

Previously, there has been more interest in the adenohipophysis, whose principles produce a variety of dramatic effects and whose deficiency syndrome leads to disability and even death. By contrast, the principles of the neurohypophysis have been considered of more pharmacological than physiological interest, with their deficiency resulting in little more than an inconvenient polyuria. It is becoming more and more apparent, however, that the neurohypophysis, by itself, plays a vital role in fluid and electrolyte balance and in certain aspects of reproductive physiology, and that, by exerting important controls over the adenohipophysis, it is intimately concerned with many of the latter's functions as well. In the introduction to this symposium, by Henry Dale, we are reminded that, recent as much of the interest in the neurohypophysis may seem, historically it was one of the first structures that was ever demonstrated to contain a potent hormone, and that among the very first successful applications of hormone replacement therapy was the use of posterior pituitary powder in the treatment of diabetes insipidus.

The participants in the symposium constitute a distinguished group of investigators—anatomists, biochemists, physiologists, and pharmacologists—gathered together from widespread portions of the globe. The subjects covered at the meetings included the phenomenon of neurosecretion (Bargmann, Hanström); chemistry of the hormones and related substances (Acher and Fromageot, Croxatto); the problems of hormone storage, liberation, destruction, and urinary excretion (van Dyke, Adamsons, and Engel; Heller; Noble); physiological control over hormone release (Ginsburg and Brown, Andersson); pharmacological stimulation (Walker); and, finally, the action of the hormones on such target organs as the kidney (Brooks and Pickford; Sawyer; Wirz), mammary gland (Cowie and Folley), uterus (Fitzpatrick), and adrenals (Gaunt, Lloyd, and Chart; Jones). Every paper is followed by a transcript of the discussion, and many of the participants in the symposium who did not actually deliver papers are heard from in this manner.

As can be seen, these contributions are no miscellaneous collection but comprise an orderly and thorough coverage of the subject, ranging from the most recent theories on the site of formation of the posterior pituitary hormones to observations concerning their ultimate action on various target organs. Each paper includes a pertinent review of the subject, followed by the more recent work of the investigator, so that, in its entirety, this book offers a complete view of research on the neurohypophysis at a rather advanced level. References are well docu-

mented, both in papers and discussion. The material has been carefully edited by H. Heller, and the resulting volume has been attractively published and bound. It furnishes a great deal of useful information, much of it new, and at the same time leaves the reader with a keen appreciation of the considerable gaps in present knowledge and the formidable difficulties still to be overcome in this field.

Although the book is quite comprehensive, one might have wished for some coverage of the histochemistry and electron microscopy of the neurohypophysis and for more attention to its possible hormones other than vasopressin and oxytocin, such as that which induces the anterior pituitary to release adrenocorticotrophic hormone. In general, this book can be strongly recommended to research workers in physiology or endocrinology, where it will serve as an important reference work for some time to come.

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**Technique of Organic Chemistry.** vol. X, *Fundamentals of Chromatography*. Harold G. Cassidy. Interscience, New York, 1957. xvii + 447 pp. Illus. \$9.75.

The staggering amount of published literature in the field of chromatography makes it unlikely that a single author could do justice to all the various aspects of the subject in a 447-page volume. Cassidy has therefore wisely restricted himself to the principles of the method. This book is not a revision of the author's earlier work, *Adsorption and Chromatography* (volume V in the same series), but a new book.

Starting with a definition of chromatography, the author gives a few examples of chromatographic methods and then discusses the molecular interactions on which the separations are based. This discussion is very brief and should be supplemented by readings from chapters I to V of *Adsorption and Chromatography*. The general theory is then very lucidly explained by the author, who uses the approach from cascade-type distribution, which in my experience is most readily understood by beginning students. This is followed by some details of gas-liquid and liquid-liquid (column and paper) partition chromatography, adsorption and ion-exchange chromatography, and some technical suggestions. The book contains a number of valuable tables of adsorbents, filter papers, and ion exchangers and 1042 references. There is also an appendix of (almost exclusively) American and British supply houses.

The author will undoubtedly succeed

in giving the novice an introduction to the principles of chromatography. However, compared with other available books on this subject, the book will be of little value to either the uninitiated who is looking for a definite solution to a separation problem or to the specialist who needs a good bibliography. The illustrations of apparatus are outmoded and inadequate, and the choice of sample techniques and references is inept. Thus, no mention is made, for example, of the English translation of Cramer's book on *Paper Chromatography* or of Trapnell's treatise on *Chemisorption*, and we find only five references to general quantitative methods, one of which is to the *Manual of Paper Chromatography and Paper Electrophoresis* by Block, Durrum, and Zweig, and two to unpublished work of Shapiro and Dowmont. The author devotes a whole chapter to his own work on redox resins, although they have not yet been shown to be applicable to chromatographic separations, but chelating resins are omitted from the text.

