THE RESPIRATORY MUSCLES

The Respiratory Muscles and the Mechanics of Breathing. By E. J. Moran Campbell, M.D. (Lond.), M.R.C.P. (Lond.). Pp. xvi+131. 32 figures. 20s. net. London: Lloyd-Luke (Medical Books) Ltd. 1958.

A great deal has been written about broncho-pulmonary function tests, but very little work has been published on the mechanics of breathing. The only comprehensive studies on the subject are those of Beare and Maissal (1842, 1843) and Duchesne (1867).

A complete description of muscle function requires two sets of data. The first is gleaned from the conventional methods of anatomical examination and the response to electrical stimulation, the second by a more complex recording system such as electromyography. Electromyography is the most valuable method of studying the activities of the muscles of breathing.

In this book separate chapters are devoted to each group of muscles concerned with the breathing mechanism, i.e. the diaphragm, the intercostals, the abdominal muscles, the scalene and sternomastoids. This is followed by a general summary of the behaviour of the respiratory muscles during different phases of respiration.

There is a long discussion on the balance between the inspiratory and expiratory muscle groups. Available evidence suggests that maximum inspiratory and expiratory efforts are limited by reflex mechanisms which probably arise from visceral structures.

A chapter describes the work of breathing and the energy consumed, the ratio of these being a measure of the efficiency of the respiratory muscles.

This short book is concluded by an appendix describing the apparatus, the technique, and the experimental procedure of electromyography. A comprehensive bibliography follows. The work will prove of value to all those interested in pulmonary

function tests, for it tackles the problem from the comparatively unexplored angle of the behaviour of the respiratory muscles.

W.L.P.

CONNECTIVE TISSUE

Connective Tissue. A symposium organized by the Council for International Organizations of Medical Sciences. Edited under the direction of R. E. Tunbridge, Madeline Keech, J. F. Delafresnaye and G. C. Wood. Pp. xii+371. Illustrations. £2 2s. 0d. Oxford: Blackwell Scientific Publications. 1957.

As a means of furthering medical knowledge the symposium has become increasingly popular. Critical discussion of the work presented and the views propounded is often a stimulus not only to the participant but also to the reader. The participants at this symposium included experts from Denmark, England, France, Germany, Hungary, Sweden, Switzerland, the USSR, the Union of South Africa and the USA.

The purpose of this symposium was the presentation of recent work and views on the connective tissue, and through discussion to arrive at some integration of current thinking. The connective tissue has not received the attention it deserves. To most of us it is a rather mysterious, ill-understood system comprising cells, ground substance and fibres; and the unravelling of its secrets has taxed the technical ingenuity of the investigator. This symposium is rewarding in bringing many of the problems of function and structure into focus.

It is impossible to review critically the individual contributions. Unfortunately there appeared to be little agreement on the nomenclature of the different collagen preparations. The papers were of a high order of merit. To mention a few: Jackson's suggested scheme of fibrogenesis illustrates many of the complex interrelationships between 'citrate-soluble collagen', 'neutral-salt-soluble collagen' and 'insoluble collagen'. Gillman rightly pointed out that Jackson's work had been carried out with the carragenin granuloma—a different phenomenon from the fibrosis encountered in scar formation. Robb Smith summarized his work on reticulin, which is to be looked upon as a member of the collagen family of fibres and not a precursor of collagen, and should be distinguished from the argyrophyll collagen fibres seen in embryonic tissue and in areas of repair. Of very great interest were the pseudo-elastic fibres described by Gillman's group. They are also to be distinguished from reticulin. Other topics of considerable interest were the demonstration by Fitton Jackson of the possible formation of intracellular fibre. The work of Grassman on the chemistry of collagen and the amino-acid sequences was outstanding.

The significance of polysacharide moieties and certain protein factors are still to be elucidated, and running through the symposium was the constant awareness of the limitations of technique, particularly in obtaining pure extracts. In this connection Neuburger's work on the presence of the serum-protein fractions in tissue samples is of considerable importance.

The interested worker will find much of fundamental importance in understanding the complexities of the structure, composition and function of collagenous and allied fibres. Although the path has been beset with many difficulties, the growth of knowledge in this field has been considerable and it is to be hoped that in time disagreements regarding nomenclature of different collagen proportions will be overcome.

L.E.

RECENT STUDIES IN EPIDEMIOLOGY

Recent Studies in Epidemiology. Edited by J. Pemberton, M.D., M.R.C.P., D.P.H. and H. Willard, M.D. Pp. xiii+203. Illustrations. 25s. net. Oxford: Blackwell Scientific Publications. 1958.

This book is a collection of papers read at the study group organized by the International Corresponding Club at Noordwyk aan Zee, Holland, during 1957, which illustrate, each and severally, the applicability of the epidemiological method of approach to the elucidation of many of the problems of ill health which, up to now, have been taken for granted.

It has always been accepted as a truism that the health policy of any country or locality cannot be properly planned unless the planning is backed by research into the manner and causation of the many forms of ill-health of which up to the present the cause or commencement has not been made clear. These papers, in no small way, open the horizons of thought so that many of those ill-defined and vague forms of ill-health may well, by the employment of the epidemiological method, be placed on such a foundation that preventive or promotive remedies can be applied.

It is virtually impossible to review satisfactorily a collection of papers of the type presented here, but all have their different and separate lesson to impart and can be considered as sign posts to other and similar forms of research. Certain of the papers are especially interesting, such as those on the relationship between nasal malignancy and the occupation of nickle refiners, or that by Dr. Alice Stewart on the association between children dying of malignancy and their greater exposure to the effects of X-rays; and it is most stimulating to note the interest evoked by this method of research by the general practitioner.

All, no doubt, are aware of the classical epidemiological studies in a rural practice of Dr. Wm. Pickles of Aysgarth, Yorkshire—who incidentally contributes a paper to this collection—but it is of more than general interest to note the entry into this very important field of other general practitioners. In this regard Dr. Logan's paper on the epidemiological investigations into all forms of ill health of patients attending a busy group practice is most interesting and possibly far reaching in its implications.

These papers should be closely and separately studied by all who are interested in medicine as a whole. They bear just as many messages for the clinicians—including the general practitioners—as for public-health workers. I have no hesitation in strongly recommending them to all my medical and lay colleagues.

E.D.C.