

physiological restoration to health. No lives can be saved by such drugs that would not be saved merely by artificial respiration. Artificial respiration is harmless, in contrast to the ill effects of some of these drugs upon the heart. The only drug that can displace carbon monoxide from the blood, and replace it with oxygen, is oxygen. The only drug that can replace the carbon dioxide that the blood and tissues have lost, and recall the blood alkali into use in normal amount, is carbon dioxide. Carbon dioxide is also nature's own respiratory stimulant.

The treatment now used by the rescue crews of fire and police departments and of city gas and electric companies has demonstrated its effectiveness.² It consists of the inhalation of oxygen and 7 to 10 per cent. carbon dioxide. Unless the heart or brain is already severely damaged, resuscitation is almost always achieved. Many hundred inhalators for this purpose are now in use and are saving thousands of lives. The newspapers persist in calling these inhalators by the name of a discarded mechanical appliance, the "pulmotor." Every case of asphyxiation that recovers after a hypodermic injection of some drug is heralded as a brilliant cure. The victim would probably have recovered, and would certainly have felt much better next day, without the injection. Hypodermic medication in asphyxia is harmful rather than beneficial.

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CHROMOSOME NUMBERS IN FLAX (*LINUM*)

ACCORDING to Tine Tammes, of the University of Groningen, The Netherlands, common flax, *Linum usitatissimum*, has 15 chromosomes (haploid), as has also *L. angustifolium*, a species native to southern Europe and which may be crossed readily with the cultivated flaxes. M. Kikuchi, of Japan, found 9 chromosomes (haploid) in *L. perenne* of Europe and in *L. lewissii* of North America. The writer is indebted to Dr. A. E. Longley, Division of Genetics and Biophysics, Bureau of Plant Industry, U. S. Department of Agriculture, for the determination of the number of chromosomes in five additional species and varieties of *Linum*, as follows:

Linum rigidum Pursh. (Mandan, N. Dak.) 15 chromosomes (haploid)

L. sulcatum Riddell (Mandan, N. Dak.) 15 chromosomes (haploid)
L. perenne Asiaticum (Caspian Sea plains) 9 do
Flax, Hoshangabad (India)... 15 do
Flax, Bison (N. Dak. Agr. Exp. Sta.) 15 do

It is noteworthy that the two species, *L. rigidum* and *L. sulcatum*, which are very different from common flax, have, however, the same chromosome number as *L. usitatissimum*.

The variety Hoshangabad, C. I. 40, was obtained in February, 1914, from the Central Provinces, India, and later as Indian Type 1, from Gabrielle L. C. Howard, formerly second imperial botanist for India. It also was obtained from Luther Burbank in February, 1918, under the name "Burbank Flax." This variety has very large yellow seeds and pale pink flowers. Bison is a new wilt-resistant variety of seed flax developed by the North Dakota Agricultural Experiment Station.

This note is reported so that Dr. A. E. Longley may have credit for these additional chromosome determinations.

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DANTE'S BONES

DANTE ALIGHIERI died in 1321 and was interred at Ravenna. Despite some vicissitudes, the bones of the poet seem to have been sufficiently cared for and kept marked. On the occasion of the 600th anniversary of Dante's death his tomb was opened and the bones committed for study to the care of Professor F. Frassetto, who with Giuseppe Sergi published a note on them in 1923. The definitive report has recently been published by Frassetto in a quarto of 205 pages with 95 figures. The cranium (without the lower jaw and teeth) is in excellent preservation and has been most exhaustively measured. The outline of the skull has been superimposed upon various extant busts of Dante. The fit is generally good except in the forehead; but then the existing portraits of Dante do not agree with each other and the fit with the Vela bust is excellent in all respects. The sumptuous volume can be obtained of Frassetto, University of Bologna, price bound ("di lusso, in pergamena") at L. 160.

C. B. D.

SCIENTIFIC BOOKS

RABER'S PLANT PHYSIOLOGY

CONGRATULATIONS are due any biologist when his book requires a second edition within five years; and

² Y. Henderson, "Fundamentals of Asphyxia," *Journal of American Medical Association*, 101: 261-266, 1933.

further congratulations should be offered him when the second edition is such a marked improvement over the first.

