Book Reviews

Akira MATSUMOTO and Susumu ISHII (eds.):
Atlas of Endocrine Organs. Vertebrates and Invertebrates

Springer Verlag, Berlin-Heidelberg-New York-London-Paris-Tokyo-Hong Kong, 1992
22.2 × 29.6 cm, XII + 307 pages, 550 figures
Hard cover DM 298.00

It is an especial intellectual and aesthetic pleasure to become captured by the "Atlas of Endocrine Organs", and a feeling of gratitude arises towards the contributors, artists, editorial board, editors in chief and publishers that such a beautiful book has been produced for the scientific community of medical and biological endocrinologists, biologists and other natural scientists. The book is also particularly useful for students and teachers both in secondary schools and universities.

As indicated in the foreword, the Japanese Society for Comparative Endocrinology supported the project to publish this atlas. This society, which comprises an unusually great number of leading comparative endocrinologists in its ranks, appears to be the only scientific society in the world which is in our present time able to produce such an authoritative volume. It is interesting to note that the majority of contributors are at home in departments of anatomy (usually in medical schools) or biology; a fair number of contributors come from other scientific institutions, e.g. pharmacology, physiology and molecular biology. The editors, Profs. MATSUMOTO and ISHII, have solved splendidly the difficult task of producing a homogenous book with well balanced text and a wealth of excellent illustrations. In all chapters a combination of classical and modern morphology—with all aspects of this basic science—is presented for physiology, chemistry and related fields of the endocrine cells and organs. This work may represent a last chance to produce such a competent book with so broad a background before traditional fields of research—as zoology, endocrinology and physiology—subdivide into hundreds of subspecialities.

Although termed an "atlas", the book contains an appropriate amount of text outside the figure legends which guarantees the essential understanding of the various endocrine organs described. The illustrations, which are in general in colour, concern anatomy and topography (usually drawings), microscopic anatomy (micrographs of excellent histological stains and abundant immunohistochemical preparations), ultrastructure (generally transmission electron microscopy) and—a very valuable feature—large synoptical drawings showing essential cell-biological features with morphological and chemical aspects of the different endocrine organs and cells.

The photos and drawings are of outstanding quality and clarity, and it is part of the above mentioned intellectual pleasure to study these illustrations and to learn from them. Minute inconsistencies, such as the absence of diaphragms in some of the depicted fenestrated epithelia,

occasional oversimplifications of the intercellular contacts of endocrine epithelia, add to the enjoyment of becoming absorbed in these illustrations. While the text is entirely in English, the labeling of the figures is in both English and Japanese. The labeling is always artistically skillful and never disturbs the intent of the illustrations. The book begins with 6 pages outlining and illustrating the evolution of vertebrates, invertebrates and their endocrine systems. The complex drawings, containing a treasure of information, can be very useful to obtain an overview. It goes without saying that some of the arrangements in the evolutionary diagrams will not be accepted by all evolutionary biologists, e.g. in the vertebrate (better: craniate) diagram the special position of the hagfishes might have been elaborated slightly more clearly, and in the invertebrate diagram e.g. the basic unity of arthropoda, annelida and onychophora is barely recognizable.

The main part of the book comprises about 290 pages and is fundamentally divided into two parts: vertebrates (about 170 pages) and invertebrates (more than 100 pages); at the end a helpful list of common abbreviations of hormones and several pages of references and selected bibliography are to be found.

The vertebrate part is divided into 15 chapters dealing with the following endocrine organs or cell systems: 1. Pineal organ, 2. Hypothalamus, 3. Hypophysis, 4. Thyroid gland, 5. Parathyroid gland, 6. Ultimobranchial gland, 7. Gastro-entero-pancreatic endocrine system, 8. Adrenal gland, 9. Juxtaglomerular apparatus, 10. Testis, 11. Ovary, 12. Placenta, 13. Endocrine system of the heart, 14. Caudal neurosecretory system, 15. Corpuscles of Stannius. Limitations of space do not allow a review of all these chapters.

