tion after Darwin is anomalous and will not serve the needs of either the specialist or the general reader. The first two volumes, on the other hand, can stand alone as technical essays, but something quite intangible and very useful is added to their content when the panel discussions are read as an introduction to or a survey of the field. The very attenuated comments of the panelists focus ideas that are easily missed in the mass of detail in the technical papers, and the panel's generalities are shown to be derived from a much more diverse set of ideas than is implied.

Summary of the Celebration

When all three volumes are taken together, one's perspective is improved. There is still only brief consideration of the origin of life, but the evolution of life, so neatly and precisely sketched by the panel, is shown to be an immensely exciting, growing area of research. The bare outline of man as an organism becomes recognizable, in the second volume, as descriptive and comparative functional biology of the highest order. The diverse approaches used in considering the evolution of the mind were quite clearly covered in the papers, but the panel made it clear that the approaches must sometime converge. Finally, the logical essays of the second volume make the disunity of the panel on social and cultural evolution appear to be the result of an almost ritualistic defense against early Darwinian excesses, which is now giving way in the face of more sophisticated attempts at generalization.

The foolhardy attempt to summarize 1002 pages of technical papers with 174 pages of panel transcripts resulted in a good survey that can be usefully employed in conjunction with the first two volumes. And there was still time to consider the human implications of evolution which are of such great concern to us all.

It is a measure of considerable enthusiasm when I must agree with dust-jacket prose and say *Evolution after Darwin* is, in fact, "the most comprehensive and intensive examination ever made of the impact of Darwin's ideas." The three volumes do just honor to the occasion of the Darwin Centennial Celebration and to the thinking that Charles Darwin set in train.

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Atlas of European Birds. K. H. Voous. Nelson, New York, 1960. 284 pp. Illus. $15.

The title of this book is literally correct in the old sense of the word *atlas*; it is a volume of maps, one for each of the 419 species of European birds breeding west of the Ural Mountains. Each map is accompanied by a closely written statement that includes the ancestral or inferred faunal placement of the species: for example, the black-winged kite, *Elanus caeruleus*, is given as "in Europe an Ethiopian distribution element," and the white-tailed eagle, *Haliaeetus albicilla*, is given as "palearctic"; this statement includes the geographic range, habitat, chief food, nesting habitat, and movements (including migration). Voous recognizes 24 faunal types—the arctic, holarctic, Siberian-Canadian, Siberian, Chinese-Manchurian, Palearctic, Nearctic, North Atlantic, European, European-Turkestanian, Turkestanian-Mediterranean, Mediterranean, Sarmatic (belonging to the coastal fauna that, in late Tertiary and Pleistocene time, inhabited the shallow, brackish, or salt Sarmatic inland sea, a continuation of the eastern Mediterranean stretching over the present Hungarian Plain, east to the Caspian and Aral Seas), Turkestanian, Paleoxeric, Paleo-xeromontane, Paleomontane, Tibetan, Mongollian-Tibetan, Ethiopian, Indian-African, Of the Old World, Antarctic, and Cosmopolitan. The present placement of five species is given as "unknown," since they provide no indication of the geographical origin of the five: the Manx and the North Atlantic shearwater, the Gannet, the Greater Flamingo, and the Black-winged Kite.

The maps, which are pseudo-Mercator projections, have the breeding range of each species marked in red. Most of the maps extend from the equator to the North Pole, but some—for the Caspian tern, the roseate tern, and others—extend to the South Pole. Two to four maps are placed on a page; this makes it easy to compare the distribution of related species. Thus, on the first page there are four maps (one for each species of the loon), and the specific differences in ranges are immediately comprehensible, with a directness not possible from using the text alone.

The photographs, illustrating 355 of the 419 species, are excellent "shots" from life, which show as much as single pictures can of the habits of each bird. They are not merely "pretty" pictures, but add to the factual content of the book.

This volume is an English translation (made by the author) of the Dutch version (also published 1960) entitled *Atlas van de Europese Vogels*. The English version has a short preface by A. Landsborough Thomson.

Many Palearctic birds are also found in North America, and their distribution maps include their American ranges; hence, the volume will be of interest to provincial bird students in the United States as well as to others not limited by geographical boundaries.

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La Théorie des Gaz Neutres et Ionisés. C. DeWitt and J. F. Detoeuf, Eds. Hermann, Paris; Wiley, New York, 1960. 496 pp. $17.50.

Owing to new experimental techniques and results and to the extensive application of field-theoretical developments in perturbation theory, statistical mechanics is one of the most exciting fields in physics today. This volume is a high-speed photograph of a rapidly advancing field; in it one can find most of the recent ideas touched upon and a good number of the results that have been obtained by the authors represented.