Both of these statements apply to "The Principles of Plant Physiology" (The Macmillan Company,

1928, 1933), by Dr. Oran Raber. The first edition numbered 377 pages, the second has 432. The second edition is bound in warm red cloth, which should withstand laboratory wear better than the now unsightly green of my own copy of the first edition. It is a book to read and ponder; it is a statement of "principles," or fundamentals, or concepts, rather than a detailed guide to laboratory procedure. It presents the names and in twenty cases small photographic or other likenesses of contributors to the development of plant physiology. Six of these twenty are pictured in both editions, *viz.*, Willstätter, Mollard, Jost, Bose, Blackman, Dixon. Of these, three have profoundly influenced the thought of plant physiologists everywhere, by their individual contributions, while the other three have affected the study in their respective countries of France, Germany and India. The changes among the other fourteen are interesting to the professional plant physiologist; in many instances causing him to wonder, "Why?" But the inclusion in a book on a scientific subject of the likenesses of those who have contributed to it at once humanizes it. In the same way, the allusions in various places throughout the book to the contributions of plant physiology to human life are also valuable. And in this scientific book at least the author occasionally ventures a witticism. Thus in the course of a lucid discussion of respiration and its products one reads, "This would lead to the conclusion that plants in a sleeping room are not harmful and that one can continue to sleep in forests without danger of asphyxiation." Again "Saprophytism is living from life insurance."

The language of the book is excellent. The reviewer may express his individual dislike of the terms *cold temperature*, *warm temperature*, in place of *low*, *moderate* or *high temperature*; but everywhere the exposition is clear and concise, the subjects well chosen. At the end of each chapter one finds a set of questions. Are these needed, and are they by any means all that are suggested? Also at the end of each chapter are "References," under which one finds cited in full some of the contributions to the subject of the chapter. In the chapter itself the names of the authors, and in some instances the dates, but not the title or place of contributions—thus "Kahlenberg and True (1896) as well as Coupin"—are given. A professional botanist with library facilities would find no difficulty in determining and consulting these references; but those without adequate library equipment would be in difficulty. Furthermore, the papers or books cited in full under "References" are not all of greater value or importance than those mentioned in the course of the exposition. The reviewer fails, therefore, to recognize the basis of the treatment. As

to the quotations taken from sources as varied as Tacitus and Eugene Field and used as chapter headings, are they appropriate as well as apt?

However, these are minor defects, individual, and the book is to be valued as source and stimulus.

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THE LITERATURE OF VERTEBRATE ZOOLOGY

An Introduction to the Literature of Vertebrate Zoology, Based chiefly on the Titles in the Blacker Library of Zoology, the Emma Shearer Wood Library of Ornithology, the Bibliotheca Osleriana and Other Libraries of McGill University, Montreal. Compiled and edited by CASEY A. WOOD. Oxford University Press, London, Humphrey Milford, 1931; 4to, pp. xix + 643; colored frontispiece. \$15.00 or 3 Guineas.

SINCE books are ever of interest to the working zoologist, zoological bibliographies are well-nigh indispensable. So important a work as the present, giving as it does a catalogue of the zoological books in the library of McGill University, is worthy of special mention. It is, however, much more than a catalogue, since the first part of the three into which the book is divided is an attempt to trace the development of zoological literature from the earliest times to the present, with what success an examination of the pages readily reveals. Some of the interesting captions of the nineteen chapters in this part of the work convey an excellent idea of the contents and of the method of development of the subject: "The Beginnings of Zoological Records"; "Medieval Writers on Zoology and Their Immediate Successors"; "The Renaissance and Its Effect on the Records of Zoological Science"; "The Literature of Comparative Zoology"; "Travelogues of Explorers"; "Forerunners, Contemporaries, Followers and Successors of Linnaeus"; "From Natural Philosophy to Modern Biology"; "Some Important Zoological Treatises and Serials Published during the Nineteenth Century"; "The Literature of Zoogeography"; "Oriental Literature on Vertebrate Zoology"; "Periodicals and Serials on Vertebrate Zoology"; "Unique and Rare Printed Books, Manuscripts and Drawings in the Zoological Libraries of McGill University."

It is manifestly a great task that the author has set for himself, yet it is perhaps unfortunate that he did not find it possible to include all important literature in his treatment, rather than to restrict this to books in the McGill Library. However, the abundant material presented contains so much of interest and value