Book Reviews

Experimental catatonia: a general reaction-form of the central nervous system and its implications for human pathology. **Herman Holland de Jong. Baltimore: Williams & Wilkins, 1945. Pp. xiv + 225. $4.00.**

According to de Jong, catatonia is a neuromuscular reaction-pattern which, in its predominant hypokinetic form, is characterized by diminution of spontaneous motility, maintenance of static posture (catalepsy), and passive resistance to, or reversal of, induced movement (negativism); however, hyperkinetic tremors and impulsivity may also appear. The author acknowledges that a catatonic syndrome occurs in many diverse neurologic and psychiatric disorders, but he is primarily interested in the so-called "catatonic" subgroup of schizophrenic psychoses. In early studies at Amsterdam University (*La catatonie experimentale par la bulbocapnine.* Paris: Mason, 1930) de Jong, Baruk, and coworkers observed that significant alterations of muscular tonus and movement could be induced in animals by the injection of bulbocapnine, an alkaloid chemically related to apomorphine; the author therefore inferred that catatonic schizophrenia might also be of toxic etiology in man.

The present volume presents abstracts of subsequent studies by the author and his associates at Columbia and, more recently, at Duke University. In brief, these studies showed that the motor and autonomic symptoms of catatonia could be induced by a great variety of other drugs, such as mescaline, epinephrine, acetylcholine, and even CO_2 inhalations, so that the author's original quest for a specific "catatonizing chemical nucleus" had to be abandoned. Further, while "the extent to which catatonic manifestations could be produced [by bulbocapnine] seemed to be related directly to the degree of development of the nervous system of the experimental animal [Lewis]," the catatonic states induced by experimental lesions of the brain could not be directly correlated with either the localization or the size of the lesions themselves. Catatonic disturbances of muscular tonus were also produced by an Eck's fistula or by the ligation of an intestinal loop in dogs, by passing electric currents (especially of the direct-interrupted Leduc type) through the brains of cats, or even by subjecting rats to rapid horizontal rotation or to intense auditory stimulation. Still in pursuit of a possible toxic factor in clinical catatonia, the author next undertook extensive research on a substance in human urine hopefully called "catatonine" (later shown to be "operationally identical" with nicotine and not specific for schizophrenia), on the histamine content of human blood, and on the cephalin-cholesterol flocculation test for liver function in schizophrenics and normals—all with indeterminate results. De Jong concludes, nevertheless, that catatonia is an expression of "cellular asphyxiation in the nervous system" and implies that the latter, as Kraepelin postulated, is probably due to some undetermined "auto-intoxication" of the body.

It may be seen that de Jong's approach to neuropsychiatry is still traditionally dualistic: an abstract "mind" is distinguished from a material "body," and all problems of behavior must be solved in terms of tissue function. From this orientation there follows his insistent pursuit of a single organic cause for "catatonic schizophrenia," which, clinically, is a vaguely defined, protean, and highly variable disorder contingent on a multitude of biodynamic determinants in the past experiences and current adaptive functionings of the organism.

Even granting the validity of so narrow an approach to the subject, the book has other, though less serious, defects. The discussion is thin and repetitious; records of the experiments are fragmentary and sometimes do not support the conclusions; the studies of other workers in the field are accorded scant notice; and the lack of an index makes cross-reference to the text difficult. Nevertheless, the work represents a sincere effort to report an almost life-long series of studies by an alert, competent, and persistent investigator and, as such, will furnish significant data to those interested in the comparative investigation of normal and abnormal behavior by valid and promising methods of animal experimentation.

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American Old and Middle Tertiary larger Foraminifera and corals. **Pt. I: *American Paleocene and Eocene larger Foraminifera.* Thomas Wayland Vaughan. Pp. x + 175; Pt. II: *West Indian Eocene and Miocene corals.* John West Wells. Pp. iii + 25. New York: Geological Society of America, 1945. Memoir 9.**

This memoir is divided into three sections, the first two of which are by Vaughan and the third by Wells. The first portion describes the larger Foraminifera collected by Dr. A. Senn in Barbados, British West Indies, from rocks of Paleocene and Eocene age. The second section is a detailed account of the skeletal structure, development, and classification of the genera and species of the foraminiferal family Discocyclinidae, followed by a rather complete annotated list of the various American species assigned to this family. The final section of this memoir is a description of twenty-seven species of Eocene corals from Barbados and two species of coral from the Miocene of Martinique.

In Barbados, in the Joes River mudflows, there occur fossiliferous blocks which contain an assemblage of Paleocene larger Foraminifera. Most of the species recovered from these blocks are identical to those described from the Soldado formation on Soldado Rock, Trinidad. The formation from which these blocks were derived is not exposed.

