Meniere's disease, a well established clinical diagnosis.
>
> 229. I am satisfied that the noise levels at the afternoon rehearsal on 1 September 2012 were within the range identified as causing acoustic shock. The index exposure was the playing of the Principal trumpet in the right ear of the claimant whether it was one sound or a cluster of sounds of short duration. It was that exposure which resulted in the claimant sustaining acoustic shock which led to the injury which he sustained and the symptoms which have developed, from which he continues to suffer."

77. The appellant criticised the judge for attributing excessive weight to the report to the management from the desk partner which appeared in the documents. It was submitted that the evidence was entirely hearsay and unsubstantiated as regards the symptoms which she had suffered. Whereas, as lawyers, we are entitled to discount to a degree the technical evidential value of the report, we are not entitled to discount the fact that Mr Parker, as an expert medical practitioner, considered it "significant" in his own diagnosis of the respondent's condition: see judgment, paragraph 147. Mr Parker was quite entitled to take into account the symptoms reported by that other musician for the purpose of reaching his own medical opinion.

78. The judge was clearly correct to recognise that the concept of acoustic shock was relatively new and had been principally associated with reports derived from persons working in telephone call centres. She noted, again correctly, that medical learning and knowledge are evolving concepts. We can well understand that she was wary of Mr Jones' dismissive approach to the very existence of a condition which he described as "so-called" acoustic shock. There was obviously material evidence,

albeit developing, that such a condition existed. Mr Parker had given his view that what had occurred to the claimant was

> "…an index exposure, a cluster of short duration high intensity sounds which presented to the inner ear. The claimant had not suffered a dramatic shift which would be apparent on audiometric testing, nor a dramatic disruption of function, it was not hydrops loss". (Judgment paragraph 111)

79. Neither expert could claim that the genuine symptoms reported by the respondent matched, point for point, his favoured diagnosis. It was obviously a close debate. However, it seems to us that it was precisely the type of dispute between experts that a trial judge is best placed to assess, having seen and heard the written and oral evidence. As already mentioned, we were not invited (either in pre-reading or in oral argument) to re-visit the detail of the medical evidence and it would have been unrealistic to do so. Such fragments of the evidence to which we were taken did not enable us to reach an overview of the medical issues as good as, let alone better, than that of the trial judge. As Lewison LJ said in *FAGE UK Ltd. & anor. v Chobani UK Ltd. & anor* [2014] EWCA Civ 5, at paragraph 114 (iv):

> "In making his decisions the trial judge will have regard to the whole of the sea of evidence presented to him, whereas an appellate court will only be island hopping".

Our "island-hopping" in this case was to islands far and wide, without even having the benefits of visits to the islands in between.

80. In our judgment, the judge was entitled to reach the conclusions that she did as to the medical outcome of this sound exposure experienced by the respondent and her reasons for so doing are not capable of being sensibly undermined on this appeal.

Conclusion

81. For these reasons we uphold the judge's order giving judgment on liability in favour of the Claimant, albeit on narrower grounds than those of the judge. We also agree with the observations of Sir Brian Leveson P. We would dismiss the appeal.

Sir Brian Leveson P:

82. I agree with McCombe and Bean LJJ that this appeal must be dismissed for the reasons (narrower than those of the Judge) which they provide. I add a few words only because of the intervention of the Association of British Orchestras, the Society of London Theatre and UK Theatre Association in which they express concern about the "likely wider ramifications" of the decision of Nicola Davies J. They speak of curtailing not only the repertoire of the ROH, but "all music making in the UK – concerts, theatres, schools, the lot".

83. For my part, I simply do not accept that this cataclysmic scenario represents a proper understanding of the consequences of this decision. For most musical venues, space will not be the problem that it is at the ROH. This is not least because of the overhang

and the limited room within which to place the musicians. As is clear from the evidence set out above, however, even with these limitations, a comparatively small repositioning of the layout of the orchestra was put into effect within a matter of days, with marked reduction in the sound pressure: given that the burden of proving that all reasonably practicable steps had been taken lay on the ROH, and given the conclusions of the judge as expressed above, it is not surprising that this claim succeeded.

84. Neither does it require the ROH to be involved in understanding the professional commitments of musicians when not working as members of the orchestra, prevent the performance of new works, or require scheduling for rehearsals which are not consistent with artistic requirements for appropriate preparation (all of which are concerns that the Interveners express). For my part, the problems identified in [38] to [41] above were all foreseeable and reasonably preventable for the reasons that McCombe and Bean LJJ identify.

85. What the case does underline is the obligation placed on orchestras to comply with the requirements of the legislation (having had two years within which to prepare). It emphasises that the risk of injury through noise is not removed if the noise – in the form of music – is the deliberate and desired objective rather than an unwanted by-product (as would be the case in relation to the use of pneumatic machinery) all of which was recognised in the very carefully drawn document *Sound Advice*. The national and international reputation of the ROH is not and should not be affected by this judgment.