

ter, we should have data to support or eliminate some of these theories.

K. Johnson reports on the results as of 1976 of the MIT bag model. Predictions of the hadron masses are sufficiently good in this model to make its derivation from a fundamental field theory one of the important tasks of particle physics today. Efforts to derive the model have been made most recently by C. Callan, R. Dashen, and D. Gross at Princeton, and it will be interesting to compare the quantitative properties they promise to derive with the predictions in Johnson's paper.

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Seabirds

Sulidae. Gannets and Boobies. J. BRYAN NELSON. Published for the University of Aberdeen by Oxford University Press, New York, 1978. xii, 1012 pp., illus., + plates. \$98. Aberdeen University Studies Series, No. 154.

The sulids are goose-sized seabirds, closely related to the pelicans and more remotely to the cormorants, that nest in colonies on remote cliffs and islands and capture their fish prey in spectacular dives from the air. The nine species of the family (genus *Sula*) display both phylogenetic compactness and adaptive radiation in morphology, ecology, and behavior that has enabled them to occupy widely different cold temperate and tropical habitats. Two species are still economically important producers of guano fertilizer.

The best-known species is the North Atlantic gannet, which is currently increasing in numbers and spreading. The other two gannets (the three together form a superspecies) inhabit South Africa, southern Australia, and New Zealand. All the boobies frequent tropical or subtropical waters. Three species are pantropical, two closely related forms are restricted to the eastern Pacific Ocean, and one endangered booby now breeds only on Christmas Island southwest of Java in the Indian Ocean. This last, Abbott's booby, discovered in 1892 on an island north of Madagascar, used to be more widespread in the Indian Ocean, but guano mining and deforestation on many islands destroyed the tall trees in which it nested. Even now phosphate mining seriously threatens the last 7000 to 8000 birds on Christmas Island.

Because the sulids have never been

treated in detail as a unit before, Nelson's book, the results of a 17-year study, is a landmark.

Instead of the long introduction usual in works of this type Nelson presents the reader with a two-page résumé and proceeds directly to the species accounts. The accounts follow a standard format: nomenclature, external features (including molt and voice), population and distribution, breeding ecology, and breeding behavior. They begin with 226 pages on the North Atlantic gannet. Nelson then summarizes the other two gannets and compares the species before tackling each of the boobies. The entire family is then reviewed and the species are compared in a concluding 146-page chapter. The text and its 135 tables are exhaustive in their presentation of details. But Nelson had many more data (most collected by himself) that didn't fit into his regular chapter scheme, so he added 19 appendices in 31 pages.

Nelson's forte is breeding ecology and behavior, which he has studied at first hand in all species except the two Southern Hemisphere gannets. These subjects receive by far the most extensive treatment, and the discussions of them are informatively and profusely illustrated with Nelson's (and a few others') excellent photographs and John Busby's charming drawings. The detailed lists of breeding localities, which are supplemented by photographs, maps, and tables, provide a compendium of present distribution as well as documentation of past population changes. Total breeding population censuses are possible for the three gannets and Peruvian and Abbott's boobies, but the three pantropical boobies will remain impossible to census reliably.

The information on scientific nomenclature is presented inconsistently, and the treatment reflects the author's unfamiliarity with the subject. A one-page appendix list of common and scientific names is similarly riddled with errors.

Although some 1976 papers are included in the 12-page bibliography, coverage of the recent literature is spotty, and relevant information on boobies in some Hawaiian leeward islands, St. Helena, and Isles Glorieuses published in the 1970's has been overlooked.

The author "supposes" that he ought to apologize for the length of the book, which he concedes is "hardly a thriller," but says that "the idea has been to make a browsable book with ideas and atmosphere as well as facts." The leisurely pace of the text does make reading or browsing enjoyable, but Nelson's informal, verbose style and his endeavor to

present (at least once) everything you ever wanted to know about sulids have, in adding to the length of the volume, also added to its cost. Alas, the resulting restricted circulation of this important book may prevent the sulids from receiving the attention they warrant as paradigms of radiation and adaptation.

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Books Received

The American Railroad Passenger Car. John H. White, Jr. Johns Hopkins University Press, Baltimore, 1978. xiv, 700 pp., illus. \$45. Johns Hopkins Studies in the History of Technology.

Annual Review of Earth and Planetary Sciences. Vol. 6. Fred A. Donath, Francis G. Stehli, and George W. Wetherill, Eds. Annual Reviews, Palo Alto, Calif., 1978. x, 544 pp., illus. \$17.

Applied Sciences and Development. Vol. 10. Horst Mensching and Jürgen Hohnholz, Eds. Institute for Scientific Co-operation, Tübingen, Germany, 1977. 176 pp., illus. Paper.

The Asymptotic Theory of Extreme Order Statistics. Janos Galambos. Wiley, New York, 1978. xvi, 352 pp. \$24.95. Wiley Series in Probability and Mathematical Statistics.

Atlas of Radiologic Anatomy. Lothar Wicke with the assistance of Wilhelm Firbas and Roland Schmiedl. Translated from the German edition (Munich, 1977). Urban & Schwarzenberg, Baltimore, 1978. 234 pp. \$15.

The BASIC Idea. An Introduction to Computer Programming. Richard Forsyth. Chapman and Hall, London, and Halsted (Wiley), New York, 1978. vi, 154 pp. Paper, \$4.95.

Basic Numerical Mathematics. Vol. 2, Numerical Algebra. John Todd. Academic Press, New York, and Birkhäuser Verlag, Basel, 1978. 2/6 pp. \$15. International Series of Numerical Mathematics, vol. 22.

Bibliography of the Harvard Chiapas Project. The First Twenty Years, 1957-1977. Evon Z. Vogt. Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge, Mass., 1978. 76 pp., illus. Paper, \$2.

Biochemische Grundlagen der Industriellen Mikrobiologie. Wolfgang Fritsche. Gustav Fischer Verlag, Jena, East Germany, 1978. 192 pp., illus. Paper, 38 M.

The Biochemical Basis of Ergonomics. Anatomy Applied to the Design of Work Situations. E. R. Tichauer. Wiley-Interscience, New York, 1978. x, 100 pp., illus. Paper, \$9.95.

Biométrie et Ecologie. No. 1. J. M. Legay and R. Tomassone. Société Française de Biométrie, Jouy-en-Josas, France, 1978. xii, 388 pp., illus. Paper, \$8.

A Child's Journey. Forces That Shape the Lives of Our Young. Julius Segal and Herbert Yahraes. McGraw-Hill, New York, 1978. xiv, 354 pp. \$10.95.

Chemical Weapons and Chemical Arms Control. Papers from a conference, Boston, Jan. 1977. Matthew Meselson, Ed. Carnegie Endowment for International Peace, New York, 1978. xvi, 128 pp. Paper, \$3.