The book consists of nine articles, of varying length (some articles are in French, the others in English), which review results in kinetic theory, equilibrium statistical mechanics, and plasma physics. Montroll summarizes the development of toron diagrams and their application to the perturbation expansion of the partition function. While this work is most successful for discussing equilibrium properties, applications to transport calculations are also described. Montroll also covers in his article the theory of random walks and some ideas from that theory which are applicable to the Ising problem. Van Hove describes his work in the derivation of the Boltzmann equation from the master equation and in the application of diagrammatic techniques to the elucidation of the long-time behavior of ensembles of interacting particles. This work represents a significant step forward in our under-

standing of how macroscopic physical properties follow from systems of equations which are essentially for functions on the microscopic scale.

These articles are followed by Delcroix's discussion of the microscopic theory of ionized gases in which he relates physical quantities to various distribution functions and describes several common approximations which are useful for plasmas. There are three articles by Kruskal: the first discusses energy principles for equilibrium of a plasma in a magnetic field; the second describes a generalization of the method of Kryloff and Bogoliubov for integrating ordinary differential equations with nearly periodic solutions (an illustrative example would have clarified this work); the third presents an all-too-brief account of the intricacies of Landon damping. The article by Kaufman on plasma transport theory is a long account of results which can be obtained by starting from the Liouville equation and using the more popular of the current approximations in plasma theory. Denisse then discusses some of the elementary and well-known results on the dispersion relations which can be obtained starting from the Boltzmann equation. In the final article, Schatzman applies some of the results of plasma theory to astrophysical data.

This volume is an interesting survey of current problems in statistical mechanics and plasma physics. However, for a photo-offset volume, the price is prohibitive.

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New Books

Biological and Medical Sciences

Aids to Histology. Geoffrey H. Bourne. Bailliere, Tindall and Cox, London, ed. 7, 1960 (order from Williams & Wilkins, Baltimore, Md.). 175 pp. Illus. $3.

Anatomy of the Monocotyledons. 1, *Gramineae*. C. R. Metcalfe. Oxford Univ. Press, New York, 1960. 792 pp. $13.45.

The Biotic Associations of Cockroaches. Miscellaneous Collections, vol. 141. Louis M. Roth and Edwin R. Willis. Smithsonian Institution, Washington, D.C., 1960. 476 pp. Illus. + plates. A compilation of material from approximately 1700 sources, including correspondence with other workers.

Biological Activities of Steroids in Relation to Cancer. Gregory Pincus and Erwin P. Vollmer, Eds. Academic Press, New York, 1960. 546 pp. Illus. $15. Proceedings of a conference attended by more than 200 scientists, 27 September–2 October 1959; 32 papers by 63 contributors.

Analogue Computers. I. I. Eterman. Translated from the Russian by G. Segal. B. H. Venning, Ed. Pergamon, New York, 1960. 273 pp. Illus. $8.50.

Biology Code of the Chemical-Biological Coordination Center. vols. 1 and 2. Publ. No. 790. National Academy of Sciences–National Research Council, Washington, D.C., 1960. 230 pp.; 216 pp. $7 each; $12 per set. The *Code* was developed by the Center and was used for storing information on IBM punched cards. Volume 1 contains the series of classification schemes, code items, and symbols; volume 2 describes each of the lists and gives explanations and instructions for use of the code symbols.

Chemobiodynamics and Drug Design. F. W. Schueler. McGraw-Hill, New York, 1960. 652 pp. Illus. $19.50.

Comparative Biochemistry of Photoreactive Systems. Mary Belle Allen, Ed. Academic Press, New York, 1960. 449 pp. Illus. $12.

Developing Cell Systems and Their Control. Dorothea Rudnick, Ed. Ronald, New York, 1960. 246 pp. Illus. $8.

The Disease Concept of Alcoholism. E. M. Jellinek. Hillhouse Press, New Haven, Conn., 1960. 256 pp. $6.

The Enzymes. vol. 4, pt. 4, *Hydrolytic Cleavage*. Peptide bond cleavage, other C=N bond cleavage, glycoside bond cleavage, carboxyl ester cleavage. Paul D. Boyer, Henry Lardy, and Karl Myrbäck, Eds. Academic Press, New York, 1960. 651 pp. Illus. $18.

Faune de France. 64. *Isopodes Terrestres*. Albert Vandel. Lechevalier, Paris, 1960. 416 pp. Illus. NF. 115.

