by radioactive materials and for the interpretation of results. This is followed logically by similar considerations for individuals exposed to external radiation, skin contamination, and internal contamination (*i.e.*, absorption) by radioactive materials. There are two appendices dealing with suggested criteria for the selection of workers for individual monitoring for external radiation and for the selection of workers for individual monitoring for internal contamination.

This booklet sets out the principles likely to be adopted by radiation protection officers in research establishments and hospitals or by small industrial users. There is little in this publication which would be of value to those concerned with radiological protection at nuclear power stations as the conditions of work differ from those discussed.

The section on monitoring of accidental exposures is less convincing because the problems are oversimplified. Prominence is given to criticality accidents which are extremely rare events (none has occurred in the United Kingdom); they are only possible in research reactors, they cannot occur in British civil nuclear reactors.

This booklet is part of a logical sequence of documents published under the auspices of the ICRP and is a 'must' on the shelves of all radiation protection officers.

J. A. BONNELL

Beiträge zum Betriebsgesundheitsschutz. Vol. 16. Edited by H. Thiele and S. Eitner. (Pp. 294; illustrated; 50s. 6d.) Berlin: VEB Verlag Volk und Gesundheit. 1968.

This volume is a record of the papers given at the second congress of the Association for Occupational Hygiene held at Weimar, East Germany, in November 1966. The editors explain that where papers have already been published in full elsewhere or when the subject is adequately presented in similar papers the record has been condensed and summarized as far as possible. Exception has been made, however, in the case of the address by the deputy Health Minister of the Democratic Republic of Germany and also of the discussion on the subject of Occupational Hygiene and the rationalization of underlying theses. These papers are printed in full because of the new phase of development reached in occupational hygiene in which the objectives can only be achieved by the closer working together of the 'work sciences' and the general disciplines of medicine, they claim.

The subjects covered by the 42 scientific papers are grouped under four headings as follows: 'Climate in the work room and at the work position', 'Lighting in the work room', 'Miscellaneous subjects', 'Theses: occupational hygiene and rationalization under socialistic production methods'.

The first section consists of papers dealing with the measurement of temperature and humidity and problems of heat exchange between man at work and his environment. Basic observations on pulse rate and blood pressure before and after work under conditions of high temperature in a foundry are described and the effect of acclimatization and training is measured. Less familiar

to industrial medical officers are two papers dealing with environmental factors affecting seamen. The first deals with the assessment of the effects of climatic changes on voyages into the tropics and the second with the laboratory investigation of the effect of heat and high humidity on 85 'tropics adapted sailors' and 275 men of other occupations. An interesting diversion from the fundamentals of occupational hygiene appears in a brief paper in the 'miscellaneous' section on accidents occurring outside working hours. The importance of unfamiliarity with the tools used, the different nature of the work done on a casual basis at home, and the part played by alcohol are cited as major factors resulting in injuries which lead to absence from employment.

Quite strange to the reader from the West is the inclusion of a paper to relate the work of the Trades Unions to the ideals and objectives of the State and also the formal discussion under the heading 'Occupational Hygiene and Rationalization under socialistic production methods'. This throws some light on the situation in a one-party State and the imposition of one political philosophy stands out clearly complete with quotation from Lenin.

Though the scientific material is of wide interest, British readers may consider 294 pages of small typeface still in the original German of the Congress a disincentive to studying this volume.

G. FLETCHER

Digest of Pneumoconiosis Statistics 1967. Ministry of Power. (Pp. 14; 11 tables; 5s. 6d.) London: H.M.S.O. 1968.

This Annual Digest is a valuable record of the extent of pneumoconiosis officially reported in Britain. The ease with which radiological investigation of the lungs can be carried out in most of the United Kingdom, and the special facilities which are available for some occupational groups, means that under reporting is probably low. The stereotyped form of the introduction to the digest, which has varied little over several years, may tempt the regular reader to ignore it altogether. At least part of it, dealing with legislation and the details of boarding procedures, could with advantage be printed as an appendix. There are, however, some new comments in this year's introduction. Changes in the presentation of the material recommended by a working party of the National Joint Pneumoconiosis Committee are due to be completed in the 1968 Digest. This issue of the Digest includes for the first time a summary table showing the prevalence of pneumoconiosis in a selected mining population. The interesting feature of this material, which comes from the medical service of the National Coal Board, is that category 1 simple pneumoconiosis has been included. While this is not significant from the point of view of Industrial Injuries Benefit, it has considerable epidemiological value and one hopes that this information will continue to be included in the Digest. The use of such a sensitive measure of dust exposure confirms that real progress has been made. The prevalence of all categories of pneumoconiosis in men radiographed under the National Coal Board periodic x-ray scheme has dropped from 12% in 1959-62 to

10.8% in 1964-67. In some groups of collieries the fall in prevalence is quite marked, while in others the difference between the two periods is small or nil. The overall proportion of newly boarded cases of pneumoconiosis from the coal mining industry has dropped from 3.9 per thousand wage earners in 1962 to 1.8 per thousand in 1967. The rate of fall varies from division to division and is still at the highest level in the south-western division.

