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Industrial Noise

AS A result of increasing activity by insurance companies and otologists, interest in both the limits of safety and the means whereby noise levels can be kept below the safe limits is growing, although it has not yet been reflected in an increase in articles in scientific journals. Under the sponsorship of the Navy, data were sought on the character of the actual shop environment and its influence on industrial workers as revealed in the statistical analysis of individual audiometric records. MacLaren and Chaney did the audiometric work, and Veneklasen did the environmental survey work at Lockheed's Plant in Burbank, California. The uniqueness of this study lies in the fact that it drew its data from the actual working environment and from the people who worked in it; its significance is that it is rapidly becoming the model that other industrial studies are following. The pilot plant research program recommended by the American Academy of Ophthalmology and Otolaryngology is similar to the Lockheed study.

Contributing to the uniqueness of this study is its emphasis on the correlation between the manner in which effective pressure is distributed through the spectrum and the audiometric records, rather than on correlations between over-all levels and audiometric findings. Perlman's epoch-making generalization that "low frequency noise is less traumatic than high frequency noise" is being confirmed.

As these correlations become more clearly defined, limits of safety stated in terms of the effective pressure in the various parts of the noise spectrum will take the place of the present statements of limits in terms of the over-all levels. This, in turn, will restrict the number of areas that will be classified as "unsafe" and lead to more intelligent measures of noise reduction. Mathematical correlations between the environmental exposure expressed as a code and the audiometric result expressed as a code offer one of the

most significant results to stem from the Lockheed study, although its authors do not indicate that they realized its possibilities.

Methods of using audiometers to test groups of people at one time are under study, according to publications by the Navy. The increased interest in spectrum analysis has caused increased interest in sound-level meters equipped with octave band filter sets and graphic recording instruments. Increased attention is also being given to quieting the machinery of production by individual concerns, but few data are available for publication. Reports from Armour Research Foundation and Penn State College give evidence of the increasing volume of activity in this field, although it cannot be said that the movement is widespread.

Members of the Acoustical Materials Association continue to search for better means of reducing injury and increasing comfort, with the result that acoustical materials tailored to fit the industrial environment are being announced. Noise abatement councils are renewing publicity drives aimed at more effective social control of noise. Scientific societies have become interested in setting up committees to keep the flow of information on industrial noise accurate; among them are the Council on Industrial Health of the American Medical Association, the Noise Abatement Committee of the Acoustical Society of America, and the Sub-Committee on Industrial Noise of the American Academy of Ophthalmology and Otolaryngology.

Relatively unexplored are the psychological effects of noise and the adverse effects of noise on labor turnover, absenteeism, quality of product, accident rate, and morale, largely because of the difficulty in showing these effects on the manufacturing cost sheet in dollars and cents. Confidence is expressed by research workers that, as the traumatic effect is stated more objectively, the intangible effects will be defined more objectively.

RALPH MARTIN McGRATH

Acoustical Society of America

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