

ically from typescript. The diagrams and half-tones are of good quality.

Despite the admissions of ignorance it contains, this is the nearest we have to a definitive work on the subject. Indeed, there is no other to compare with it in detail. It is a necessity for all students of plant transport, whether they are concerned with metabolic or with informational molecules.

S. ARONOFF

*Department of Chemistry,  
Simon Fraser University,  
Burnaby, British Columbia, Canada*

## Soviet Endocrinology

**Thyroid Hormones.** Biosynthesis, Physiological Effects, and Mechanisms of Action. YA. KH. TURAKULOV, A. I. GAGEL'GANS, N. S. SALAKHOVA, A. K. MIRAKHMEDOV, L. M. GOL'BER, V. I. KANDROR, and G. A. GAIDINA. Ya. Kh. Turakulov, Ed. Translated from the Russian edition (Tashkent, 1972) by Basil Haigh. Donald H. Ford, Transl. Ed. Consultants Bureau (Plenum), New York, 1975. xii, 318 pp., illus. \$42.50. Studies in Soviet Science.

Physiology in the Soviet Union has developed in partial isolation, despite the language skills of the Russians and even though translations of Western scientific publications are available to them. The fact that Russian papers are rarely cited in English-language publications in physiology implies an even more formidable barrier in the opposite direction. The appearance of this excellent translation provides a rare opportunity to appreciate the orientation and status of research on thyroid hormones in the Soviet Union.

The book is the work of seven authors from two institutes, one in Tashkent (Institute of Biochemistry) and one in Moscow (Institute of Experimental Endocrinology and Hormone Chemistry). Unfortunately, the vista it provides is not completely clear, since the book was originally published in 1972 and thus represents the field as it was in 1971.

The three sections of the volume deal with thyroïdal hormonogenesis and its regulation, certain systemic and metabolic actions of thyroid hormones, and actions of thyroid hormones at the cellular level. They are detailed and well-organized. Because 1521 bibliographic items are referred to and discussed in the text, the book reads more like a review than a textbook. About 20 percent of the authors cited are Russian, and to this reviewer it seems remarkable that work of such breadth is so rarely mentioned in the English-language thyroid literature.

Most impressive is the very large volume of Soviet research on responses of mitochondrial biochemical systems to changes in thyroid state.

If Soviet research in neuroendocrinology has a Pavlovian slant, this orientation is most obvious in the first chapter of the book, in which "the generally accepted view of the existence of control over thyroid function by the cerebral hemispheres, based on numerous indisputable clinical observations" is briefly discussed. This attention to "parahypophyseal regulation of thyroid function" is accompanied by a much more complete discussion than can be found in reviews in English of direct autonomic influences on thyroid function. This short and relatively vague section, which cites research principally from B. V. Aleshin's laboratory, ends with the statement: "A final solution to this problem [of] confirmation of the role of the sympathetic parahypophyseal regulation of thyroid function ought desirably to be obtained from other laboratories."

Another Pavlovian statement is found as an opening remark in the second chapter (on physiological effects of thyroid hormones), and it is one that would be most unlikely to be found in an English-language review:

Two opposite views are held on the action of thyroid hormones in the intact organism. Some workers assert that the mechanism of the effect of thyroid hormones is nervous and that the hormone affects the state of neurons of the central nervous system either through a reflex or directly, and that it exhibits its peripheral action through the activity of the CNS cells. Another group of workers insists that these hormones reach the body tissues by the humoral route and exert their effect directly at the cell level.

There is no such controversy among Western physiologists, and to be fair one must add that Turakulov himself expresses doubt concerning its importance in a later paragraph.

Aside from the occasional expression of such attitudes, *Thyroid Hormones* differs in no important way from reviews by authors outside the Soviet Union. Unfortunately, thyrotropin releasing factor is treated cursorily. The discussion of the nature of the thyroid stimulating hormone molecule fails to mention its subunit structure. The wealth of new information concerning plasma  $T_3$  and  $T_4$  levels under various circumstances, made possible by recently developed techniques, is absent. The new approaches provided by radioimmunoassay of thyroid stimulating hormone and thyrotropin releasing hormone are missing as well. Were it not for its age, *Thyroid Hormones* would be a useful reference and

summary. However, even the third edition of Werner and Ingbar's *The Thyroid* (1971) is in many ways more modern, and a new edition of this excellent book is about to appear.

We must nevertheless be glad to have this evidence of the excellence of Soviet thyroid research. In particular, work that has provided insights into the relationship between the thyroid and the central nervous system, a subject emphasized by Russian endocrinologists, deserves close reading and should be cited in the Western physiological literature. This translation makes it impossible to use the unavailability of such data in English as a pretext for ignoring them.

AUBREY GORBMAN

*Department of Zoology,  
University of Washington, Seattle*

## Behavioral Physiology

**Hormones, Behavior, and Psychopathology.** Papers from a meeting, March 1975. EDWARD J. SACHAR, Ed. Raven, New York, 1976. xviii, 308 pp., illus. \$24. American Psychopathological Association Series.

