

design reactor shields. Graphs, tables and nomograms are abundant and clear, and serious errors appear to be rare. However, some experimental results, particularly that on radiation through ducts, are questionable. Two main criticisms seem pertinent. The editor has stressed empirical methods of calculation at the expense of a more fundamental approach; consequently, some current theories, undeniably useful but limited in scope, may gain uncritical acceptance among newcomers to the subject. On the other hand, more experienced readers may find elementary points unnecessarily laboured; for example, four equivalent definitions of exponential decay are given where none should be needed. Secondly, the editor's choice of subject order is arbitrary; it results in certain subjects (for example, gamma-ray attenuation) being treated in as many as four different places and, as cross-referencing is inadequate, lengthy searches are required to establish some points. The text is repetitious and sometimes lacks precision, and the use of such plural forms as 'spectrums' and 'formulas' jars on British ears. However, the value of the "Reactor Shielding Design Manual" is indisputable. Revision and abridgement of the text and rearrangement of the contents would increase its usefulness considerably, and it is to be hoped that this task, together with a more critical evaluation of the experimental results and current theories, will soon be undertaken.

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## CELL RESEARCH

### Notions de Cytologie et Histologie

Par Prof. M. Chèvremont. Pp. iv+994+10 plates. (Liège: Éditions Desoer, 1956.) n.p.

IN 1861 Brücke wrote ("Elementarorganismen", p. 386), "We must therefore ascribe to living cells, beyond the molecular structure of the organic compounds that they contain, still another structure of a different type of complication; and it is this which we call by the name of organization". Again, Hofmeister ("Die chemische Organization der Zelle", p. 20) said in 1901, "The morphologist, on the one hand, strives to elucidate the structure of protoplasm down to its finest details, the biochemist on the other, with his apparently yet still more searching methods, seeks to determine the chemical functions of the same protoplasm; broadly speaking they are only dealing with two different sides of the same thing".

Prof. M. Chèvremont's book eloquently describes and vividly illustrates the two aspects of cell research represented by these quotations. The problem of sub-microscopic organization is being investigated with extraordinary and often misguided and inaccurate enthusiasm wherever the money for an electron microscope can be cajoled out of the institutional coffers. The biochemist has been joined by the histochemist, who tries to pin-point the former's chemical substances within the cell. All this makes cytology and histology much more exciting and creates the illusion that we are rapidly approaching the stage when the cell will unfold all its secrets.

Although Prof. Chèvremont's list of contents looks scholastically formal—in its comprehensive coverage of technique, cytoplasm, nucleus, cell division, tissue,

organ and so on—nevertheless, browsing through its text and admiring his electron microscope and his coloured histochemical illustrations, one cannot help capturing the scent of the intellectual excitement which lies behind these modern investigations into cytology.

The book itself is big and heavy and it has 636 illustrations, many of which are in colour. Parts of it read like a conventional text-book of histology—but interlarded with this is a wealth of new information derived from these new fields, much of which does not appear in other text-books of cytology and histology. This, in fact, is the opening of a new era in this sort of publication. Text-books of histology in ten years time will not be recognized by the Sharpey-Schafer of yesterday.

One feature of this volume to be highly recommended is the inclusion at the end of each section of a series of general references which enable the reader to search further in a subject which catches his interest. There is also a valuable subject-index. It should be mentioned that the text is in French, but perhaps it is permissible to refer to the fact that the Pitman Medical Publishing Company is engaged in the production of a translation of this work.

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## CONTINENTAL ECOLOGY

### Synökologie der Landtiere

Von Dr. Wolfgang Tischler. Pp. xvi+414. (Stuttgart: Gustav Fischer Verlag, 1955.) 36 D.M.

TISCHLER'S book is outstanding in that it goes a long way towards bridging the gap between the Anglo-American and the Continental approaches to ecology. By restricting the field to terrestrial animals and habitats for his examples and for consideration in the 'special part', Tischler has been able in four hundred pages to cover an impressive amount of ground. Throughout the first half of the book the accent is on synecological work, one of the precepts enunciated at the beginning and strictly adhered to being that it is not enough to study the single species and its immediate environment if its ecology is to be understood. This part of the book is concerned with principles, and successfully welds together subjects such as population fluctuations and succession on one hand, and biocenotic classifications, life forms and the ecology of man-made habitats on the other.

The second half of the book treats each of eight main climatically determined vegetation types in turn: shore, rain forest, deciduous forest, tundra, conifer forest, desert, steppe and bush and their variants. The discussion follows a uniform but not rigid plan under such headings as "Living Conditions", "Structure", "Food", "Biotic Relationships" and "Over-Wintering". These chapters are followed by a section on land types which result from human activity ("Buildings", "Gardens", "Ruins", "Arable and Pasture Fields" and "Hedges") which is the special interest of the Kiel ecologists. A final chapter is an appeal for an enlightened land management and nature conservation.

This is frankly a text-book and source of information. For this reason, perhaps, the treatment is mainly terse and impersonal. More controversial topics are either avoided or briefly mentioned by quoting references on both sides. Two features stand