

BOOK REVIEW SECTION

NEW PUBLICATIONS RECEIVED

Compiled by Ann W. Rulodph, Battelle's Columbus Laboratories

- Agassiz, Louis. *Lake Superior*. (Facsimile of 1850 edition). Robert E. Kreiger Publishing Company, P.O. Box 542, Huntington, N.Y. 11743, 1974. 25, 428 p. illus., pls. (no price given).
- Berry, Adrian. *The next thousand years*. A vision of man's future in the universe. Saturday Review Press/E.P. Dutton & Co., Inc., 201 Park Avenue South, New York, N.Y. 10003, 1974. 250 p. illus. \$8.95.
- Bizony, M. T., ed. *The new space encyclopedia*. A guide to astronomy and space exploration. 2d ed. With contributions by Bernard Lovell, Harold Spencer Jones, Zdenek Kopal, Homer E. Newell, Jr. and others. A Sunrise Book, E. P. Dutton & Co., Inc., 201 Park Avenue South, New York, N.Y. 10003, 1973. 326 p. illus., col. pls. \$14.95.
- Burton, Robert. *The life and death of whales*. Universe Books, New York, 1973. 159 p. illus., pls. \$6.95 (no address given).
- Carter, Charles H. "Natural and manmade features affecting the Ohio shore of Lake Erie". Ohio Department of Natural Resources, Division of Geological Survey, Guidebook No. 1, 1973. iv, 34 p. illus. (Available from Ohio Division of Geological Survey, Fountain Square, Bldg. B, Columbus, Ohio 43224. \$1.50 plus 6 cents sales tax in Ohio and 15 cents mailing charge).
- Clements, Frederic E. *Plant succession and indicators*. A definitive edition of plant succession and plant indicators. Hafner Press, A Division of Macmillan Publishing Co., Inc., 866 Third Avenue, New York, N.Y. 10022, (1973; originally published in 1928). xvi, 453 p. illus., pls. (no price given).
- Czajka, Adrian F. and Max A. Nickerson. "State regulations for collecting reptiles and amphibians in the fifty United States". Milwaukee Public Museum, Special Publications in Biology and Geology, No. 1, May 1974. viii, 79 p. (Milwaukee Public Museum, 800 West Wells Street, Milwaukee, Wis. 53233. No price given).
- Darlington, C. D. *Chromosome botany and the origins of cultivated plants*. 3d ed. Hafner Press, A Division of Macmillan Publishing Co., Inc., 866 Third Avenue, New York, N.Y. 10022, 1973. xviii, 237 p. illus. (no price given).
- Ehrlich, Paul R., Anne H. Ehrlich, and John P. Holdren. *Human ecology*. Problems and solutions. W. H. Freeman and Co., 660 Market St., San Francisco, Calif., 1973. xiv, 304 p. illus. \$4.75 (paper).
- Elfner, Lynn Edward, Ronald L. Stuckey, and Ruth W. Melvin. "A guide to the literature of Ohio's natural areas". Ohio Biological Survey, Informative Circular No. 3, July 1973, 56 p. (Available from The Ohio State University, University Publication Sales, Rm 20, Lord Hall, 124 W. 17th Ave., Columbus, Ohio 43210. 50¢ plus 4 cents sales tax in Ohio).
- Fuller, John G. *Fever!* The hunt for a new killer virus. Reader's Digest Press, distributed by E.P. Dutton & Co., Inc., 201 Park Avenue South, New York, N.Y. 10003, 1974. 297 p. map. \$8.95 (A popular work).
- Goin, Coleman J. and Olive G. Goin. *Journey onto land*. Illus. by Margaret Matthew Colbert. Macmillan Publishing Co., Inc., 866 Third Avenue, New York, N.Y. 10022, 1974. xii, 114 p. \$2.95 (paperback).
- Groenewold, Gerald H. "Hydrogeologic and other considerations related to the selection of sanitary-landfill sites in Ohio". Ohio Department of Natural Resources, Division of Geological Survey, Information Circular No. 41, 1974. iv, 15 p. fold. pl. (Available from Ohio Division of Geological Survey, Fountain Square, Bldg. B, Columbus, Ohio 43224. \$1.50 plus 6 cents tax in Ohio and 15 cents mailing charge).
- Gruber, Howard E. and Paul H. Barrett. *Darwin on man*. A psychological study of scientific creativity, by Howard E. Grubner. Together with Darwin's early and unpublished notebooks, transcribed and annotated by Paul H. Barrett. Forward by Jean Piaget. E.P. Dutton & Co., Inc., 201 Park Avenue South, New York, N.Y., 1974. xxviii, 495 p. illus. \$20.00.
- Heimlich, R. A. and R. M. Feldmann, eds. "Selected field trips in northeastern Ohio". Ohio Department of Natural Resources, Division of Geological Survey, Guidebook No. 2, 1974. vi, 59 p. illus. (Available from Ohio Division of Geological Survey, Fountain Square, Bldg. B, Columbus, Ohio 43224. \$1.50 plus 6 cents sales tax in Ohio and 15 cents mailing charge).
- Herdendorf, Charles E., Suzanne M. Hartley, and L. James Charlesworth, comps. "Lake Erie bibliography in environmental science". Bulletin of the Ohio Biological Survey, n.s., vol. 4, no. 5 (Franz Theodore Stone Laboratory Contribution No. 13), July 1974. viii, 116 p. (Available from The Ohio State University, University Publications Sales, Room 20, Lord Hall, 124 West 17th Ave., Columbus, Ohio 43210. \$3.50 plus 14 cents tax in Ohio).