Only slightly more than a decade ago, when biologic psychiatry had just begun to emerge from the "hunt and peck" system of chemical analysis, the contents of this book would have been seen as unbelievably advanced. The book stands as a landmark, revealing advances in techniques for hormonal assays, advances in research strategy, and recognition of the complexity of the relationships among the various hormones, behavior, stress, environmental conditions, and cognitive states.

Often in a volume with many contributors papers tend primarily to reflect the individual participants' own research or pet theories. That is not the case with this volume. Although there are papers that are focused on narrow technical issues, they serve to exemplify the state of the art and to illustrate problems. The broad review papers are the strength of the volume. The reader will not find a wealth of detail about research methods, but they are taken into account in the bibliographies that follow each chapter.

In the first section of the book, Hormonal Influences on Brain and Behavior, there are a number of papers that will be of interest to the clinician. The review by A. J. Prange *et al.* of hormonal alteration of imipramine response, Bardwick's paper on psychological correlates of the menstrual cycle and oral contraceptive medication, and Whybrow and Hurwitz's account of psychological distur-

bances associated with endocrine disease and hormone therapy will have immediate clinical application. These papers will also serve as useful introductions for the student. They cover basic as well as clinical matters.

An extensive review of the effects of adrenocorticotrophic hormone and vasopressin on motivation, learning, and memory is provided by de Wied *et al.* Lipton *et al.* discuss polypeptide-releasing factors that originate in the hypothalamus and their effect on a variety of brain structures, particularly the anterior pituitary. The authors make the interesting point that the behavioral effects may be due both to the action of these substances on the pituitary and to their action on other brain structures. These two papers draw mainly on animal work and do not have immediate clinical applications. Two papers, one by Reinisch, the other by Money *et al.*, focus on the effects of sex hormones on behavior. Reinisch reviews prenatal hormone exposure in animals and humans and discusses a number of measures of subsequent physical and psychological functioning. To me, this paper is the most interesting; there is a nice balance of animal and human data with a concern for conceptual and clinical implications, all presented lucidly and without apparent bias.

The second section of the book looks in the other direction, at the effects of brain and behavior on endocrine function. Here the papers are somewhat more technical and narrowly focused, but several retain clinical relevance. This is particularly true of Wurtman and Fernstrom's paper on neuroendocrine effects of psychotropic drugs and of the two papers on anorexia nervosa, by Katz *et al.* and by Halmi. Psychopharmacologists contribute several papers relating to drug action and neurotransmitter substances. Carroll and Mendels's review of neuroendocrine regulation in affective disorders is the broadest and brings together a wide variety of information. It provides a splendid example of the balance and thoroughness that I believe should characterize papers for a volume like this.

As always, there are topics omitted that might reasonably have been included. For example, a more detailed review of thyroid function and behavior would have been helpful. Likewise, little attention is given to the effect of psychopharmacologic agents on normal hormonal function.

The book would have benefited from an attempt by the editor to fill in the gaps and point to the future. This may be ask-

ing too much, however. The mixture of basic and clinical and animal and human research accentuates the need for a better focus or synthesis. The volume as it stands is worthwhile and will make exciting reading for the biologically oriented clinician and student and will be a ready resource for the researcher in this area.

JOE P. TUPIN

*Department of Psychiatry,  
Sacramento Medical Center,  
University of California, Sacramento*

## Books Received

**The Aith Waryaghar of the Moroccan Rif.** An Ethnography and History. David Montgomery Hart. Published for the Wenner-Gren Foundation for Anthropological Research by University of Arizona Press, Tucson, 1976. xxiv, 556 pp., illus. Paper, \$20. Viking Fund Publications in Anthropology, No. 55.

**The Biochemical Basis of Pulmonary Function.** Ronald G. Crystal, Ed. Dekker, New York, 1976. xx, 534 pp., illus. \$44.50. Lung Biology in Health and Disease, vol. 2.

**Biogeography and Ecology in the Canary Islands.** G. Kunkel, Ed. Junk, The Hague, 1976. xvi, 512 pp., illus. + plates. Dfl. 160. Monographiae Biologicae, vol. 30.

**Compiler Construction.** An Advanced Course. F. L. Bauer and ten others. Springer-Verlag, New York, ed. 2, 1976. xiv, 638 pp., illus. Paper, \$17.30. Lecture Notes in Computer Science, vol. 21.

**Complementary Definitions of Programming Language Semantics.** James E. Donahue. Springer-Verlag, New York, 1976. viii, 172 pp. Paper, \$8.20. Lecture Notes in Computer Science, vol. 42.

**Computer System Architecture.** M. Morris Mano. Prentice-Hall, Englewood Cliffs, N.J., 1976. xiv, 478 pp. \$17.95.

**The Drugging of the Americas.** How Multinational Drug Companies Say One Thing about Their Products to Physicians in the United States, and Another Thing to Physicians in Latin America. Milton Silverman. University of California Press, Berkeley, 1976. xvi, 148 pp. \$8.50.

