mals and of free-living forms will permit the exploration of nematode physiology. Application of root-culture techniques to the study of host-parasite relations is already proving fruitful. Wallace presents a useful summary of our present position. As nematologists apply modern techniques to the pursuit of knowledge, we may expect a closer approximation to a "biology" of the plant-parasitic nematodes.

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## Ornithology

**Les Oiseaux du Nord de l'Afrique de la Mer Rouge aux Canaries.** R. D. Etchécopar and François Hüe. Boubée, Paris, 1964. 606 pp. Illus. F. 120.

Africa north of the Sahara is predominantly European in its fauna, the important barrier between the Palaearctic and the Ethiopian biotas being the Sahara, not the Mediterranean. Zoologists have been aware of this, but a somewhat parochial attitude has nevertheless caused the northern parts of Africa to be slighted by specialists on both European and on African zoology, although as far as birds are concerned we have, it is true, detailed books on the avifauna of Egypt and less complete works on the birds of Tunisia, and even of Rio de Oro. The present work brings together in compact and useable form our knowledge of the birds of the entire Mediterranean portion of Africa, from the Canary Islands on the west, across Rio de Oro, Morocco, Algeria, Tunisia, and Libya, to and including Egypt at the eastern end of the region.

The book is a convenient summary of what is known of the appearance, distribution, and status of each of the birds as well as a manual for their identification. Preceding the treatment of each family there is a key for identification of the included species. Some of these keys are of the "museum" sort—that is, they involve such items as measurements of specimens in the hand, while others are more of the "field guide" type.

Each species is listed under its French name and Latin designation, and under each is added the name in English, Italian, German, and Spanish. This is followed by a discussion of identifying characters (both in the laboratory and in the field), behavior, nesting habits, distribution, and races. The account of each species is illustrated with a map on which its distribution and its migration are outlined. The plates are semidiagrammatic in some but not all cases; however all are obviously designed as adjuncts to identification, not merely as decorations for the book. There is an adequate index, and even a special index to the Arabic and Berber names of the birds.

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## Boreal Faunas

**Ordovician Paleontology of the Northern Hudson Bay Lowland.** Memoir 90. Samuel J. Nelson. Geological Society of America, New York, 1963. x + 152 pp. Illus. Plates. $6.75.

Ordovician rocks are exposed interruptedly along several of the rivers that drain into the southwestern Hudson Bay. This monograph is concerned with the exposures in northeastern Manitoba near Port Churchill and Port Nelson. The localities have been described much more fully than in the past, many excellent sections have been measured, and the fossils are recorded and described. The sequence of carbonate rocks is separated into several new groups and formations. The similarities in lithic and faunal sequences support the correlations with the Red River, Stony Mountain, and Stonewall formations of southern Manitoba, which are representative of medial and late Ordovician carbonate rocks that are widespread in the northern and western parts of the continent. Most of the memoir is devoted to systematic descriptions of fossils of several classes, particularly descriptions of corals and cephalopods; these are represented by many genera and species, some of them new. Brachiopods, which are abundant, and cephalopods of the genus *Diestoceras* are not included. The table of identified forms would be more useful, if relative frequencies were indicated. The many plates provide an excellent record of typical specimens.

The classification of the Manitoba sequence against the classic sections in eastern areas has been a controversial subject. Stratigraphers seem to agree that the lower limestones can be traced on the surface and in the subsurface into Middle Ordovician Trentonian limestones; they attribute the faunal differences to undetermined ecological factors. Some paleontologists have been impressed by dissimilarities in organisms, particularly cephalopods, with those reported in Middle Ordovician in the East; they have classed the Red River as Upper Ordovician Cincinnatian. Thus, solutions are strongly affected by the faith that the investigator places in differing sorts of information. Nelson does not enter the controversy significantly, but, with this memoir, he adds appreciably to knowledge on these so-called Arctic or boreal faunas that lived in the most extensive seas that have spread over the continent.

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## Mathematics

**Symmetry: An Introduction to Group Theory and Its Applications.** R. McWeeny. Pergamon, London; Macmillan, New York, 1963. xiv + 248 pp. Illus. $7.50.