Cassidy defines chromatography as "a separation process applicable to essentially molecular mixtures, which relies on distribution of the mixture between an essentially two-dimensional, or thin, phase and one or more bulk phases, which are brought into contact in a differential countercurrent manner." This definition, contrary to that of Strain, includes the relatively uninteresting foam and emulsion fractionation, to which he devotes an entire chapter, but excludes electrochromatography, which is of great importance to biological chemists. The author apparently realizes the dilemma created by his definition when he puts quotation marks on the "surface" of ion exchangers (page 15). The adsorption chromatography of gases is not discussed at all. Chromato-strip and chromatobar are classed with column or paper partition, although they depend on adsorption.

In spite of the limitations of this book, I feel that it will be a valuable aid in the orientation of newcomers to chromatographic methods.

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**Man into Space.** New projects for rocket and space travel. Hermann Oberth. Translated from the German by G. P. H. De Freville. Harper, New York, 1957. xiv + 232 pp. Illus. \$4.50.

Hermann Oberth may be considered the Charles Darwin of rocketry. His first book, in 1923, clearly forecast many of our modern developments, and *Man into Space* starts from today and goes into

the foreseeable future, when mankind will no longer be satisfied with the solar system but will look to the stars.

This book is divided into two parts. The first part is a lively and optimistic description of the training of spacemen, of satellite rockets, and of the space station that permits space travel to the moon and the planets of the solar system. Discussions of the space mirror as a power source and of a "moon car" for getting around on a low-gravity body are indications of the practical turn of the author's mind. The descriptive detail is clear, and engineering development on such concepts could begin today, if it has not already been started! The second part of the book contains a mass of scientific and engineering data supporting and illustrating various points developed in the first part.

It would be a mistake to assume that Oberth is not aware of the difficulties of space travel and its attendant problems. He describes the difficulties inherent in the new type of environment and the changes that must be made in order that men may live (in vehicles) and move where lack of air and low gravity are predominant factors. He always suggests various ways of satisfactorily solving these problems. He emphasizes the importance of the step rocket and of space stations as necessary prerequisites for travel to the moon and the planets. Until more knowledge is obtained about gravity and the nature of "space" itself, man is limited to chemical, and possibly atomic, fuels, and his mode of propulsion must be based on the third law of Newton. Thus, a suitable, low-mass heat source that can be controlled is absolutely necessary. Tomorrow may bring more efficient fuels or methods of propulsion that may not require the orbital space station, but today this is the only practical way of getting into space.

Oberth's whole philosophy is summarized in his last two lines in the descriptive part of his fascinating little book, as follows: "This is the goal: To make available for life every place where life is possible. To make inhabitable all worlds as yet uninhabitable, and all life purposeful." Surely this is a large enough goal for intelligent man!

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## New Books

*The Rise of Modern Physics.* G. F. Von Weizsäcker and J. Juilfs (translated by Arnold J. Pomerans from *Physik der Gegenwart*, Athenaüm-Verlag, 1952). Braziller, New York, 1957. 158 pp. \$3.75.

*Solvent Extraction in Analytical Chemistry.* George H. Morrison and Henry Freiser. Wiley, New York; Chapman & Hall, London, 1957. 280 pp. \$6.75.

*Anthropology and Human Nature.* M. F. Ashley Montagu. Porter Sargent, Boston, 1957. 400 pp. \$6.

*The Beginnings of Embryonic Development.* A symposium organized by the Section on Zoological Sciences of the American Association for the Advancement of Science, cosponsored by the American Society of Zoologists and the Association of Southeastern Biologists, and presented at the Atlanta meeting, 27 Dec. 1955. Publ. No. 48. Albert Tyler, R. C. von Borstel, Charles B. Metz, Eds. American Association for the Advancement of Science, Washington, D.C., 1957. 400 pp. \$8.75; \$7.50 (members).

*Biochemical Contributions to Endocrinology.* Experiments in hormonal research. The Lane Medical lectures, 1956. Sir Charles Dodds. Stanford University Press, Stanford, Calif.; Oxford University Press, London, 1957. 76 pp. Illus. \$3.

*Biochemistry of the Amino Acids.* Alton Meister. Academic Press, New York, 1957. 498 pp. \$10.

*Canine Surgery.* A text and reference work. Karl Mayer, J. V. Lacroix, H. Preston Hoskins, Eds. American Veterinary Publ., Evanston, Ill., 1957. 839 pp.

*Chemie und Biochemie der Reduktone und Reduktionate.* Hans von Euler and Bernd Eistert. Enke, Stuttgart, Germany, 1957. 355 pp. DM. 47.40.

*Détermination Pratique des Fossiles.* André Chavan and André Cailleux. Masson, Paris, 1957. 387 pp. F. 5800.

*Foot Troubles.* T. T. Stamm. Philosophical Library, New York, 1957. 122 pp. \$4.75.