- Isely, Duane. "Leguminosae of the United States: I. Subfamily Mimosoidae". *Memoirs of the New York Botanical Garden*, vol. 25, no. 1, Nov., 1973. 153 p. illus. (Available from The New York Botanical Garden, Bronx, N.Y. 10458. \$7.00).
- Judd, John Bayless and Stephen H. Taub. "The effects of ecological changes on Buckeye Lake, Ohio, with emphasis on largemouth bass and aquatic vascular plants." *Ohio Biological Survey, Biological Notes No. 6*, 1973. viii, 51 p. illus. (Available from The Ohio State University, University Publications Sales, Rm. 20, Lord Hall, 124 W. 17th Ave., Columbus, Ohio 43210. \$1.50 plus 6¢ sales tax in Ohio).
- King, Charles C. and Clara May Frederick, eds. "Cedar Bog symposium". Held at Urbana College, Urbana, Ohio, 3 November 1973. *Ohio Biological Survey, Informative Circular No. 4*. Published by The Ohio State University in cooperation with the Ohio Historical Society, 1974. viii, 71 p. (Available from the Ohio Biological Survey, 484 W. 12th Ave., Columbus, Ohio 43210. \$2.00 plus 8¢ tax in Ohio and postage).
- Kittredge, Joseph. *Forest influences*. The effects of woody vegetation on climate, water, and soil, with applications to the conservation of water and the control of floods and erosion. Dover Publications, Inc., 180 Varick St., New York, N.Y. 10014, 1973 (originally published in 1948). x, 394 p. illus. \$3.50 (paper).
- Krochmal, Arnold and Connie Krochmal. *A guide to the medicinal plants of the United States*. Quadrangle, The New York Times Book Co., 330 Madison Ave., New York, N.Y. 10017, 1973. viii, 259 p. illus. \$12.50.
- Melvin, Ruth W. and The Ohio Academy of Science for the Ohio Department of Education. "Ohio environmental education areas". Columbus, Ohio, 1974. 184 p. illus. (Availability and price not given).
- Merrill, Glen K. "Pennsylvanian conodont localities in northeastern Ohio". *Ohio Department of Natural Resources, Division of Geological Survey, Guidebook No. 3*, 1974. iv, 25 p. illus., 2 pls. (Available from Ohio Division of Geological Survey, Fountain Square, Bldg. B, Columbus, Ohio 43224. \$1.50 plus 6 cents sales tax in Ohio and 15 cents mailing charge).
- Michaux, André. *Flora Boreali-Americana (Facsimile of the 1803 edition)*. Introduction by Joseph Ewan. 2 vols. Hafner Press, A Division of Macmillan Publishing Co., Inc., 866 Third Avenue, New York, N.Y. 10022, 1974. xlvi, x, 330; (6), 340 p. 51 pls. (Classica Botanica Americana, ed. by Joseph Ewan, vol. 3). \$42.50.