Fundamentals and Possibilities in Antituberculosis Vaccination. Richard Prigge and Gunther Heymann. Translated by H. Chandler Elliott. Univ. of Toronto Press, Toronto, Canada, 1960. 116 pp. $5.

Genetics. H. Eldon Sutton, Ed. Josiah Macy, Jr. Foundation, New York, 1960. 229 pp. Illus. $6. Transactions of the first conference, 19–22 October 1959.

Guide to the Study of the Anatomy of the Shark, *Necturus*, and the Cat. Samuel Eddy, Clarence P. Oliver, and John P. Turner. Wiley, New York, ed. 3, 1960. 141 pp. Illus. $3.50.

International Review of Cytology. vol. 9. G. H. Bourne and J. F. Danielli, Eds. Academic Press, New York, 1960. 434 pp. Illus. $13.

Lectures on Haematology. F. G. J. Hayhoe, Ed. Cambridge Univ. Press, New York, 1960. 257 pp. Illus. $11.50.

Lipide Metabolism. Konrad Bloch, Ed. Wiley, New York, 1960. 424 pp. Illus. $10.50.

The Mango. Botany, cultivation, and utilization. Lal Behari Singh. Hill, London; Interscience, New York, 1960. 451 pp. Illus. $13.25.

A Monograph of the Immature Stages of Neotropical Timber Beetles (*Cerambycidae*). E. A. J. Duffy. British Museum (Natural History), London, 1960. 335 pp. Illus. + plates. £6 6s. This volume, the third in a series, deals with the *Cerambycidae* of the Neotropical region: the greater part of Mexico, Central America, the Caribbean and the whole of the South American continent. No attempt is made to deal with strictly North American (Neartic) *Cerambycidae*, except when a species extends in distribution as far south as Mexico or occurs in both regions.

The Nature of Animal Colors. H. Munro Fox and Gwynne Vevers. Macmillan, New York, 1960. 256 pp. Illus. $6.50. An account of animal colors from physical, chemical, and physiological standpoints.

Nematology. Fundamentals and recent advances with emphasis on plant parasitic and soil forms. J. N. Sasser and W. R. Jenkins, Ed. Univ. of North Carolina, Chapel Hill, 1960. 497 pp. Illus.

The Nucleic Acids. vol. 3. Erwin Chargaff and J. J. Davidson, Eds. Academic Press, New York, 1960. 604 pp. Illus. $18.

Nucleic Acid Outlines. vol. 1, *Structure and Metabolism*. Van R. Potter. Burgess, Minneapolis, Minn., 1960. 300 pp. $5.

The Organization of Cells and Other Organisms. Laurence Picken. Oxford Univ. Press, London, 1960. 666 pp. 84s.

Phosphorus Metabolism of Brain. P. J. Heald. Pergamon, New York, 1960. 202 pp. Illus. $6.50.

Plant Disease Handbook. Cynthia Westcott. Van Nostrand, Princeton, N.J., ed. 2, 1960. 832 pp. Illus. $13.50.

Plant Physiology. A treatise. vol. 1B, *Photosynthesis and Chemosynthesis*. F. C. Steward, Ed. Academic Press, New York, 1960. 365 pp. Illus. $12.

Principles of Genetics. Eldon J. Gardner. Wiley, New York, 1960. 373 pp. Illus. $7.50.

Proceedings of the Centenary and Bicentary Congress of Biology, Singapore, 2–9 December 1958. R. D. Purchon, Ed. Univ. of Malaya Press, Singapore, 1960. 341 pp. Illus. $13.50. Papers delivered in commemoration of the works of Darwin, Wallace, and Linnaeus.

Radioisotope Laboratory Techniques. R. A. Faires and B. H. Parks. Pitman, New York, ed. 2, 1960. 256 pp. Illus. $5.75.

Standard Methods for the Examination of Water and Wastewater. Including bottom sediments and sludges. American Public Health Assoc., New York, ed. 11, 1960. 647 pp. $10.

Stochastic Population Models. In ecology and epidemiology. M. S. Bartlett, Methuen, London; Wiley, New York, 1960. 100 pp. $2.

Survey of Research in Gestation and the Developmental Sciences. Jack Davies. Williams and Wilkins, Baltimore, Md., 1960. 211 pp. $6.

Tätigkeitsbericht der Forschungsgemeinschaft der Naturwissenschaftlichen. Technischen und Medizinischen Institut der Deutschen Akademie der Wissenschafter zu Berlin, 1959. Akademie Verlag, Berlin, 1960. 398 pp.

Textbook of Pharmacognosy. T. E. Wallis. Churchill, London; Little, Brown, Boston, Mass., ed. 4, 1960. 651 pp. Illus. $10.