of pulmonary tuberculosis. It also brings out some ideas which may be new to the non-specialist and perhaps relevant to other aspects of preventive medicine. For example, it appears that in all types of community a large majority of new cases are diagnosed by services which rely on the patient's initiative, and that awareness of chest symptoms is commonly underestimated as a motivating force in control measures.

Also, according to the report, there is accumulating evidence that x-ray investigations fail to identify shadows with any certainty and that single films cannot determine clinical 'activity'. These limitations led the committee to the somewhat surprising conclusion 'that no definite epidemiological significance can be attached to so-called "radiological prevalence and incidence rates" '.

The absence of references, other than to W.H.O. sources, lessens the usefulness of this otherwise most informative booklet. The brevity commends it especially to those who seek a rapid modernization of their views on pulmonary tuberculosis.

G. R. C. ATHERLEY

The Industrial Rehabilitation of Long-Stay Schizophrenic Patients. A Study of Forty-Five Patients at an Industrial Rehabilitation Unit. By J. Wing, D. H. Bennett, and John Denham. (Pp. 42; 4s. 6d.) London: H.M.S.O. Memorandum 42. 1964.

The lives of schizophrenic patients have changed enormously during the last 20 years, partly due to the new methods of treatment, partly due to the new forms of management. The illness itself has remained a chronic, essentially incurable condition, but whereas most patients in the past had to remain in hospital for years, if not for life, only 10% nowadays remain in hospital for two years or more. Due to accumulation over the years, this amounts to about 100,000 souls. For this minority, while drug treatment has its part to play, the sheet anchor of care remains management.

This memorandum describes an experiment trying to discover the extent to which an average group of moderately disabled long-stay schizophrenic men under the age of 60 could be resettled outside hospital in satisfactory employment. Since the middle fifties many mental hospitals have embarked on an active discharge and rehabilitation policy for chronic schizophrenic patients, and, to the surprise of many, this was successful in a large number of cases. But the more actively a hospital pursued this policy, the more it became obvious that there existed a hard core of patients whose condition proved resistant to this and who remained in hospital in spite of all efforts to help them to leave.

The present experiment addressed itself to this residual group. The instrument to break the apparent deadlock was the Industrial Rehabilitation Unit, preceded by a period of preparing the patient and followed by a period of after-care. The importance of the preparatory period was tested by an inner control and was shown to be helpful. The achievements of the entire group were compared with a non-schizophrenic group of patients at the Industrial Rehabilitation Centre.

The results of this effort were as follows: just over half

the patients had returned to hospital even within as short a time as one year after leaving the Rehabilitation Unit, and about one quarter were not in competitive jobs but were in sheltered employment. Only just over one quarter were still working in ordinary jobs. Their average wage was £8 11s. 6d. Furthermore if one compares the type of work these patients were able to perform there was a definite decline from their premorbid position. The social class grouping before and after rehabilitation was Class II, 1—1, Class III, 9—3, Class IV, 4—6, and Class V, 10—14. Indeed the authors report that 'even the least handicapped of these patients presented *continuous* problems . . .' and it is noted that such a programme requires special personnel and a great deal of work. Comparing these results with the extra cost in personnel, time, and effort (which could be directed elsewhere) a Doctor Beeching of the psychiatric services would probably scrap such a rehabilitation service before it even started. But is this the right way of looking at it? The authors point out that such a programme, if applied throughout the country, would affect about 6,000 patients. If the failure rate were the same as in this experiment, about 1,500 would be rescued from a disabled life in a mental hospital and once more returned to an at least partially useful and, one assumes, more satisfying life. Obviously more is involved here than mere economics.

We were interested to read that as regards behaviour at the Rehabilitation Centre and during the follow-up year 'There were no outstanding differences' between the schizophrenic and the non-schizophrenic rehabilitees. It appears that the group of schizophrenics had difficulties in social adjustment which were even greater than those of work adjustment. ' . . . the men concerned had greater difficulty in *living* outside hospital, than in *working* outside hospital. If, however, adequate arrangements are made to cater for these various needs, there seems to be every reason to expect that a small selected group of long stay schizophrenic patients can be successfully resettled in work.'

The experiment and the report show the high standards we have come so confidently to expect from Dr. Wing and his colleagues, and the publication will be read with interest, not only by psychiatrists, but by all those concerned with rehabilitation problems of chronically disabled patients.

J. HOENIG

The Mechanics of Aerosols. By N. A. Fuchs. Translated from the Russian by R. E. Daisley and Marina Fuchs, edited by C. N. Davies. (Pp. 408; 82 figs.; 120s.) Oxford: Pergamon Press. 1964.

This notable Russian work, first published in 1955 with an addendum in 1961, has been excellently translated and edited as a single volume. It deals comprehensively with the characteristics of airborne particles; uniform, non-uniform, and curvilinear movements of particles and clouds; the effects of acoustic and electric forces; molecular, convective, and turbulent diffusion; the collisions of particles with one another, with water droplets and other objects; and the dispersal of powders.