In less than 250 pages, the author gives an introduction to group theory, a survey of the representation theory of finite groups, and the basic ideas of the applications of group theory to many problems in physics and chemistry. The book is aimed primarily at physics and chemistry graduates who do not have an extensive mathematical background. The author's plan to give a leisurely treatment of the mathematics that these students need and to do justice to the applications in such a short space rules out full discussions of most of the deeper topics, but his striking ability to illustrate each mathematical idea and physical application by well-chosen, fully worked out examples allows McWeeny to give more than a superficial presentation of his subject.

Close study of the examples is essential to counteract the occasional weakness of the accompanying discussion of the general mathematical concepts (for example, the impression that every linear mapping of a vector space has a multiplicative inverse is given in

sections 2.6 and 2.7). I feel that the book will give readers the insight they need to profit from the study of more advanced books on the applications referred to in the text.

The first four chapters contain basic definitions from group theory and linear algebra and full descriptions from a geometrical point of view of the structure and representations of the finite symmetry groups of crystallography. Chapter 5 contains a general survey of the representation theory of finite groups. The first application is the group-theoretical study of quadratic forms, illustrated by problems involving crystals and molecular vibrations. The author then considers the classification by symmetry considerations of the solutions of eigenvalue problems, of special importance in quantum mechanics. The book concludes with an introduction to tensor fields.

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# Note

## Science for the Layman

In his book, **Introducing Science** (Basic Books, New York, 1964. 244 pp. $4.95), Alan Isaacs—"A highly successful teacher of elementary science," according to the book jacket, and a graduate of the Imperial College of Science and Technology—attempts to provide much: a nonmathematical survey of physics, chemistry, biochemistry, and creation. In short, again quoting from the jacket, "a genuine service to the reader eager to know what modern science is all about."

His organization, his descriptions, and his depth within a brief span are commendable. I find the book dull, however. It needs to be enlivened by colorful cases or examples or anecdotes. Almost every page is overloaded with apologetic transition—"Having briefly discussed . . . we are now able to proceed to. . . ." "It is now necessary to distinguish between. . . ." "Before investigating . . . we must say something about. . . ." "We have so far described. . . ." "As we have seen. . . ." "It is hoped that this short description. . . ." "No survey would be complete without. . . ."

I have a feeling that this is really a series of lectures which, enlivened by the personality of the living teacher, could make very acceptable listening. As reading, the recent standard setter in the same field remains (in my limited reviewing) Victor F. Weisskopf's *Knowledge and Wonder: The Natural World as Man Knows It* [reviewed in *Science* **140**, 626 (1963)].

VICTOR COHN

*Minneapolis* Tribune

## New Books

### Biological and Medical Sciences

**Intravenous Feeding.** A colloquium (London), May 1962. A. Wretlind, Ed. Karger, Basel, Switzerland, 1964 (order from Phiebig, White Plains, N.Y.). 137 pp. Illus. Paper, $7.75.

**An Introduction to Animal Biology.** Dale C. Braungart and Rita Buddeke. Mosby, St. Louis, ed. 6, 1964. 442 pp. Illus. $7.25.

**Introduction to Psychiatry.** O. Spurgeon English and Stuart M. Finch. Norton, New York, ed. 3, 1964. 670 pp. $7.95.

**Leukopoiesis in Health and Disease.** Harold E. Whipple, Ed. New York Acad. of Sciences, New York, 1964. 581 pp. Illus. Paper, $8. Some 40 papers presented at a conference held by the Academy on 9–11 May 1963. The volume is published as volume 113 (art. 2) of the Academy's *Annals.*

**Lipid Pharmacology.** Rodolfo Paoletti, Ed. Academic Press, New York, 1964. 552 pp. Illus. $17.50.

**Mechanisms Concerned with Conception.** Proceedings of a symposium (West Point, N.Y.), July 1959. Carl G. Hartman, Ed. Pergamon, London; Macmillan, New York, 1963. 544 pp. Illus.

**Meristems and Differentiation.** Report of a symposium held in June 1963. Jerome P. Miksche, Ed. Brookhaven National Laboratory, Upton, N.Y., 1964 (order from Office of Technical Services, Washington, D.C.). 258 pp. Illus. Paper, $2.50.

**Méthodes Expérimentales d'Etude du Vaccin BCG.** Resultats d'une expérience interlaboratoire (1958–1961). Round Table discussion (Montreal, Canada), September 1961. Maurice Panisset and Monique Huot, Eds. Université de Montreal, Canada, 1963. Illus. Paper.