The text usually comprises short sections on: a) The history of the development of our knowledge of the corresponding organ, b) Comparative anatomy, c) Histology, d) Hormone(s), e) Functions. If necessary, which is quite often the case, special text sections are to be found e.g. on innervation, the evolution of a special cell type, particular secretory mechanisms, special topographical considerations, special details on the vascular supply, intracellular synthetic pathways, and more.

The amount of space taken by the 15 different chapters follows naturally and harmoniously the complexity of the different organs, the hypophysis e.g. requiring more space (24 pages) than the thyroid gland (9 pages). According to the personal evaluation of this reviewer, the chapters on the placenta and the gastro-entero-pancreatic endocrine

system are among those which are especially masterfully written, the latter including the so-called brain-gut peptides, summarizing their currently known functions. Most welcome are the up-to-date chapters on specific endocrine systems of fish, the caudal neurosecretory system, and the corpuscles of Stannius, which typically are rarely covered in depth in endocrinology books.

The invertebrate section mainly covers the endocrine systems of arthropods (insects, crustacea), molluscs and annelids in well balanced detail. Our understanding of these less familiar organs is again facilitated by clear and informative illustrations. Other invertebrates are presented in a far less detailed way, although quite a few interesting facts and concepts are also shown for these minor groups, particularly echinoderms (mainly asteroids), and

protochordates (mainly ascidians and Branchiostoma). Briefly mentioned are neuroendocrine systems of a few other invertebrate groups, which, however, are treated rather conventionally. A separate, stimulating short chapter close to the end of the atlas is devoted to the gut endocrine system of invertebrates, and which again points to the intimate relationships between the evolution of the intestinal tract and that of the endocrine system.

In summary, the book is a truly outstanding volume which should be regularly consulted by all interested in endocrinology and regulatory processes of animals. It is a veritable "must" for all scientists taking an active interest in biological phenomena and the scientific basis of medicine.

Ulrich WELSCH (Munich)

S. H. AHARINEJAD and A. LAMETSCHWANDTNER:
Microvascular Corrosion Casting in Scanning Electron Microscopy
Techniques and Applications

Springer-Verlag, Wien-New York, 1992
16.5 × 24.5 cm, 375 pages, 170 figures.
¥23,760

More than 20 years have passed since the first scanning electron microscopy (SEM) pictures on vascular corrosion casts appeared in this Journal in the early 70's, a comparatively short period if we look at the amount of new information developed in the field of microvascular research. During the last decades in particular, basic knowledge on the matter has been greatly improved by the wide application of SEM of vascular corrosion casting to the study of almost all the microcirculatory districts, in normal, experimental, or pathological conditions. It is therefore very useful for the publication of a volume that reviews the methods and most relevant literature on casting techniques. The authors indeed, are leaders of research groups in SEM studies of vascular corrosion casting. Their wide experience on the matter has been collected in this comprehensive book, which covers almost all the technical and applicative aspects.

The volume is organized in two parts. The first part, extremely detailed, reveals all the technical aspects of corrosion casting including: a short, interesting historical review, a complete report of the physico-chemical basis; all the information—with recipes, formulae and secrets—for obtaining a suitable corrosion cast for SEM observation in many different experimental conditions; a useful

section on the parameters for the correct interpretation of SEM cast pictures and recognition of artifacts; and a chapter on the basis for performing a morphometric analysis of vascular casts. All information is validated by a great amount of references.

The second section is applicative in nature. It extensively illustrates most of the information on blood and lymph microcirculation, reporting, in a systemic organization, findings on normal and pathological specimens. A number of high quality SEM micrographs—mostly produced by the authors—as well as several demonstrative diagrams and rich bibliography, often arranged in useful tables, are also enclosed.

This is an original book which may serve for experienced researchers in the field as well as for those who intend to start applying this technique. Also, younger investigators and students may find this volume a valid reference for acquiring basic information on microcirculation and learning techniques that are now a tool in SEM. Therefore, this book is recommended not only to researchers interested in microcirculation and related fields, but also to electron microscopy students.

Guido MACCHIARELLI (Rome)