THE EFFECTS OF NOISE UPON HEARING

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THERE is no doubt that with increasing mechanical power the intensity of traumatic agents is bound to make a greater impact on the ear.

Emphasis, however, especially in this country, has been and still is directed more towards the nuisance value of noise and not enough stress laid on its effects on Corti's organ. The psychological effects have been emphasized to the exclusion of the otological. The otologist must realize he has a vital role to play in any deliberations that have bearing on such matters as prevention of noise, conservation of hearing and compensation. And it is the importance of prevention which I would like to stress. The primary objective any conservation of hearing programme must have is the preservation of the ability to hear, and its secondary one that of protection against unjustified compensation claims.

I cannot stress sufficiently that the medical aspects of any such programme should be under the direct supervision of someone who by training and interest is well acquainted with the technical aspects of the problem. The cornerstone of any future assessment, whether for compensation purposes or continuation in a noisy occupation, is the otologist's evaluation of the extent and cause of any hearing loss, if present. This would constitute a more acceptable proof of loss if such data be needed at a later date. It will at any rate ensure that the employer knows at least the amount of hearing loss, even if it occurs five to ten years later, for which he is likely to be held responsible.

Once pre-exposure and periodical audiometric evaluation have been performed, hearing conservation becomes a real thing by protecting those individuals who demonstrate progressive noise-induced hearing losses and those who show undue susceptibility to noise.

A word about ear protection.

A good ear protector is a safe-guard for all but the most extreme noise exposure. Ear protection will not deprive the worker of hearing necessary for speech or warning signals. If success in any attempt to protect hearing is the aim of all concerned, then supervision becomes necessary. General guidance, distribution and fitting should be the responsibility of the individual medical officer, but responsibility to make certain that any protective device adopted is used must rest with the plant foreman. Only, and only if the men, the foreman and the management have appreciated the value of ear protection, can any scheme operate efficiently.

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The actual amount of protection or attenuation possible to a specific individual is determined by the fit of the device, its physical condition and the willingness and ability of the individual to use it properly.

We must realize that industrial deafness is a fairly new concept which will have to be fitted into the whole pattern of workmen's compensation sooner or later.

Some important questions will have to be answered and defined, and I will put these forward for your consideration:

(a) What noise levels in industry are injurious?
(b) What is the proposed method of determining the employee's hearing loss resulting from his occupation as distinguished from other causes?
(c) What hearing losses are disabling and what criteria should be used in defining disability?
(d) How will we deal with the problem of accrued liability?
(e) What frequencies should be used in measuring industrial loss?
(f) Should monaural or binaural methods be used for computing percentage loss of hearing?
(g) What is the number of examinations needed to evaluate industrial hearing loss and the fairest method of determining the loss from the results of successive examinations?
(h) What is the point below which there is no hearing disability and the point above which the inability to hear shall be deemed total?

Lastly, we must consider the proper deduction for presbyacusis and other non-industrial causes of hearing impairment.

Enough has been said to emphasize the importance of prevention and protection.

Any formula adopted should be predicated on sound scientific principles because until we know the true degree of the occupational hearing loss and when it can be regarded as permanent it is difficult to determine the fair compensable value of the impariment.

There is no single magic number yet available which constitutes the dividing line between hazardous and non-hazardous exposure. Before the question of attributability is settled a six-months waiting period is generally advocated because it involves the principle of recovery from acoustical fatigue and thus defers awards until after a reasonable period of separation from the job.

Minor hearing losses should be excluded from compensation coverage because they neither cause social inconvenience nor are they outside the limits of normal variability.

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