original investigations reported upon, each chapter delves much more deeply into avian biology and provides a useful and often pace-setting synthesis of the field. The contributions to *Granivorous Birds* may be characterized as quantitative, multivariate, synthetic, and oriented toward systems and toward production (energetics).

Following a brief introduction to the project by Kendeigh and Pinowski, R. F. Johnston and W. J. Klitz summarize the evolution, genetics, and morphological variation of the house sparrow. Over its introduced range, the house sparrow exhibits considerable developmental and evolutionary plasticity. In chapter 3, M. I. Dyer, Pinowski, and B. Pinowska provide a detailed, well-structured analysis of geographic variation in the demography of the house and tree sparrows and several North American Icteridae (blackbirds and grackles). Here one begins to realize the extent of comparative data on these birds. Chapter 4, by Pinowski and A. Myrcha, summarizes data on the production of biomass, primarily egg production and growth of the young. Chapter 5, by Kendeigh, V. R. Dol'nik, and V. M. Gavrilov, thoroughly synthesizes much of avian energetics. The chapter is particularly useful because its viewpoint, that of production, complements other recent, lengthy reviews of the subject. In chapter 6, J. A. Wiens and Dyer combine the principles and findings of avian energetics with data on population dynamics and productivity. The result is a systems model of the seasonal energy demands, hence food consumption, of *Passer* in various localities. Chapter 7, by Dyer and P. Ward, addresses the problem of pest management. The authors properly place management in economic and environmental contexts and push for continued research of the sort reported in *Granivorous Birds*. Finally, in chapter 8, Wiens and Johnston search for a common thread of adaptation in the fabric of granivory and, failing to find one, conclude that "different species or species complexes have attained [pest status] in different ways, through different adaptive correlates of granivory." The book concludes with a brief epilogue by Kendeigh, Wiens, and Pinowski, several appendices of tabulated data on populations, breeding, and metabolism, 46 pages of references, and a good index.

Close examination of *Granivorous Birds* will reveal to every reader the shortcomings, omissions, and uncritically accepted and improperly or inadequately analyzed data that inevitably creep into such an ambitious, far-reaching book. Nonetheless, *Granivorous Birds* offers information and ideas that will greatly reward anyone interested in population dynamics, energetics, production, and pest management.

ROBERT E. RICKLEFS
Department of Biology,
University of Pennsylvania,
Philadelphia 19104

Unicellular Eukaryotes

The Biology of Diatoms. DIETRICH WERNER, Ed. University of California Press, Berkeley, 1977. x, 498 pp., illus. $32.50. Botanical Monographs, vol. 13.

The Biology of Diatoms follows the *Biology of Blue-Green Algae* (which was volume 9) in the series Botanical Monographs. The book deals with one of the most important groups of unicellular eukaryotic algae. It will inform researchers and advanced students of diatoms about work complementary to their own and may stimulate collaboration between workers in different fields. Several excellent contributions provide an exhaustive and critical review of current knowledge, often identifying unresolved problems. Most of the 12 contributions, particularly those with an ecological orientation, emphasize the importance of research at the species level and the great functional diversity diatoms exhibit. In contrast, the structural diversity of diatoms is inadequately represented. The book is also poorly and insufficiently illustrated. Numerous references (over 1600 in all) are listed with the corresponding chapters.

Werner introduces the book briefly and presents three alternative systematic outlines with no evaluation. The fine structure of diatom tests is illustrated by only a few photographs and hardly any text. The account of cellular fine structure by E. L. Duke and B. E. F. Reimann, though it lacks sufficient illustration, is comprehensive and well introduced and contains original and stimulating ideas. It should have been placed at the beginning of the book. R. W. Eppley compares various culturing methods, and Werner discusses various aspects of the metabolism and biochemistry of silica. Photosynthesis is treated briefly by E. G. Jørgensen, with discussion of pigments and temperature effects. J. A. Hellebust and J. Lewin deal comprehensively with diatom heterotrophy and discuss its ecological implications. The biochemical composition of diatoms is reviewed by W. M. Darley, their motility by M. A. Harper, and their sexuality by G. Drebes. R. Patrick in the treatment of the ecology of freshwater diatoms emphasizes their diversity and their value as indicators in studies of water pollution. C. D. McIntire and W. W. Moore tabulate the literature on regional distribution of benthic marine diatoms and discuss the use of computer and multivariant analysis for diatom assemblages. The last contribution in the book, by R. R. L. Guillard and P. Kilham, is also the longest and most interesting. It raises and discusses many fundamental questions, relates plankton diatoms to the sediment record, and provides a comprehensive review of the distribution of planktonic diatoms in the world's oceans (citing over 400 references). Indexes of subjects and species are appended to the book.

STJEPKO GOLUBIC
Department of Biology,
Boston University,
Boston, Massachusetts 02215

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Advances in Human Genetics. Vol. 8. Harry Harris and Kurt Hirschhorn, Eds. Plenum, New York, 1977. xiv, 446 pp., illus. $35.

Alcohol and the Liver. Proceedings of a symposium, Toronto, May 1976. M. M. Fisher and J. G. Rankin, Eds. Plenum, New York, 1977. x, 406 pp., illus. $39.50. Hepatology, vol. 3.

Algebraic Number Theory . Robert L. Long. Dekker, New York, 1977. xii, 192 pp. $18.50. Pure and Applied Mathematics, 41.

Amorphous Magnetism II . Proceedings of a symposium, Troy, N.Y., Aug. 1976. R. A. Levy and R. Hasegawa, Eds. Plenum, New York, 1977. xii, 680 pp., illus. $59.50.

Analytical and Quantitative Methods in Microscopy . Papers from a symposium. G. A. Meek and H. Y. Elder, Eds. Cambridge University Press, New York, 1977. viii, 276 pp., illus. Cloth, $24.95; paper, $8.50. Society for Experimental Biology Seminar Series, 3.

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Anxiety, Learning, and Instruction . Joan E. Sieber, Harold F. O'Neil, Jr., and Sigmund Tobias. Erlbaum, Hillsdale, N.J., 1977 (distributor, Halsted [Wiley], New York). x, 262 pp. $16.50.

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