This book is an anthology of the views of different experts in different aspects of the relationship between mental health and work organizations. As such it tends to be disjointed but it covers a vast field of research and contains a good reference to American work on this topic but it does not make easy reading.

P. J. O'CONNOR

Measurement of Man at Work: An Appraisal of Physiological and Psychological Criteria in Man-made Systems. Edited by W. T. Singleton, J. G. Fox and D. Whitfield. (Pp. 267; illustrated; £6.00.) London: Taylor and Francis. 1971.

Nearly 30 individual papers are brought together in this volume which reflects the proceedings of an international symposium of ergonomists and human factors engineers who met 'to examine and compare physiological and psychological techniques' of measurement in man-machine interactions. The book, containing sections on 'Man', 'Techniques', and 'Applications', is 'intended as a source of reference for ergonomics research workers and practitioners, and as a textbook for students'.

While no collection of papers easily provides a homogeneous text for the reviewer, this book has produced for this reviewer two general impressions of its contents. First, the book may be seen as a map of that country populated almost entirely by machines and machine-like men which is called Ergonomics and which will appear alien, barren or even hostile to any 'soft' human relations, social psychological or sociological visitors who, without learning the language, venture across its frontiers. Secondly, the symposium, and this book which was produced from it, may reflect the need for a house-journal for the expression of the hopes and fears, the attitudes, and the philosophies of those human prophets of ergonomics who fear that 'management will only seek an ergonomics reappraisal of its plant and production systems if it can be shown to be clearly advantageous to the company' and who search for fulfilment of their aspirations to see ergonomics prosper.

Man is perceived by the authors to be 'a single channel data processing system' (Rolfe, p. 135); 'a complex set of interacting mechanisms with extensive feedback loops within and between systems' (Editorial, p. 58); and 'a man-machine operator/maintainer and hence a system component in a dynamic assemblage of people, equipment, environmental control and/or modification sub-systems' (Rabideau, p. 149). Against this background, papers are presented on concepts such as 'arousal', 'stress and strain', physiological or mental 'load', and 'energy investment'.

The section of the book devoted to a discussion of techniques for the measurement of man at work is heavily weighted towards physiological or psycho-physiological approaches. Despite the contentions that 'it is obviously naive to try to reduce the extraordinary complexity of relations between man and machine to pure physiological phenomenology' (Wisner, p. 71) and that 'performance measures, operator interviews and electrophysiological records are complementary methods' (Defayolle, Dinard, and Gentil, p. 91) little attention is paid by the authors

to the influence of non-physiological or non-psycho-physiological variables on operator well-being and performance.

Throughout the final section of the book there is greater attention paid to questions of criteria and, by implication, ergonomics policy. Perhaps because 'ergonomics studies deal with man-in-stress of one sort or another but we have no "normal" data with which to assess our observations' (Sinaiko, p. 235) the section on Applications contains more general discussion than concrete recommendations to industry. Despite the proposal by some of the authors that ergonomics should 'develop techniques and criteria appropriate to multifactor investigations' (Fox, p. 215) and realize that 'individual well-being is closely related to system output value and system costs: via attitudes and motivation it is linked to individual performances and (by absences and turnover) to selection and training costs' (de Jong, p. 172) this collection of readings does not promote the impression that ergonomists have yet attempted to weigh their contribution to industrial efficiency against the contributions of other approaches. The lack of cross-fertilization with 'sister disciplines' is evident in this book. For this reason it might be thought that it will be read most enjoyably by those established ergonomists who are aware of the 'dangers for professional identification and subsequent credibility' of broadening the interdisciplinary basis of an approach to the study of man at work which 'in terms of its current development... has still to formulate its requirements in terms which are meaningful to engineering' (Editorial, p. 234).

C. R. BELL

Off Sick. (Pp. 24; 15p.) London: Office of Health Economics, 162 Regent Street, London, W1R 6DD. 1971.

No. 36 in the series of papers on current health problems is as useful as an objective study of a problem as most of its predecessors. It examines the trends in sickness absence in Great Britain as measured by claims for National Insurance Sickness Benefit, with due warning of the pitfalls in easy explanations of the increases in the past 20 years in this and other countries. It makes an attempt to estimate the cost of sickness absence. It discusses the relationship between sickness absence as measured in industry and other forms of absence and between various social, personal, and economic factors, quoting extensively from P. J. Taylor's and P. Froggatt's work. It studies absence from work in its industrial, social, and medical contexts and considers the roles to be played by management, doctors, and the government in reducing the level.

