from spreading." Amoebas circumvent contingencies as they are presented, and the future constitutes a factor in their conduct as it does in that of men.

The following statement by Hyman (*9*, p. 72) calls for comment: "Kepner and his students conclude that *Microstomum* seeks hydras 'for the purpose' of obtaining their nematocysts 'in order' to use these nematocysts against prey. The question whether *Microstomum* is able to capture prey without the use of nematocysts is not considered by these authors; the lack of this control weakens the whole argument."

Had she read all our papers upon microstomum's nematocysts more carefully, she would have discovered that we had not used the word "prey" at any place, though we had quoted Martin (*10*) as having used it. It was not our "argument" that these flatworms need nematocysts to "capture prey." They obviously do not need these "guns" ordinarily to obtain food any more than a soldier ordinarily needs his gun to capture food.

In reading our papers recently I was surprised to find that they actually contain some evidence that microstomum may use its nematocysts "in order to capture prey." For example, Martin (*10*, p. 268) found "one of the commonest enemies of *Microstomum* appears to be *Chaetogaster*, which devours it greedily." It is my inference that Martin's microstoma must have lacked nematocysts, for several years later we found loaded microstoma, living in an adjacent pond, feeding freely upon chaetogasters. This suggests that our loaded microstoma were using their alien nematocysts in order to capture "one of their commonest enemies" for food.

Finally, we find that we actually recorded two examples in which a microstomum had immobilized a stenostomum by means of nematocyst-wounds and then ingested the wounded prey.

In the face of this evidence, the burden of proof seems to lie upon the shoulders of those who deny that microstomum sometimes uses its alien "guns" to capture food, just as a soldier may sometimes use a captured enemy gun to capture the enemy's calf.

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## Erratum

It has been called to our attention that in the Nov. 9 issue of SCIENCE (114, 516 [1951]), the death of **Professor H. Galliard**, of the Faculté de Médicine de Paris, Institut de Parasitologie, was erroneously reported.—Editors.

# *Book Reviews*

***Oeuvres Complètes de Christiaan Huygens: Supplément, à la Correspondance, Varia, Biographie de Chr. Huygens,*** Tome XXII. The Hague: Martinus Nijhoff, 1950. Published for the Société Hollandaise des Sciences, 921 pp.

This volume completes the collected works of Christiaan Huygens (1629–95), one of the great men of science in the seventeenth century, whose many contributions to science include the optical principle that bears his name, the modern pendulum clock escapement, improvement of the telescope and consequent resolution of Saturn's ring, and the analysis of forces in uniform circular motion. This edition was initiated by the Dutch Academy of Sciences in 1885, and the first volume appeared in 1888; Volumes 16–22 have been edited by J. A. Vollgraff, and the preceding ones by D. Bierens de Hahn, J. Boscha, and D. J. Korteweg, respectively. The first ten volumes contain correspondence (both letters by Huygens and those written to him), the remaining volumes being devoted to special scientific topics—mathematics, probability, dioptrics, physical optics, astronomy, horology, cosmology, dynamics—including annotated editions of his printed works as well as shorter pieces and manuscript notes.

This last volume contains a supplement to the published correspondence, various small items omitted from previous volumes, a bibliography of the material published by Huygens in his lifetime, marginal notes made by him in reading the *Acta Eruditorum*, a facsimile of the bookseller's catalogue of Huygens' library, and a 400-page biography of Huygens by Vollgraff. The latter is a mine of information concerning every aspect of Huygens' life and the development of his thought. Since Huygens traveled widely, was well acquainted with the leading scientists of his day, as well as being keenly interested in scientific questions of every sort, this biography contains an abundance of material for anyone interested

in any aspect of scientific thought in the seventeenth century. Incorporated in the biography are many autobiographical documents not hitherto printed, such as journals kept during travels and itineraries.