**Methods in Carbohydrate Chemistry.** vol. 4, *Starch.* Roy L. Whistler, Robert J. Smith, James N. BeMiller, and M. L. Wolfrom, Eds. Academic Press, New York, 1964. 351 pp. Illus. $13.50.

**Microbial Behaviour, "in Vivo" and "in Vitro."** A symposium (London), April 1964. H. Smith and Joan Taylor, Eds. Cambridge Univ. Press, New York, 1964. 306 pp. Illus. $8.

**Microbiological Quality of Foods.** Proceedings of a conference (Franconia, N.H.), August 1962. L. W. Slanetz, C. O. Chichester, A. R. Gaufin, and Z. J. Ordal, Eds. Academic Press, New York, 1963. 298 pp. Illus. $9.

**Mineral Metabolism.** An advanced treatise. vol. 2, pt. A, *The Elements.* C. L. Comar and Felix Bronner, Eds. Academic Press, New York, 1964. 663 pp. Illus. $22.

**Molluscs.** J. E. Morton. Hutchinson Univ. Library, London; Hillary House, New York, ed. 2, 1963. 232 pp. Illus. $3.

**The Monosaccharides.** Jaroslav Staněk, Miloslav Cerny, Jan Kocourek, and Josef Pacák. Academic Press, New York; Czechoslovak Acad. of Sciences Publishing House, Prague, 1963. 1006 pp. Illus. $32.

**Morphological and Biochemical Correlates of Neural Activity.** Maynard M. Cohen and Ray S. Snider, Eds. Harper and Row, New York, 1964. 256 pp. Illus. $8.50.

**Non-Glycolytic Pathways of Metabolism of Glucose.** Siegfried Hollmann. Translated from the German edition (Stuttgart, 1961) and revised by Oscar Touster. Academic Press, New York, 1964. 286 pp. Illus. $12.

**Les Nucléases.** Application à l'étude des acides nucléiques. Michel Privat de Garilhe. Hermann, Paris, 1964. 281 pp. Illus. Paper, F. 36.

**Les Oiseaux du Nord de l'Afrique.** De la Mer Rouge aux Canaries. R. D. Etchécopar and François Hüe. Boubee, Paris, 1964. 606 pp. Illus. F. 120.

**Oral Exfoliative Cytology.** Veterans Administration Cooperative Study, 1962. Veterans Administration, Washington, D.C., 1963 (order from GPO, Washington, D.C.). 98 pp. Illus. $2.25.

**Osmotic and Ionic Regulation in Animals.** W. T. W. Potts and Gwyneth Parry. Pergamon, London; Macmillan, New York, 1964. 437 pp. Illus. $9.

**Parasitology.** The biology of animal parasites. Elmer R. Noble and Glenn A. Noble. Lea and Febiger, Philadelphia, ed. 2, 1964. 724 pp. Illus. $11.

**Patterns in the Balance of Nature.** And related problems in quantitative ecology. C. B. Williams. Academic Press, New York, 1964. 332 pp. Illus. $9.50.

**Peptides.** Proceedings of the Fifth European Symposium (Oxford, England), September 1962. G. T. Young, Ed. Pergamon, London; Macmillan, New York, 1963. 283 pp. Illus. $12.50.

**A Photographic Atlas of Shark Anatomy.** The gross morphology of *Squalus acanthias.* Carl Gans and Thomas S. Parsons. Academic Press, New York, 1964. 110 pp. Plates. Paper, $3.95.

**Photophysiology.** vols. 1 and 2. vol. 1, *General Principles; Action of Light on Plants* (391 pp. $14); vol. 2, *Action of Light on Animals and Microorganisms; Photobiochemical Mechanisms; Bioluminescence* (455 pp. $15). Arthur C. Giese, Ed. Academic Press, New York, 1964. Illus.

**Primitive Motile Systems in Cell Biology.** Proceedings of a symposium (Princeton, N.J.), April 1963. Robert D. Allen and Noburo Kamiya, Eds. Academic Press, New York, 1964. 662 pp. Illus. $22.

**Principles of Modern Biology.** Douglas Marsland. Holt, Rinehart, and Winston, New York, ed. 4, 1964. 731 pp. Illus. $7.50.