

Book Reviews

LEHRBUCH DER ALLGEMEINEN PHARMAKOGNOSIE. By E. Steinegger and R. Hänsel. Pp. xii + 595 (including Index). Springer-Verlag, Berlin, 1963. DM. 69.00.

It is not always appreciated that pharmacognosy, having undergone considerable evolution during the past twenty years, is no longer confined to a study of the botanical characteristics of a number of dried drugs. It is a living science and collates those aspects of distribution, taxonomy, biochemistry, genetics and chemical analysis which concern medicinal plants. This more complete approach has been evident in some American textbooks for a number of years but Steinegger and Hansel's work is probably the first of its kind in Europe.

The book is divided into twelve parts. The first considers the aims of the subject and the second (82 pages) the basic sciences involved in its study. In the latter are discussed the application of systematic botany, morphology, genetics, plant physiology and phytochemistry. The genetics deals with selection, cross-breeding, polyploidy and genemutation with appropriate examples. In the phytochemistry section the main groups of plant constituents are discussed together with their biosynthetic origins. This is a rapidly developing field of research and some summaries given are not entirely up-to-date, for example, no mention appears to be made of the role of malonate in fatty acid and anthraquinone biosynthesis.

The remaining ten parts of the book are devoted to a consideration of individual drugs arranged according to the chemical nature of their active constituents. Ten chemical groups are considered one of which concerns medicinal material derived from micro-organisms and another a miscellaneous collection of drugs, the active constituents of which are improperly known. Each group is usually introduced by a general discussion, as for example for essential oils, their composition, occurrence and extraction are mentioned. Large diversified chemical groups, like the alkaloids and glycosides, are further sub-divided according to chemical structure. In the treatment of individual drugs, most emphasis is given to chemical constituents and one feature of the book is the numerous structural formulae. Large groups of closely related compounds, like the alkaloids of *Veratrum* and the *Digitalis* cardioactive glycosides are conveniently tabulated for easy study. The botanical and geographical sources of each drug are considered but the reader will find no microscopy and little detail concerning macroscopical descriptions or adulteration. There are only five illustrations in the entire book. A number of literature references, which cover limited aspects of the subject matter, are given.

This textbook is probably the most complete, unified approach to the chemical aspects of pharmacognosy yet available and, as such, it should prove a useful source of information to those connected with the active constituents of medicinal plants. For students, including those with little facility in the German language, it will serve as a useful book of reference.

W. C. EVANS

BOOK REVIEWS

EXCITATION. By Georges Ungar. American Lectures in Pharmacology series. Pp. xiii + 437 (including index). Charles C. Thomas, Springfield, Ill., U.S.A., 196 . \$13.50.

Two main problems present themselves to any writer on the concept of biological excitation. Firstly, the great volume of literature available and, secondly, a problem of definition, for excitation is neither the state of excitability shown by all living cells, nor is it the final response of a cell to a stimulus.

On the first problem, Dr. Ungar's own work has obviously made him familiar with a large number of papers covering many aspects of excitation as it affects both the cell and the whole organism. The second problem he avoids by giving a no more precise definition of excitation than that it is the response of living matter to stimulation.

The historical development of the concept of excitation and the basic problems of any study of living matter in its environment are dealt with in a short introductory section which was designed for "any person with a minimum of scientific culture"—a surprising aim since the remaining three hundred pages require specialist knowledge. From this introduction the author goes on to discuss what he calls "primary manifestations" of excitation, including not only the too familiar ionic fluxes but physical and metabolic events also. In this part of the book a successful attempt has been made to correlate the work of electrophysiologists, biochemists, biophysicists and physical chemists in order to give a better perspective of the problems and present state of knowledge of excitation at a cellular level.

Single cells are, however, only of limited interest to the pharmacologist, and the book goes on to show, of necessity only briefly, the importance of excitation to the whole animal from its embryology to its adult behaviour. Inhibition, with its obvious importance to the nervous system, is introduced at this point as is the author's satisfying concept of effector cell differentiation throughout the animal kingdom. He proposes that the basic manifestations of excitation, previously discussed, are possessed by all cells but that effector cells are differentiated by the emphasis of one of these components. Thus, changes in protein configuration are prominent in muscle cells and the expulsion of chemical material in secretory cells. This unifying concept is further developed in a study of excitation in disease, as typified by the inflammatory response.

Finally the book relates excitation to drug action. Despite the fact that this is one of a series of "Lectures in Pharmacology," this is the shortest part of the book. While, as a pharmacologist, one feels that this section could profitably have been expanded, Dr. Ungar has attempted, and succeeded, in bringing together many aspects of work on excitation in a book that yet remains interesting, easy to read and, I think, of use to pharmacologist, physiologist and biochemist alike. He has treated acceptable and unorthodox theories with equal frankness and, if nothing else, the book serves to show how far we have come since the beginnings of the concept of excitation and how far we still have to go before we can pretend to have unravelled the complexities of biological excitation.

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