

In several instances, reference is made to new undertakings based upon the recovery of minerals from sea-water. The problems involved in this branch of technology are full of interest to the chemical engineer. The low concentration of salts, the large quantities of raw material to be handled, and the narrow margin of costs available for processing, are factors which necessitate the most rigid scientific control of processes and exceptionally high plant efficiency.

The remaining chapters deal with the major heavy and fine chemical industries according to the usual classification. It would appear that while few changes in the fundamental methods of manufacture have occurred in recent years in America, increasing attention has been given to improving the efficiencies of the unit operations upon which they are based. Transportation, phase separation and energy conservation have been extensively studied, and a better understanding has been obtained of the principles of plant lay-out.

Prof. Shreve has added short historical notes to the accounts of the various industries, and has appended to each chapter an adequate bibliography.

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EMOTION AND ILLNESS

Emotions and Bodily Changes

A Survey of Literature on Psychosomatic Interrelationships, 1910-1945. By Dr. Flanders Dunbar. Third edition. Pp. ix + 604. (New York: Columbia University Press, London: Oxford University Press, 1946.) 50s. net.

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 AFTER the First World War it was generally agreed that symptoms such as paralysis, tremors and morbid anxiety might be the expression of mental experiences rather than the result of ultra-microscopic lesions in the central nervous system, but a sharp line was drawn between the organic and the psychogenic. For most of us the psychogenic was something that could, if necessary, be consciously simulated. This clear-cut idea was challenged in 1935 when Flanders Dunbar collected a wealth of data suggesting that physical disease might be initiated or at any rate accelerated by emotional events. The idea was not new. It is, and always has been, the belief of lay people, and a generation ago it was expressed and practised with conviction by the physician Groddeck. The hostility of the majority of the medical profession to the acceptance of psychological interpretations of organic disease is not because this is a new idea, but because it is a very old one, and because the advance of medicine since the time of Hippocrates has been largely due to a prejudice against the belief that disease could be explained by demonic possession, emotional experiences or mental influences.

One picks up the third edition of Dr. Dunbar's treatise in the expectation of discovering how far the psychosomatic attitude to illness has advanced from suggestion to demonstration, and one is frankly disappointed, for this is just a reprint of the 1935 work with a new introduction. Now the first edition may have been a significant event, but it was not in the same category as William James' "Varieties of Religious Experience". In other words, it was a bibliography of an uncritical literature and not a classic, and no very useful purpose will be served by rattling these old bones again. Great things have

happened in orthodox medicine in the last ten years, and it would be helpful to know whether corresponding progress has been made on the psychosomatic side. In so far as it has ensured a greater respect for human personality and an increased interest in the life-history of patients, the psychosomatic theory has done good. It has also the merit of being less dangerous to those on whom it is practised than other theories of disease, such as phlogiston, intestinal intoxication or focal sepsis; but like these previous theories it tends to be used as a facile explanation of conditions we do not understand. The Zola-esque writing of case-histories and the description of disease temperaments have been mistaken for a causal analysis of illness, and it sometimes seems that all that has happened is that whereas in the old days we said a man was passionate because he had red hair, nowadays we say he has red hair because he is passionate.

All this is unfortunate at a time when a lot of young men are coming out of the medical services with the idea that there is something in psychosomatic medicine. Of course there is, as anyone knows who has had much to do with the treatment of asthma or eczema. It is high time we began to try to find out what this is instead of mouthing big phrases such as 'psychobiologic unit'. A collection of the 'gilt-edged' work that has been done in this field, as by Wolf and Wolff on the stomach or Sir Thomas Lewis on urticaria, is overdue and, *pace* Dr. Dunbar, it would not be very large. We might find that whereas mental experiences, being part of the environment, influence all disease processes; their effect is most obvious in conditions in which muscular tone and glandular secretion play a predominant part. In the second edition Flanders Dunbar made the astonishing statement that it was not worth while to bring the book up to date as "nothing in the general point of view would be altered". Until that point of view is altered, professors of medicine will find it difficult to recommend text-books on psychosomatic medicine to their students, and will wish to see them well disciplined in psychiatry, genetics and statistics before they penetrate into this ill-defined field.

L. J. WIRTS

BIBLIOGRAPHY OF MATHEMATICAL TABLES

An Index of Mathematical Tables

By Dr. A. Fletcher, Dr. J. C. P. Miller and Prof. L. Rosenhead. Pp. viii + 451. (London: Scientific Computing Service, Ltd., 1946.) 75s.

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 IT is common knowledge now that the tabulation of mathematical functions, and the whole approach to numerical mathematics, have been revolutionized within the present century by the increased use and improvement of calculating machines. In Britain we have seen the effects of this in the productions of Dr. L. J. Comrie and of the British Association Tables Committee; in Germany in the work of Dr. J. Peters; in the United States in the tables produced by Prof. H. T. Davis and his collaborators and, most recently and strikingly, by the New York Work Projects Administration. The old classical tables, beginning in the late sixteenth and early seventeenth centuries with Rheticus, Pitiscus and Briggs, revised, corrected, re-edited from time to time, already formed a literature in themselves; the modern and contemporary tables form an enorm-