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CHIASMATYPY OR THE DOCTRINE OF DELAYED ACTION FERTILIZATION

By Professor EDWARD C. JEFFREY

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IN my undergraduate days, I was much interested in the reading of two publications on fertilization, which appeared in the early and late eighties of the last century. One of these dealt with fertilization in the higher seed plants or Angiosperms.[1] In this publication Eduard Strasburger described the fusion of the sperm nucleus, derived from the fertilizing pollen tube, with that of the egg as the essential and fundamental act of fertilization, leading directly to the formation of a new individual. The other gave a much more circumstantial and detailed account of fertilization in *Ascaris megalocephala,* a large parasitic worm found in the intestine of the horse.[2] Here the authors also noted the fusion of the male and female nuclei as an essential and final fact of fertilization. In both cases cited fertilization was regarded as completed by the fusion of male and female reproductive elements.

Towards the end of the nineteenth century the subject of chromosomes began to attract more and more attention. It was early realized that these are characteristic of the active or dividing stages of the nuclei from which they take their origin. Considered to be the main carriers of hereditary influences, they are also important as providing a mechanism for the exactly equal distribution of chromatin between the daughter cells resulting from division. They were also considered to play an important role in fertilization, although its exact nature was not fully understood.

[1] "Befruchtungsvorgang bei den Phanerogamen," Jena, Gustav Fischer; 1884.

[2] Van Beneden et Neyt, Bull. Ac. roy. Belgique, 1887.

and the Department of Scientific and Industrial Research which was undertaken by the Ministry of Food and printed by the order of the Trustees of the British Museum. It includes scientific studies of the identity, life histories and control of the numerous insects infesting and destroying stored food products which were so essential to the preservation of the British people and for the winning of the war.

This monograph is the most comprehensive of the very many works dealing with these insects. It is thoroughly scientific in its approach and follows along strictly systematic lines complete with keys to adults of the coleopterous families: Carabidae, Staphylinidae, Nitidulidae, Lathridiidae, Mycetophagidae, Colydiidae, Murmidiidae, Endomychidae, Erotylidae, Anthicidae, Cryptophagidae and Dermestidae.

The author has succeeded in producing a splendid scientific monograph, the material of which is so clearly presented as to make it readily understandable to all classes of readers. Great numbers of excellent illustrations have been prepared to elucidate the keys and to aid in readily distinguishing all the various stages of the complicated life histories of these destructive beetles. The drawings of the adults are specially well executed, and some of them are among the finest to be found in modern entomological literature.

In connection with the descriptions of the various stages of each species is included the synonymy of scientific names and references to original sources, the common names, the genotype and comparative notes.

Historical data, world distribution and the hosts are also given for each species. Methods for rearing the beetles and their habits, parasites and predators are likewise fully treated.

A great deal of confusion has been cleared up especially with regard to the identity and synonymy of the beetles belonging to the family Dermestidae. The author's treatment of these important household pests is noteworthy and extremely valuable.

The very complete list of references and an index to orders, families, genera and species enhances its value.

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CHEMISTRY OF ACETYLENE

The Chemistry of Acetylene. By JULIUS A. NIEUWLAND and RICHARD R. VOGT. xi + 219 pp. Reinhold Publishing Corporation. 1945. $4.00.

As stated in the introduction, this volume presents "a brief but fairly complete account of the preparation, properties, and reactions of acetylene" as disclosed in the literature through 1938, this being the last year of free flow of scientific publications. It proceeds from the preparation and properties of acetylene, through metallo derivatives, non-metallic derivatives and, finally, to the polymerization of acetylene.

The coverage of the literature for this period is very thorough, and the bibliography is extensive, well classified and well indexed. The arrangement of the subject-matter is orderly and logical, and the manner of presentation of the data is clear.

The book is very free of typographical errors. One, however, might be noted. In Table I, page 31, the ratio of gas to liquid concentration should have been reversed, as the figures are actually the ratios of concentration in the liquid to concentration in the gas phase.

The patents relating to acetylene and acetylene derivatives have been extensively consulted and discussed. Due, probably, to the difficulty of interpreting these with accuracy, and the further difficulty of determining which of them are actually in use, this part of the discussion is non-critical in tone, no attempt being made, for the most part, to do more than to record the statements made by the patentees. The more purely scientific part of the literature, however, is treated much more thoroughly and authoritatively, particularly those subjects which lie within the rather broad field of acetylene chemistry worked in by the authors. Since both sources of information are frequently used in connection with the ame subject, the treatment appears, superficially, to be much less critical than is actually the case. As a supplement, the syntheses of monovinylacetylene and its most important derivative, neoprene, are discussed at some length.

In spite of the fact that the literature could be covered only up to 1938, this book is a very welcome and valuable addition to the A.C.S. Monograph series, and should be in the library of any one interested in the field of acetylene and its reactions. It is to be hoped that when the necessary information becomes available, it will be brought up to date so as to include the developments of the war period.

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WILMINGTON, DEL.

BOOKS RECEIVED

MONTAGU, M. F. ASHLEY. *An Introduction to Physical Anthropology.* Illustrated. Pp. xiv + 325. Charles C Thomas. $4.00. 1945.

QUIRING, DANIEL P., BEATRICE A. BOYLE, ERNA A. BOROUSH and BERNARDINE LUFKIN. *The Extremities.* Illustrated. Pp. 7 + 117. Lea and Febiger. $2.75. 1945.

OSBORN, CHASE S. and STELLANOVA OSBORN. *Errors in Official U. S. Area Figures.* Pp. viii + 177. The Science Press Printing Company. 1945.