- Nickerson, Max Allen and Charles Edwin Mays. "The hellbenders". *Milwaukee Public Museum, Publications in Biology and Geology, No. 1*, 1973. viii, 106 p. illus. (Available from the Milwaukee Public Museum, 800 West Wells Street, Milwaukee, Wis. 53233. Price not given).
- Press, Frank and Raymond Siever. *Earth*. W. H. Freeman and Company, 660 Market St., San Francisco, Calif. 94104, 1974. xiv, 945 p. illus. \$13.95.
- Reid, Robert. *Marie Curie*. Saturday Review Press/E.P. Dutton & Co., Inc., 201 Park Avenue South, New York, N.Y. 10003, 1974. 349 p. 12 pls. \$8.95.
- Rosengreen, Theodore E. "Glacial geology of Highland County, Ohio". *Ohio Department of Natural Resources, Division of Geological Survey, Report of Investigations No. 92*, 1974. iv, 36 p. col. fold. map. (Available from Ohio Division of Geological Survey, Building B, Fountain Square, Columbus, Ohio 43224. \$3.50 plus 14 cents tax in Ohio and 35 cents mailing charge).
- Rudolph, Thomas D., ed. "The Enterprise, Wisconsin, Radiation Forest; preirradiation ecological studies". U.S. Atomic Energy Commission, Technical Information Center, Office of Information Services, Report No. TID-26113, Oak Ridge, Tenn., 1974. vi, 150 p. illus. (Available from National Technical Information Service, Springfield, Va. 22151. \$7.60).
- Schleiffer, Hedwig, comp. *Sacred narcotic plants of the New World Indians*. An anthology of texts from the sixteenth century to date. Intro. by Richard Evans Schultes. Hafner Press, a division of Macmillan Publishing Co., Inc., Front and Brown Sts., Riverside, N.J. 08075, 1973. iv, 156 p. \$5.95 (paper).
- Sneath, Peter H. A. and Robert R. Sokal. *Numerical taxonomy*. The principles and practice of numerical classification. W. H. Freeman and Co., 660 Market St., San Francisco, Calif. 94104, 1973. xvi, 573 p. illus. \$19.50.
- Tuan, Yi-Fu. *Topophilia*. A study of environmental perception, attitudes, and values. Prentice-Hall, Inc., Englewood Cliffs, N.J., 1974. x, 260 p. illus. (No price given).
- Walker, Warren F., Jr. *Dissection of the fetal pig*. 2nd ed. Illus. by Judith L. Dohm, Edna Indritz Steadman, and Pat Dinsmore. W. H. Freeman and Co., 660 Market St., San Francisco, Calif. 94104, 1973. x, 58 p. \$1.95 (paper).
- White, George W. "Glacial geology of Holmes County". *Ohio Department of Natural Resources, Division of Geological Survey, Report of Investigations 91*, 1973. 1 fold. sheet with text. (Available from Ohio Division of Geological Survey, Bldg. B, Fountain Square, Columbus, Ohio 43224. \$2.50 plus 10 cents tax in Ohio and 25 cents mailing charge).