**Early Child Care in France.** Myriam David and Irène Lézine. Gordon and Breach, New York, 1975. xvi, 148 pp., illus. \$10.95. International Monograph Series on Early Child Care, vol. 6. Reprinted from *Early Child Development*, vol. 4, No. 1.

**Electric Music.** A Practical Manual. John Jenkins and Jon Smith. Indiana University Press, Bloomington, 1976. 168 pp., illus. Cloth, \$8.95; paper, \$2.95.

**Electronic and Atomic Collisions.** Abstracts of papers from a conference, Seattle, Wash., July 1975. John S. Risley and R. Geballe, Eds. University of Washington Press, Seattle, 1975. Two volumes, illus. Vol. 1, xl + pp. 1-594 + index; vol. 2, xl + pp. 595-1188 + index. Both volumes, \$40.

**Galaxy Formation.** A Personal View. John Gribbin. Halsted (Wiley), New York, 1976. x, 80 pp. \$14.95.

**Geological Prospecting of Petroleum.** Heinz Beckmann. Halsted (Wiley), New York, 1976. viii, 184 pp., illus. Paper, \$6.95. Geology of Petroleum, vol. 2.

**Geoscience and Man.** Vol. 14, Coastal Re-

search. H. J. Walker, Ed. Louisiana State University School of Geoscience, Baton Rouge, 1976. xii, 154 pp., illus. Paper, \$10.

**Hormones, Behavior, and Psychopathology.** Papers from a meeting, Mar. 1975. Edward J. Sachar, Ed. Raven, New York, 1976. xviii, 308 pp., illus. \$24. American Psychopathological Association Series.

**The Human Conspiracy.** Nigel Calder. Viking, New York, 1976. 142 pp., illus. \$12.95.

**Hurricane Hazard in the United States.** A Research Assessment. Waltraud A. R. Brinkmann in collaboration with Paul C. Huszar, Earl J. Baker, Duane D. Baumann, and John H. Sims. University of Colorado Institute of Behavioral Science, Boulder, 1975. xvi, 100 pp., illus. Paper, \$5. Program on Technology, Environment and Man Monograph Series.

**Hypnotics.** Methods of Development and Evaluation. Proceedings of a conference, Augusta, Mich., July 1974. Fred Kagan, Theresa Harwood, Karl Rickels, Allan D. Rudzik, and Heinz Sorer, Eds. Spectrum, New York, 1976 (distributor, Halsted [Wiley], New York). xiv, 432 pp., illus. \$14.95.

**Ideas plus Dollars.** Research Methodology and Funding. Harold Zallen and Eugenia M. Zallen. Academic World, Norman, Okla., 1976. 388 pp. \$15.75. New edition of *Planning for Research and Sponsored Programs* (1973).

**Introduction to Statistics.** A Nonparametric Approach. Gottfried E. Noether. Houghton Mifflin, Boston, ed. 2, 1976. xvi, 292 pp., illus. \$11.95.

**Introduction to the Study of Ternary Switching Structures.** S. Thelliez. Translated from the French edition (1973) by W. G. Stripp. Gordon and Breach, New York, 1975. xii, 186 pp., illus. \$17.50. Information and Systems Theory.

**Issues in Brain/Behavior Control.** Papers from a symposium, Coronado, Calif. W. Lynn Smith and Arthur Kling, Eds. Spectrum, New York, 1976 (distributor, Halsted [Wiley], New York). xiv, 158 pp. \$12.50.

**Jan Wier, Devils, Witches and Magic.** J. J. Cobben. Translated from the Dutch edition (1960) by Sal A. Prins. Dorrance, Philadelphia, 1976. viii, 218 pp. \$8.95.

**Lung Liquids.** Proceedings of a symposium, London, Apr. 1975. Elsevier/Excerpta Medica/North-Holland, New York, 1976. x, 330 pp., illus. \$23.95. Ciba Foundation Symposium 38 (new series).

**Lysosomes.** A Survey. E. Holtzman. Springer-Verlag, New York, 1976. xii, 298 pp., illus. \$53.30. Cell Biology Monographs, vol. 3.

**Man and Nature in the Tristan da Cunha Islands.** N. M. Wace and M. W. Holdgate. International Union for Conservation of Nature and Natural Resources, Morges, Switzerland, 1976. 114 pp., illus. Paper, \$5. IUCN Monograph No. 6.

**Marine Mussels.** Their Ecology and Physiology. B. L. Bayne, Ed. Cambridge University Press, New York, 1976. xviii, 506 pp., illus. \$49.50. International Biological Programme 10.

**Matrices and Tensors in Physics.** A. W. Joshi. Halsted (Wiley), New York, 1976. xii, 252 pp. \$5.95.

**Matrix Eigensystem Routines.** EISPACK Guide. B. T. Smith and six others. Springer-Verlag, New York, ed. 2, 1976. xii, 552 pp. Paper, \$17.30. Lecture Notes in Computer Science, vol. 6.

**Migration and Homing in Animals.** Klaus Schmidt-Koenig. Springer-Verlag, New

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