The author appears to have succeeded well in his aim 'to cover all the important papers on the subject as completely as possible', and the volume will undoubtedly constitute a valuable source of reference to both 'western' and Russian work carried out up to 1960. There is a short section (eight pages) on the deposition of aerosols in the respiratory system. Only a few Russian references are quoted in this context, relating mainly to the effects of electric charge on the particles.

A few errors have crept in, *e.g.*, the term $Re/24$ in equation (10.5) should be inverted. A few conclusions can be questioned, *e.g.*, the most suitable sizes of water drop for the capture of aerosols (page 323) have almost certainly been underestimated as a result of the assumption of potential flow. However, such minor points detract little from a first-rate book which can be wholeheartedly commended to all who wish to acquire a scientific understanding of the behaviour of airborne particulates.

W. H. WALTON

Man in his Working Environment. Ergonomics.

By K. F. H. Murrell. (Pp. xix + 496. 141 figs. 63s.) London: Chapman and Hall. 1965.

During World War II the three armed forces put a good deal of effort into improving the fit of machine to man, and when the war was over many of those who had been working in this field met together in Oxford and 'Ergonomics' was born. From the start the author of this book, K. F. H. Murrell, took the lead. Now it is a pleasure, especially for an ex-patriot west countryman, to review it, since it is written from a village placed in the Mendip Hills of Somerset.

Let it be said straight away that this is a good book, worth possessing by persons or organizations concerned with industrial or commercial employment. It should also find a place on the library shelves of teaching departments of anatomy, physiology, and psychology, all of which are now beginning to look beyond the classically academic confines of their subjects.

The book is divided into four sections. The first deals with the structure and function of the human body; the second discusses the design of equipment, seating, display indicators, and control handles; in the third section, the tolerable limits of temperature and humidity, noise and vibration, and lighting are described; and the last section sets out the methods of investigating, organizing, and inspecting work. In addition, this book contains chapters on shift work and the effect of increasing age on performance, the gist of which is to confirm what the reviewer's father told him as a boy—that 30 is the best age of a man's life. There is a full list of references, together with an adequate author and subject index. The book is rather thicker than one which usually goes under the name of handbook, but it is well within the limits of what our German colleagues would consider appropriate to this sobriquet. It is of convenient size and lies open, even when new, at the chosen page. The print is comfortably large and clear even to one with ageing eyesight. On taking off the loose cover, the spine displays both title and author's name in large,

glossy attention-catching lettering, as is often employed on books from a transatlantic country where nearly all ergonomists are, in fact, psychologists.

An author of books reviews the work of another author with much additional interest, knowledge, and charitable understanding. Mr. Murrell writes clearly and has practical and personal experience of an unusually large proportion of what he is writing about. His written words are a good deal easier to understand than some of the schematic and symbolized diagrams. But this slight difficulty in comprehension may merely be due to the process of ageing in the reviewer who, at over 50, must now be judged by the severe criteria laid down in some experiments cited in the book to be a 'slow, forgetful, half-blind, half-deaf, palsied character, of little use'.

When the time comes for a second edition one or two things might be worth reconsidering. The division of the contents into two parts, the first of which is entitled 'The Elements of Ergonomic Practice', is strange when it consists, in fact, of five chapters which describe human structure and function and one chapter on 'Man as a System Component'. Prefaces, introductions, and summaries are the most difficult parts of a book to write. Very few authors of books or papers are honoured by having their introductions off-printed as separate papers, unlike musical composers and their overtures, and in this book the author is much less happy in his preface and introduction than anywhere else, with, for example, his overworking of that undergraduate word 'factor' and his use of the word 'conditions' four times in one paragraph. But these are petty points which do not detract at all from the good value of the main body of the work. Probably only those rare, rather odd birds, who regard writing introductions as a challenge to their skill in designing a component in the chain of a communications system, actually read them.

R. C. BROWNE

Neurological Surgery of Trauma. Editor-in-Chief: Colonel J. B. Coates, Jr., M.C., U.S.A. Editor: Arnold M. Meirowsky, M.D. (Pp. 601 + xxxi; illustrated; \$6.25.) Washington, D.C.: Office of the Surgeon General, Department of the Army. 1965.

Writing a textbook has this much in common with taking a photograph, that even if you have two quite fascinating subjects in your sights, you must concentrate on one of them, if necessary at the expense of the other.

This excellently produced and carefully edited book was designed primarily as a record of the experience of the United States Army Medical Corps in the Korean War (1950-52). Its gestation period has been long; for although the editor's acknowledgements are dated 1960, it was only published in 1965. For this reason, although the half of the book which is devoted to describing the organization of neurosurgical units in the Far East and the management of penetrating wounds of the head and spine makes fascinating reading not only for the neurosurgeon but for all who are interested in traumatic surgery, much of the rest of the book has a frankly old-fashioned flavour. It was obviously well worthwhile to take time in collecting as complete as possible a record