*Introduction à L'Etudes des Roches Métamorphiques et des Gites Métallifères. Physico-chimie et thermodynamique.* Pierre Laffitte. Masson, Paris, 1957. 358 pp. F. 4000.

*L'Analyse Qualitative et les Réactions en Solution.* G. Charlot. Masson, Paris, ed. 4, 1957. 379 pp. F. 3600.

*Personal Problems and Psychological Frontiers.* A Cooper Union forum. Johnson E. Fairchild, Ed. Sheridan House, New York, 1957. 320 pp. \$4.

*Psychology in the Soviet Union.* Translated by J. and M. Ellis, H. Milne, J. McLeish, N. Parsons, and others. Brian Simon, Ed. Stanford University Press, Stanford, Calif., 1957. 313 pp. \$6.

*Ultrastructure and Cellular Chemistry of Neural Tissue, vol. II of Progress in Neurobiology.* Heinrich Waelsch, Ed. Hoeber-Harper, New York, 1957. 264 pp. \$7.50.

*Documentation and Information Retrieval.* An introduction to basic principles and cost analysis. J. W. Perry and Allen Kent. Western University Press, Interscience, New York, 1957. 168 pp. \$5.

*Elements of Color in Professional Motion Pictures.* Wilton R. Holm, Chair. Society of Motion Pictures and Television Engineers, New York, 1957. 104 pp.

*Engineering Properties and Applications of Plastics.* Gilbert F. Kinney. Wiley, New York; Chapman & Hall, London, 1957. 285 pp. \$6.75.

*The Galactic Novae.* Cecilia Payne-Gaposchkin. North-Holland, Amsterdam; Interscience, New York, 1957. 336 pp. \$8.50.

*Teaching Science in the Secondary School.* R. Will Burnett. Rinehart, New York, 1957. 394 pp. \$5.25.

*You Can Win a Scholarship.* Samuel C. Brownstein, Mitchel Weiner, Stanley H. Kaplan. Barron's Educational Series, Great Neck, N. Y., 1956. 434 pp. Paper, \$2.98.

*Understanding Arithmetic.* Robert L. Swain. Rinehart, New York, 1957 (first published, 1952). 285 pp. \$4.75.

*Virus in the Cell.* J. Gordon Cook. Dial Press, New York, 1957. 208 pp. \$3.

*We Live by the Sun.* J. Gordon Cook. Dial Press, New York, 1957. 192 pp. \$3.

*Fasteners Handbook.* Julius Soled. Reinhold, New York; Chapman & Hall, London, 1957. 439 pp. \$12.50.

## Miscellaneous Publications

(Inquiries concerning these publications should be addressed, not to Science, but to the publisher or agency sponsoring the publication.)

*Pest Infestation Research, 1956.* Report of the Pest Infestation Research Board with the report of the director of pest infestation research. Department of Scientific and Industrial Research. H.M. Stationery Office, London, 1957 (order from British Information Services, 45 Rockefeller Plaza, New York). \$0.86.

*Liquid Metals Technology*, pt. 1. Chemical Engineering Progress Symposium series, vol. 53, No. 20. F. J. Van Antwerpen, Ed. American Institute of Chemical Engineers, New York, 1957. 84 pp.

*The Rio Grande Flood.* A comparative study of border communities in disaster. Disaster Study No. 7. Publ. 458. Roy A. Clifford. 145 pp. Paper, \$2.50. *An Introduction to Methodological Problems of Field Studies in Disasters.* A special report prepared for the Committee on Disaster Studies. Disaster Study No. 8. Publ. 465. Lewis M. Killian. 35 pp. Paper, \$0.75.

*Convergence Behavior in Disasters.* A problem in social control. Disaster Study No. 9. Publ. 476. Charles E. Fritz and J. H. Mathewson. 102 pp. \$2. National Academy of Sciences-National Research Council, Washington 25, D.C., 1957.

*Strengthening Science Education for Youth and Industry.* Proceedings of the seventh Thomas Alva Edison Foundation Institute, 19-20 Nov. 1956. New York University Press, N.Y., 1957. 162 pp. \$5.

*Travaux de l'Association Internationale de Géodésie*, vol. 19. Rapports généraux. Etablis à l'occasion de la dixième assemblée générale, Rome, 14-25 Sept. 1954. Pierre Tardi, Ed. Association Internationale de Géodésie, Paris, 1956. 10 repts.

*World Directory of Crystallographers.* Philips Laboratories contribution No. 115. Compiled by William Parrish. Philips Laboratories, Irvington-on-Hudson, N.Y., 1957 (order from Polycrystal Book Service, Brooklyn 1, N.Y.). 79 pp. \$1.50.

*Role of Hospitals in Programmes of Community Health Protection.* First report of the Expert Committee on Organization of Medical Care. WHO Technical Rept. series, No. 122. World Health Organization, Geneva, 1957 (order from Columbia University Press, New York). 34 pp. \$0.30.