Finally, it is pointed out that reorganization of the National Coal Board Divisions will necessitate constructing some of the tables on an area basis instead of a divisional basis.

The Digest illustrates again the slow decline in prevalence of all forms of pneumoconiosis, more marked in the coal mining industry, with the exception of asbestosis which continues to rise. It is pointed out in the Digest that 'a rise in certification figures should not be taken as necessarily indicating that the prevalence of the disease is increasing'. Boardings at which asbestosis was first diagnosed have more than trebled in number since 1962, which could be due to both the recognition of long-standing cases and a true increase in prevalence.

R. I. MCCALLUM

Health Factors Involved in Working under Conditions of Heat Stress. *Tech. Rep. Ser. No. 412.* (Pp. 32; 6s.) Geneva: World Health Organization.

This technical report summarizes the meeting of an international group under the chairmanship of Professor Belding with Dr. Lind acting as rapporteur.

It is a concise and readable review divided into three main sections. The first considers man's responses to heat, the various bodily functions which are affected by exposure to heat, and the extent and significance of the effects. The second section describes various heat stress indices and indicates the circumstances in which each is applicable, and the limitations imposed by the current state of knowledge. The final section considers where future research should be directed.

In its introduction the report remarks, 'Unfortunately, few texts are available that make a serious attempt to provide Governments, industrial management, engineers, medical officers, and hygienists with all the information available, expressed in reasonably understandable language'. While the report does not pretend to supply all the information it does provide a valuable starting point for anyone wishing seriously to study the field.

D. TURNER

A Review of the National Coal Board. Medical Service and Medical Research. Annual Report 1967-1968. (Pp. 43; illustrated; 8s.) London: National Coal Board, Hobart House, Grosvenor Place, S.W.1. 1968.

The Medical Service of the National Coal Board has obviously successfully adapted itself to the new administrative structure of the Board, that is to say, without divisions. Also, the new Institute of Occupational Medicine being set up in association with the University of Edinburgh (opened on April 22, 1969) with the help

of the National Coal Board will bring together the scattered groups that are doing occupational medical research within the Coal Board's Medical Service.

A comparison of the percentage of pneumoconiotics in the pits between the 1959-62 and the 1964-67 surveys shows a drop in all areas, with East and West Wales areas easily top of the list with 24.6/23.3% and 26.6/24.7% respectively; the lowest area is the South Midlands with 3.7/1.9% on the two surveys. Progressive massive fibrosis is again most prevalent in East and West Wales where it was 3.6 and 4.0% respectively during the 1964-67 survey. However, on a progress index the two Welsh areas seem to be in the forefront of those areas showing the best results with their dust suppression measurements.

The Pneumoconiosis Field Research Unit has swung over from particle dust counts to gravimetric measurements and has succeeded in correlating the two methods.

Other prescribed diseases have shown a progressive decline since 1951, except for dermatitis which continues to show a very slight rise. It is thought that this is due either to the loss of elasticity and natural defences in the older miners or to pit water. Investigations are going on in one area to see if, by controlling the wetness of one mine, the incidence of dermatitis can be lowered.

Dr. Duncan Troup, in the Anatomy Department of the Royal Free Hospital, is continuing his studies into the ergonomics of axial rotation of the trunk and the difference in the power developed with legs together and legs apart.

Finally, it should be noted that the National Coal Board is able to make available to other industries its large film mobile units for chest x-rays.

J. GLOVER

Epidemiology of Chronic Non-specific Lung Disease (Chronic Bronchitis). Vol. I: text, pp. 165; Vol. II: tables, pp. 100. By R. van der Lende. (Sewn Hfl. 28.) Assen: Royal Vangorcum Ltd. 1969.

Some of the main difficulties in attempting a comparison between the findings from different field studies of respiratory disease lie in the lack of uniformity of the methods used and in the differing age structure of the study populations. This is not a new discovery but Dr. van der Lende, in his introductory review of earlier field studies, shows how this lack of comparability seriously hinders any detailed international comparisons. It is clear from the description of his Dutch field studies of chronic respiratory disease that he has made a determined attempt to use standardized methods in the collection of his data. For example, he used the European Coal and Steel Community (E.C.C.S.) version of the Medical Research Council's questionnaire on respiratory symptoms, and follows the E.C.C.S. recommendations for spirometers and technique for taking chest x-rays. The three studies he describes were made on a population in a rural area, a country town, and an industrial city with high air pollution near Rotterdam. All subjects had a chest x-ray and interviewer-administered questionnaire. Subsamples of these populations in addition had sputum examination, measurement of ventilatory function, skin tests for evidence of allergy, and a histamine test for bronchial reactivity.