More speculatively, it considers how changes in the structure of the health services and the organization of social security benefits could not only help to reduce sickness absence but also lead to more effective use of limited health care resources. In particular, it suggests gradually relocating some medical care facilities to places of work, though it favours the development of further occupational health services through the private initiative of firms rather than the formation of an occupational health wing of the National Health Service. It also suggests

that there is financial benefit in allowing individual firms which have occupational sickness benefit schemes to take over the entire responsibility for paying the sickness benefits now paid by the Department of Health and Social Security as is done in the Civil Service.

This is a useful pamphlet for the occupational physician—and his management.

P. A. B. RAFFLE

Units, Symbols and Abbreviations. A Guide for Biological and Medical Editors and Authors. Edited by George Ellis. (Pp. 36; £0.54, from the Editorial Office, The Royal Society of Medicine, 1 Wimpole Street, London, W1M 8AE, or £0.36 to members of the R.S.M. or the Biological Council.) London: The Royal Society of Medicine. 1971.

It is obvious that this little book will be every editor's, assistant editor's, and sub-editor's *vade mecum* for a long time. It is to be hoped that it will also become one for authors. That it is written with a sense of humour and is in consequence a pleasure to read, should help.

This guide contains the recommendations of a working party set up at a conference of medical editors in December 1968. It deals with the introduction of SI units (Système International d'Unités); the list of acceptable abbreviations; and how to set out references. The SI units are clearly tabulated and defined, along with prefixes (m for milli and so on) and derived units. There are also lists of units which it is hoped will disappear, including the kilocalorie, defined as 4186.8 J (Joule). It is, however, recommended that measurements should be quoted in the units in which they are made, e.g., mmHg for blood pressure when a mercury manometer is used, as well as in SI units. The table of abbreviations is straightforward and, for biological sciences, exhaustive. Its use will simplify typing and save much space. Authors will no longer have the excuse for submitting manuscripts, with inappropriate abbreviations, that they did not know what was expected of them. As for the recommended lay-out of references—of the 2 632 (approximately) possible ways the Committee has chosen one, which is as logical as any. May it be used!

D. F. HEATH

Arbeit und Gesundheit: Chronische Bronchitis und Lungenemphysem By Hermann W. Beckenkamp.

(Pp. 207; 38 figs; 80 tables; no price stated.) Stuttgart: Georg Thieme Verlag. 1970.

This thesis is a festschrift honouring the 65th birthday of Professor H. J. Symanski, director of the Institute of Occupational Medicine in the University of the Saarland, who wrote the preface. It describes the surveys of chronic lung disease in industry carried out by the author in the last decade; and, incidentally, it illustrates how work of a similar nature can proceed simultaneously and independently in the scientific institutes of countries which are separated by a language barrier. Because he was unaware of the British Medical Research Council's standard questionnaire on respiratory symptoms, Dr. Beckenkamp devised his own. It is interesting to note, too, how statistical and epidemiological ideas and methods are now influencing the manner and direction of research in industrial medicine in Germany.

The author recognizes the difficulty of proving in any conclusive way that occupation *per se* has any influence on the onset and evolution of chronic bronchitis and emphysema. As his own early studies emphasized, high morbidity or mortality rates may simply be the result of the curious way in which young people of poor physique choose or find themselves in the dustiest jobs, e.g., in mines or steel foundries. Again, the routinely kept statistics of incapacity were found in the Saarland, as elsewhere, to be grossly inaccurate in their description of the jobs actually done. These considerations led to the conduct of field surveys in eight occupational groups ranging in exposure to potential respiratory hazards from clerks to limestone miners working underground. The clinical procedures used included radiography and testing of lung function and detailed job descriptions were available.

The data were subjected to a comprehensive statistical analysis, but it proved difficult to distinguish a specific effect of occupational exposure on respiratory symptoms or function from the general influence of smoking and social conditions. Only in men working in excessively hot and dusty conditions in lime burning could any additional hazard be detected with confidence.

There is a useful summary in English, and the clear tables and diagrams combine with a comprehensive review of the literature to allow the British investigator some insight into current German thought and practice in the investigation of occupational factors in chronic lung disease.

D. D. REID