Silurian Rock Salt of Ohio. *Michael J. Clifford.* Ohio Division of Geological Survey, Report of Investigations 90, 1973. 42 p. +4 plates in pocket. \$2.50 + 25¢ mailing charge and 10¢ sales tax in Ohio.

This recent addition to the Ohio Geological Survey's familiar green-bound 8½-by-11 series of reports is a study of the state's salt deposits in the Salina Group of Late Silurian age. The text, which takes up half of the 42 pages, starts off with a brief statement of the general geology of the Salina Group. Then, since this study is based almost entirely on interpretation of geophysical logs, the author includes a figure and explanation showing how beds of salt can be differentiated on gamma-ray and bulk-density logs. In the following section, on stratigraphy, the Michigan Basin terminology of the Salina is utilized. A composite section shows lithology, salt-bed terminology, and economic significance of the various salt beds. Origin and depositional framework of the salt beds is discussed next, and, in the final section, industrial usage of rock salt recovered by mining and of sodium chloride produced through artificial-brine wells. Over 40 references are cited.

Appendix A is a one-page tabulation of Salina cores and descriptions that are available at the Ohio Geological Survey. Appendix B is a 10-page tabular summary of data on control wells, and Appendix C consists of 10 pages of index maps, representative logs, and well records of Ohio's four artificial-brine fields. Large plates in the pocket include two cross sections, two structure-contour maps, and a set of seven isopach maps of individual salt beds.

The beds of salt are as much as 80 feet thick and are laterally extensive; several in Ohio are certainly continuous beneath 500 square miles and probably beneath ten times that area. The salt strata appear to have no facies equivalents, but were simply added to an otherwise uniform section. Thus salt deposition was "geologically instantaneous" over wide areas. The author considers the only reasonable mechanism to be deposition at the bottom of density-stratified water bodies, at depths from just below wave base to as much as 600 feet. Marginal reefs apparently had no effect on salt deposition in Ohio.

Nearly 10,000 square miles of Ohio are underlain by salt; beneath 1400 square miles there is at least one bed 25 feet or more in thickness. If one-fourth of the state's salt is considered to be recoverable, Ohio could supply the entire nation for 32,000 years at the present rate of use. All salt beds are within the reach of artificial brine wells.

The author is clearly qualified to discuss his subject, the report is well written and edited, and the drafting is clear. In sum, this is a good professional paper on an interesting and important mineral resource. It is an excellent addition to the Ohio Geological Survey's series of service reports.

ROBERT L. BATES

Size and Form in Plants. *F. O. Bower.* Hafner Press, New York, (hardback reprint). 1973. (Reprint of 1930 edition). xi+232 p. Price not stated.

Although D'Arcy Thompson's monumental opus, *Growth and Form*, had appeared only 13 years ago, when, in 1930, Bower's *Size and Form in Plants* was published, it was immediately acclaimed by plant morphologists as the first definitive contribution to causal morphology of plants in the English language. For several years the book has been out of print, and the reprint of this classical volume is welcome. No additions have been made to the older edition, and the book under review is thus a true facsimile of the 1930 edition.

The book is divided into 12 chapters, entitled: Statement of the Problem of Size, Psilotales and Psilophytales, The Living Lycopodiales, The Fossil Lycopodiales, Sphenophyllales and Equisetales, The Filicales (Coenopteridaceae), The Filicales (Ophioglossaceae, Marattiaceae and Osmundaceae), The Filicales (Leptosporangiate Ferns), The Shoot of Seed Plants, Roots, The Plasticity of Form and Structure in Relation to Size and Conclusion; five additional pages containing an index of tables and a general index complete the contents.

In perhaps the most original and interesting parts of the book, Bower has pulled together considerable evidence to show that changes in stelar elaboration in plants have gone hand in hand with actual increases in their size and in their physiological or mechanical factors. The discussion is mostly based on Pteridophytes; this is perhaps appropriate, for this group with its most interesting and varied habitat has provided research material for so much of our present advances in plant morphogenesis. The last 2 chapters of the book give examples supporting the general theme drawn from angiosperms. While some may reflect that the ideas enunciated by Bower have not been put to experimental test, the book is undoubtedly valuable the way examples drawn from the plant kingdom are deployed at key places to support the author's arguments. For advanced students of plant morphology, the book is valuable more for the account it gives of the thoughts of an extraordinarily imaginative morphologist who has synthesized them into a unified conceptual whole, than for its content of scientific information. To this reviewer, the reprint of the book now is a poignant reminder of how much is yet to be achieved in morphology.

This handsome little book is well written and readable; readability occasionally suffers, as for instance, when the author stresses the same point at different places in the text. The book is not paperback, but is nicely bound with a hard cover and has many line drawings and half-tones.

V. RAGHAVAN

The Effects of Ecological Changes on Buckeye Lake, with Emphasis on Largemouth Bass and Aquatic Vascular Plants. *John Bayless Judd and Stephan H. Taub.* Ohio Biological Survey, Biological Notes No. 6, Columbus, Ohio. 1973. viii+51 p. \$1.50, plus 6 cents tax in Ohio.

This publication attempts to document the ecological changes which have occurred in Buckeye Lake and then relate these changes to the present status of the largemouth bass population in the lake. The approach was to determine the present status of Buckeye Lake with respect to (1) distribution and species composition of aquatic macrophytes, (2) water quality, and (3) age, growth, and parasite burden of the largemouth bass population, and then compare these observations with past conditions as described in the open literature. The authors conclude that (1) the species number and biomass of aquatic plants have decreased, (2) water quality, in general, has deteriorated, and (3) largemouth bass are now less abundant but grow faster, and are unaffected by interspecific competition and parasite burden.

