ear defenders. This is not really an acceptable alternative because we cannot prevent anything just by observing it. If, on the other hand, a hazard is judged purely in terms of noise levels then audiometry would be used as a 'long stop' to check on the effectiveness of hearing protection of individuals. Although audiometry is useful for group investigations it is not really accurate enough for meaningful interpretation of individual results, so that the technique is not likely to be an efficient 'long stop'.

Obviously there are situations in which audiometry would be a useful addition to straightforward preventive measures. Also routine audiometry provides the basis for much research. But there is no case for routine audiometry in every industry where there is a noise hazard.

I return to my point about the readership for *Noise and Man*. People interested in research will derive great benefit from the book; it will be of special value to anyone embarking upon research with an audiometer. Because the research interest is paramount it will not be quite so useful to people confronted by practical problems either inside or outside industry.

G. R. C. ATHERLEY

Introduction to Health Physics. By Herman Cember. (Pp. xi + 420; 100s.) International Series of Monographs in Nuclear Energy, vol. 105). Oxford: Pergamon Press. 1969.

The professional health physicist is usually a graduate scientist or engineer who has specialized and become an expert in radiological health and safety. This book provides a good general introduction to the subject for persons who have already received a sound scientific training and are beginning to specialize in this applied field. Its primary aim is to extract the relevant material from the various basic disciplines and to synthesize it into the foundations of the applied science of health physics. Nearly half the book is taken up with presenting this basic material while the remainder deals in outline with its applications throughout the field of radiological protection in atomic energy work and in industry, research, and medicine. The approach throughout is essentially quantitative with a free use of mathematics such as one would expect, for example, in a university textbook of engineering. Unfortunately, there are quite a number of typographical errors, some of which could be rather troublesome to the non-expert reader. It is to be hoped that these will be corrected in an early reprint. On page 11 is the surprising statement: 'All matter is electrical in nature and consists of extremely small charged particles called protons and electrons.' However, the neutron is introduced on page 56 as the 'third basic building block in nature' and the neutrino on page 70.

The foundation material reviewed in the first half of the book includes basic physics, atomic and nuclear structure, radioactivity, interaction of radiation and matter, radiation dosimetry, and biological effects of radiation. This last subject is presented only in brief outline in about 17 pages. In the latter portion of the book consideration is given to radiation protection standards and philosophy, health physics instrumentation, external and internal radiation protection, criticality for nuclear fission and radiological monitoring and surveys.

While warmly welcoming this new textbook as a valuable addition to the small number of such volumes hitherto available to the young professional health physicist, it must be emphasized that it is by no means a simple practical 'protection cookery book' for the laboratory technician or industrial administrator. Many industrial medical officers would, indeed, find the mathematics and physics decidedly difficult at times.

S. K. STEPHENSON

L'Intossicazione Acuta e Cronica da Trielina Aspetti Clinici e Medico-Legali Assicurativi. (Acute and Chronic Trichlorethylene Intoxication: Medico-legal and Compensation Insurance Aspects). By M. Canale and R. Cataldi. (Pp. 131; 284 references; L.1250.) University of Genoa. 1969.

This book includes a useful outline of the difficulties associated with the concept of the maximal allowable concentration for toxic substances used in industry, pointing out that differences in purity of the agent used, environmental, dietetic and metabolic factors from country to country stand in the way of fixing an international standard. Italy, France, and Belgium are the only countries of the European Community in which there are social security provisions for compensating the victims of trichlorethylene poisoning, assessment being based on clinical and laboratory findings. In France and Italy the period after exposure during which workers may claim compensation is laid down. In Italy, workers exposed to solvents such as trichlorethylene in a defined list of occupations are required to have periodic medical examinations.

The metabolism of trichlorethylene to trichloroacetic acid, trichlorethanol, and monochloroacetic acid and the excretion of these in the urine are described, as well as the excretion of the unchanged solvent in expired air and urine. The demonstration of chloral hydrate in the blood of human beings exposed to trichlorethylene has been referred to by French and Czech authors but has received little attention elsewhere. The authors emphasize the difference between excretion rates of trichloroacetic acid and trichlorethanol after single and continuous exposures, the latter being relevant in the industrial situation. The percentages of the absorbed trichlorethylene appearing as trichloroacetic acid in the urine of human subjects has been reported to vary between 5% and 35%. These wide variations found were thought to be due to differences in individual metabolism, period of total exposure, and dose received.

The various physical and chemical methods in the estimation of trichlorethylene in ambient and expired air are described. It is pointed out that most of the physical methods available, although very accurate, are not so convenient as chemical methods and depend either on the gravimetric estimation of chlorine liberated by the combustion of solvent vapour or on the estimation of the colour complex produced by the interaction of trichlorethylene with pyridine. Reference is also made to the Czech investigators who estimated trichlorethanol, after oxidation to trichloroacetic acid, and monochloroacetic acid by a paper chromatographic method.

Italian authors considered that trichloroacetic acid in urine alone was an inadequate index of industrial