The oldest exposed rocks are the Scotland formation, which is divided into a lower and an upper portion. The lower contains only one species, *Discocyclina* (*Discocyclina*) *grimsdalei* Vaughan and Cole. As this species appears to have a rather long stratigraphic range, the correlation of the Lower Scotland formation depends on

the stratigraphic position of the formation. It is believed to be Lower Eocene. The Upper Scotland formation, which is subdivided into three members, contains a relatively rich fauna of larger Foraminifera and corals. Unfortunately, most of the latter represent new species, and the age of the Upper Scotland formation must be based on the general aspect of the fauna. The occurrence of *Pseudophragmina perpusilla* (Vaughan) and *Endopachys maclurii* (Lea) in this fauna, however, is a rather definite indication of the Middle Eocene age of the Upper Scotland formation.

In the systematic descriptions of the forms from Barbados, Vaughan describes a new genus *Orbitolinoides*, which resembles *Orbitolina* but lacks the peripheral zone crossed by radiating plates which is characteristic of the latter genus. Voluminous notes are given on the genus *Miscellanea*, and the various species of the Discocyclinidae are described and figured in great detail. A pustulate species of *Amphistegina*, related to *A. lopeztrigoi* Palmer from the Middle Eocene of Cuba, is described by Cushman in this section of the memoir. The description of a new species of *Polylepidina* and unnamed *Pliolepidina* concludes the section on the fauna from Barbados.

The second section will be of tremendous value to all students of the Foraminifera, since it represents a monographic treatment of the American Discocyclinidae. The discussion of the various species is preceded by an elaborate account of the structure of the test. Vaughan demonstrates by means of microtome thin sections, prepared by Dr. E. H. Myers from specially treated specimens, that one species of *Discocyclina* has annular intramural and radial intraseptal canals, confirming previously held opinions that the Discocyclinidae should be separated from the Orbitoididae and Miogypsinidae.

The classification adopted by Vaughan is essentially the one given by Vaughan and Cole in Cushman's textbook on the Foraminifera, with the addition of the subgenus *Asterophragmina* proposed by Rao in 1942. In the review of American species Vaughan proposes six new species and two new varieties and gives notes or detailed descriptions for forty-six previously described species and three varieties. The systematic portion of the second section would have been more valuable if a complete synonymy had been given in each case.

The second section is concluded by the stratigraphic zonation and geographic distribution of the American species of Discocyclinidae as well as a table in which the locations of the type specimens are given. The illustrations are excellent. Special notice should be given to the many perfect thin sections, because, if these are inadequate, it is impossible to obtain satisfactory photographs and delineation of diagnostic structures.

The final section, by Wells, describes the scleractinian coral fauna of the Upper Scotland formation, in which twenty-seven species and varieties were discovered. Although most of the species and two of the genera are new, the general aspect of the coral fauna is that of the Middle Eocene Claiborne coral fauna of the United States and not similar to other known West Indian Eocene coral assemblages. The fauna suggests that the forms lived in a tropical, nonlittoral environment at depths beyond the lower limits of temperature for vigorous reef growth. Of the two corals described from the Miocene of Martinique, one was known previously from a single Dominican specimen, and the other, a new species, is referred to the subgenus *Eusthenotrochus* previously recorded from the Eocene of the Paris Basin and the recent seas.

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Introduction to organic chemistry. **(6th ed.) Alexander Lowy, Benjamin Harrow, and Percy M. Apfelbaum. New York: John Wiley & Sons, 1945. Pp. xiv + 448. $3.50.**

The sixth, revised edition of this textbook incorporates changes from the preceding edition which represent a steady evolution to keep the book up to date rather than a sudden change. The book therefore retains its essential qualities—clearness, simplicity, and logic of presentation—and avoids the pitfall of numerous other texts which, in their recent revisions, have tried to cover too much and have become unsatisfactory hybrids between elementary textbooks and advanced treatises.

Here we have, as the title claims, a true introduction to organic chemistry. It uses some electronic notations discreetly. The reviewer has quarrels of only minor importance with the authors. Although recognizing that the book seldom explains a topic in terms of something that follows, he finds the paraffins, prepared from acids, and the olefins, prepared from alcohols, in chapters where the students have not yet learned oxygenated functions. It seems more logical to teach that alcohols are hydrated olefins than that olefins are dehydrated alcohols. The description of recent industrial achievement is seldom permitted to distort the general knowledge, yet the description of the nitroparaffins is misplaced, because it destroys the notion of paraffinic sluggishness which it is essential for the student to grasp. The same criticism applies to rearrangement on aluminum chloride, which confuses the student when it is brought up too soon. These topics could easily be displaced into a separate chapter in which it could be emphasized that such reactions become preponderant because of the drastically different operating conditions. The reviewer would also like to see the Wurtz reaction emphasized as one of theoretical, more than practical, interest, since he finds that students are unusually prone to propose any number of condensations using this apparently obvious procedure.

The book is well presented and makes a distinctly better impression than its preceding edition.

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Introduction to industrial chemistry. **W. T. Frier and Albert C. Holler. New York: McGraw-Hill, 1945. Pp. xiv + 368. $3.00.**

This book, written for the benefit of industrial employees taking night-school work, covers a number of independent, apparently hand-picked topics, as shown by the Table of Contents: atoms; molecules and valence; plus and minus valence; radicals and acids; acids, bases, and