Particularly valuable for our understanding of the development of Huygens' thought is the account given of books he purchased or read and his comments concerning them. Discussions of leading issues of the day, such as Newton's theory of gravitation, illuminate the state of scientific knowledge and its dissemination. While much of the information will not interest most scientists (who will not care, for example, whether Huygens hired two valets or one, and so on) the biography nevertheless is a source of primary value to all who care to look back at the founding period of modern science.

Like the other volumes, this one is handsomely printed on handmade paper, each sheet being watermarked "Christiaan Huygens." It contains an index and a detailed table of contents, and the many notes enable readers of the biography to find further information in previous volumes concerning any topic they encounter. The completion of this splendid project makes us wish that similar editions existed for other great men of science, such as Newton and Lavoisier.

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***Alkali Soils: Their Formation, Properties and Reclamation.*** W. P. Kelley. New York: Reinhold, 1951. 176 pp. $5.00.

The author has integrated an extensive background in research and practical experience, with historical and modern findings on alkali soils, in this significant treatise of value to students of arid agricultural regions. The book gives an extensive review of the principal findings in the chemistry of these soils. The viewpoint is that of workers at the University of California, but few of the conclusions reached will be questioned by other specialists.

The general term "alkali soils," given by Hilgard as a generic name for all soils affected with salt, is employed. But the author has not gone further and selected terminology for subclasses of these soils. In effect, the adoption of the older term for salt-affected soils renounces the terminology proposed by de Sigmond and adopted with modification by the U. S. Salinity Laboratory, the Soil Science Society of America, and most soil scientists of the western United States.

Treatment of the origin of salts, their effects on soils, cation exchange processes, irrigation in relation to alkali, and the reclamation of alkali soils is particularly valuable. The physical problems of alkali soils are considered only briefly. Plant relations to salt and alkali soil conditions have been more adequately covered in recent publications by Wadleigh and others.

There are hundreds of thousands of acres of alkali soils in the Western states that cannot be economically reclaimed in the foreseeable future. A section on the problems involved in increasing crop production on these nonreclaimable soils would have been a welcome addition to the book.

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***The Kidney: Structure and Function in Health and Disease.*** Homer W. Smith. New York: Oxford Univ. Press, 1951. 1,049 pp. $12.50.

This eagerly awaited book is as unique, valuable and as much a landmark as Cushny's *The Secretion of the Urine*. Its skillful dialectic critically integrates some 2,300 references from a field whose recent rapid growth derives in large part from the author's basic concepts and techniques. Some of the observations cited were unpublished elsewhere at press time, and the text throughout is presciently up to date.

Part I touches briefly on anatomy and deals at length with excretory physiology in terms of clearance. Part II reviews mechanisms of renal maintenance of body fluid and extra-renal controls of these equilibria. Part III surveys renal circulation and hemodynamics, renotrophic factors, age-conditioned changes in function and comparative physiology. Part IV is a review of renal function in disease.

This array of subject matter is presented under 27 chapter headings in a proportioned, objective, and, within limitations of present-day knowledge, satisfying manner. Coverage of adrenal function is not up to the decisive level of the text as a whole, probably from the nature of the topic. Chapters on electrolytes and acid-base equilibria must have been hard to write, for they are not easy to read. Errata which will only occasionally puzzle the reader are just numerous enough to permit the quotation from Horace that "Even the worthy Homer sometimes nods." Inclusion of heparin under "other proteins" and characterization of hemoglobinurias as hematurias are probably unjustified. The chapter on diuretics gives the impression of having been tacked on.

Many of the topics are controversial. Those familiar with specific aspects may not agree with some of the summaries proposed. But they too will be glad to have the book and to recommend it.

The book is too large for cursory reading. It will be most used for reference. It should be available to all engaged in physiology, pharmacology, or clinical science. Physicians will find Parts I through III often too detailed to hold their interest and in Part IV much fact but no prescriptions. The illustrations are mostly charts and will discourage those who want science in tabloid form. But these charts refresh and illumine the record. Dr. Smith deserves every congratulation for this remarkable contribution to physiological literature.

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