Book Reviews

A new notation and enumeration system for organic compounds. G. Malcolm Dyson. New York-London-Toronto: Longmans, Green, 1947. Pp. iv + 63. $1.75.

This monograph presents the fundamental portions of a new notation which, in the words of the author, "may go far towards advancing those difficulties of chemical nomenclature that, as chemistry advances, become more apparent each year, particularly in classification and indexing. . . . The scheme was first formulated in 1944, and various tests were carried out to ascertain, as far as could be done at that time, the general validity of the system. The Ring Index was completely ciphered into the new notation, and it was found that there was no single entry which did not give a unique and unequivocal cipher. Five volumes of Beilstein were ciphered into the new notation, and these have been collated and arranged in cipher-index order; and in no case did the system fail to provide a satisfactory delineation."

Complete details are given for translating organic compounds into the appropriate cipher. The compounds covered include: hydrocarbons, alcohols, glycols, and phenols; ethers; epoxy compounds; aldehydes and ketones; quinones; carboxylic acids; carboxylic esters; lactones; heterocyclic compounds; amines; acid amides, halides, and anhydrides; nitroso, nitro, and azido compounds; ureas, urethanes, etc.; azo compounds; hydrazines, oximes, etc.; halogens; sulfur compounds; phosphorus compounds; carbohydrates; and polysaccharides. In the appendix are given ciphers for some steroids (adrenal) steroids (general), aporphine alkaloids, morphine alkaloids, and fused rings. Included also are ciphers for compounds numbered 2401 to 2700 in the Ring Index.

Acyclic and alicyclic hydrocarbons are all delineated in terms of 6 symbols, as follows: C, carbon; E, double bond; E_1, cis arrangement at the double bond; E_2, trans arrangement at the double bond; E_3, triple bond; A, bridge or ring. The number following the letter C gives the number of carbon atoms in the longest straight carbon chain in the molecule. The cipher for 2,2-dimethyl-5-methyl-7-propyldecane is C10.4C3.6C2.9,9C. For 1,3-butadiene, the cipher is C4.1,3E. Cycloparaffin rings are denoted by the letter A, as AC4 for cyclobutane, AC5 for cyclopentane, AC6 for cyclohexane, etc. Cyclohexane with a bridge-link in the 1-3 position is AC6.1-3A. Cyclooctane with two bridge-links, in the 1-5 and 3-7 positions, each bridge comprising a single methylene group, is AC8.1-5,3-7AC.

All aromatic and fused rings are ciphered in terms of the following conventional rings: V, cyclopentadienyl; B, benzene; W, indenyl; K, naphthalene; J, phenanthrene; T, anthracene. Other fused rings are derived from these 6 fundamental rings by the addition of fragments of the benzene ring or of saturated chains. The fragments are called adducts. For example, the Beilstein notation, 4′.4″.Dimethyl-(dibenzo-1′.2′:2.3;1″.-2″:6.7 phenanthrene) becomes T9.6,21C.

The Dyson system is readily applicable to punched-card manipulation, is well suited for indexing purposes, but appears to have some limitations with regard to classification purposes. The accuracy of any cipher can be checked independently by computing the molecular formula from the cipher, using constants supplied by the author.

The Dyson cipher is an important contribution in the field of indexing and classifying compounds, and those concerned with this type of work should familiarize themselves with this system so that all possible advantage may be taken of it.

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Psychiatric research. C. K. Drinker, J. Folch, S. Cobb, H. S. Gasser, W. Penfield, and E. A. Strecker. Cambridge, Mass.: Harvard Univ. Press, 1947. Pp. 113. (Illustrated.) $2.00.

This slender book is a very stimulating and timely collection of addresses prepared by six distinguished scientists. These were presented originally at the dedication of the Laboratory for Biochemical Research at the McLean Hospital on May 17, 1946. Opened in 1818, the McLean was the first institution for the care of the mentally ill in Massachusetts. Rufus Wyman was chosen by the Trustees of the Massachusetts General Hospital as its first director. The institution became outstanding for leadership in psychiatric care, and its research program did much to advance the field of scientific psychiatry. A paper by Cecil K. Drinker on "Research at the McLean Hospital" gives a concise review of the steps which there advanced psychiatric treatment and the research accomplished. The second paper, "Biochemical Problems Related to Psychiatry," is by Jordi Folch, director of scientific research at the McLean. Here is presented a thoroughgoing survey of brain function from the biochemical viewpoint, with special emphasis on problems which the author feels have been hitherto sometimes neglected. This discussion should be particularly useful to students entering this field. It includes some tabular material and provides a bibliography of 65 references.

The address by Stanley Cobb, entitled "Integration of Medical and Psychiatric Problems," presents a report of the psychiatric service at the Massachusetts General Hospital during the last five years. A new psychiatric ward was opened in 1941; and findings are reviewed for a group of 843 typical patients. The discussion concerns methods of treatment and typical outlines of laboratory investigations. A study of neurocirculatory asthenia is presented as an example of work in a problem field where integration between internal medicine and psychiatry has borne fruit in clinical investigations. The paper has a bibliography of 42 references.

The fourth chapter, entitled "Protocol for a Review of Psychiatry," by Herbert S. Gasser, will doubtless be provocative of much discussion. Propounding the theory that all of the sciences might have in common a strict type of language as exact as the language of physics, Dr. Gasser discusses the problem of bridging the hypothetical chasm in observation and semantics between the so-called natural and psychological sciences. He assumes that "as parts of science, psychiatry and