The literature review and field research provided information of sufficient detail to permit a general discussion of "what" changes have occurred in Buckeye Lake. However, the discussion of "why" these changes occurred is often quite speculative. But, alas, armed with only a descriptive history, it is quite difficult for any author(s) to be analytical in the present.

Emphasis is on changes in the aquatic plant community. Changes in the species composition and biomass of the plant community through the years is attributed primarily to increased turbidity and nutrients in Buckeye Lake. The authors conclude that the reduction in plant biomass constitutes the loss of an essential component of largemouth bass habitat; thus, Buckeye Lake now supports fewer bass than it did in the past. Consistent designation of aquatic plants by either common name or by both common and scientific names would have aided the lay reader.

The approach, methods, and inferences made pertaining to water quality and eutrophication of aquatic systems are weak. No discussion of changes in human density surrounding Buckeye Lake and disposal of human wastes is presented. No mention is made of the phosphate-binding capacity of soil particles and agricultural practices. Temperature stratification at a depth between 2 and 3 meters (?) in Buckeye Lake is discussed but temperature data are not presented. Thermoclines and chemoclines are confused. Other examples could be cited. A careful review of this paper prior to publication could have rectified such omissions, corrected minor misinterpretations, and generally served to strengthen the contribution. In my opinion, the authors did not receive the benefit of thorough review by the editorial committee designated in the publication.

The investigation of age, growth, and parasite infestation of largemouth bass appears to have received careful attention. Analysis of fish food habits was not included. Food habits of Buckeye Lake fishes would seem to be an important topic for consideration, especially since the authors conclude that interspecific competition is not a factor influencing the production of largemouth bass in Buckeye Lake. Perhaps this topic, along with an analysis of creel census data to discern fishing pressure, merits future investigation.

Overall, most portions of the research described are acceptable. The discussions of causality are based too frequently on mere speculation. It is true that Buckeye Lake has changed. What seems to remain unchanged is the inability of aquatic ecologists to decipher accurately the causal mechanisms which "power" succession in aquatic ecosystems such as Buckeye Lake. The principal constraint is almost always the lack of a thorough ecosystem analysis at sometime in the past. Perhaps the value, both present and future, of such endeavors will become evident to the readers of this analysis of ecological change in Buckeye Lake. This monograph should be of use to those persons seeking descriptive information on the history and general characteristics of Buckeye Lake.

ROBERT D. BURKETT

A Guide to the Literature of Ohio's Natural Areas. *Lynn Edward Elfner, Ronald L. Stuckey, and Ruth W. Melvin.* Ohio Biological Survey, Informative Circular No. 3, The Ohio State University, University Publications Sales, 124 West 17th Ave., Columbus, OH 43210. 1973. vi+56 p. \$.50, plus 2 cents tax in Ohio.

A listing, by county and under each by localities, of the very scattered literature about Ohio's natural areas (including some important less-than-natural spots). Much of the literature was published in journals and magazines, however pamphlets, theses, and reports are included. The emphasis is on botanical references with some zoological and geological topics added. Together with J. Arthur Herrick's *The Natural Areas Project, A Summary of Data to Date* (revised edition 1965), and Ruth W. Melvin's *A Guide to Ohio Outdoor Education Areas* (1971)—both currently being revised—the natural areas enthusiast has a splendid entry to information about where Ohio natural areas are and what has been written about them. We are told by the authors that this guide is to be revised and updated, thus there is chance to add references that have been overlooked.

E. D. RUDOLPH

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I certify that the statements made by me above are correct and complete.

Joseph D. Laufersweiler
Business Manager

GEORGE G. ACKER

1914-1974

George Gerald Acker, 59, Professor of Biology at Bowling Green State University, died on September 3, 1974 at Wood County Hospital, Bowling Green, Ohio.

CLAUD R. NEISWANDER

1893-1974

Claud Revere Neiswander, 81, Professor Emeritus at the Ohio Agricultural Research and Development Center, died on June 18, 1974 at Wooster Community Hospital.