

largely artificial operations. In the sub-humid and semiarid grasslands, management is more largely a matter of understanding and taking advantage of ecological factors—seeing that nature gets a chance to do the work. While it is true that each landscape is in some respects unique, we already have, thanks to Weaver and his industrious associates, a lot of information on the western grasslands that we should be using. Meanwhile eastern workers, both state and federal, have done much to improve our knowledge of intensive management under humid conditions.

Our present food surpluses should not blind us to the fact that we are living in a hungry world. Our own rate of population increase suggests that, even if we consider only ourselves, we shall soon be seriously concerned with adequate food production. On both counts the present volume deserves attention.

PAUL B. SEARS  
*Conservation Program, Yale University*

**Maya.** The riddle and rediscovery of a lost civilization. Charles Gallenkamp. McKay, New York, 1959. xvi + 240 pp. Illus. + plates. \$5.50.

Whatever the causes may be, it has been evident that for some time now there is an increasing market for books, written in "layman" style, on archeology. A fair proportion of these books have been devoted to American archeology, particularly to the high culture areas of Middle America and the central Andes. Gallenkamp's book concentrates on the pre-Columbian Maya, a group that occupied the scrub and rain forests of the Yucatan Peninsula of Central America. Thanks to modern transportation and the interest of the various governments in the tourist potential and the scientific value of the many Maya sites within this area, an increasing number of people are able to visit the impressive, often awesome ruins that until recently could be reached only by the most determined of travelers and scholars. One might wonder, however, how many visitors leave a site such as Uxmal, or Tikal, or Copan with any substantial awareness of the historical and anthropological implications of what they have seen. Are monuments, temples, and palaces akin to some museum objects—poorly labeled and without sensible context—

at most just attractive "things"? The chances are though that the majority of visitors come away with many valid questions. Does a book such as this one by Gallenkamp properly answer what is answerable and provide a context for a searching appreciation of all the carvings and structures no longer so "lost" in the jungle?

The book is thoroughly readable and reasonably well illustrated with a selection of photographs covering various outstanding Maya remains. The major periods of Maya development are covered, from the still slightly known Formative era through the relatively well investigated Classic or florescent period, to the final period of militarism, secularism and, in many ways esthetic disintegration. A chapter is devoted to John Lloyd Stephens, whose explorations over a century ago marked the beginning of our archeological knowledge of the Maya. A chapter on how the Americas were populated with subsequent cultural diversification, is well done. Other chapters are given to the famed Classic-period tomb found a few years ago at Palenque and to the equally well publicized polychromed frescos of Bonampak. The rich yield from the "Sacred Cenote" (well) of Chichen Itza in Yucatan is similarly treated as a highlight of discovery and an interpretive source.

On the whole, Gallenkamp's book appears to be free of all but minor error (for example, Tikal "Temple V" in one photograph is actually "Temple VI"), and to be generally comprehensive and very much up to date. A good bibliography is appended. In fact, the book often appears to be a synthesis of two prior popular studies—J. E. S. Thompson's *The Rise and Fall of Maya Civilization* (University of Oklahoma Press), and S. G. Morley's *The Ancient Maya* (G. Brainerd, Ed., Stanford University Press). Full credit is given to these sources, and it is evident that Gallenkamp has heavily relied upon them. The question is, if one must choose one of these three books, whether that by Gallenkamp would be the choice. I would certainly favor the revised edition of Morley's study for detail and that by Thompson for an often penetrating view of Maya culture. Another excellent study is George Brainerd's *The Maya Civilization* (Southwest Museum, Los Angeles).

In summary, the Gallenkamp volume should certainly be recommended as an adequate, up-to-date, and reliable pres-

entation of a fascinating subject of interest to anyone concerned with the comparative study of what causes and constitutes "civilization." However, his principal sources, written by men long and actively concerned with the subject, cannot be recommended enough.

WILLIAM R. COE  
*University Museum,  
University of Pennsylvania*

**The Physico-chemical Constants of Binary Systems in Concentrated Solutions.** vol. 1, Two Organic Compounds (without hydroxyl derivatives). 1274 pp. vol. 2, Two Organic Compounds (at least one a hydroxyl derivative). 1283 pp. Jean Timmermans. Interscience, New York, 1959. \$29 each.

These are the first two volumes of a four-volume work aimed at extracting from the literature all of the data on the physical constants of solutions of two components. Elements and compounds are taken as components; alloys and solutions more dilute than 10-weight percent are excluded from consideration.

The first two volumes consist of tables of data on binary systems of the type indicated in the title. Apparently all of the published data on a given system are included without critical evaluation; thus, the user will find reference to the original reports necessary for obtaining an idea of the accuracy of the determinations. Since the bibliography is to appear in the fourth (and last) volume of the series, which is not yet available, the single volumes appear to be of limited usefulness at the present time. Although the arrangement of compounds is quite systematic, the index to compounds is also to appear in the last volume; therefore locating a particular compound in the very large mass of data reported in the first two volumes is a chore.

The work is reproduced from typewritten records by offset printing, and although the print is easy to read, the tables, in many instances, are rather carelessly aligned on the page. Further, a cursory inspection reveals several typographical errors in names of compounds; this would hardly encourage one to regard the numerical data as completely reliable without checking the original source. While the complete set of four volumes will undoubtedly be

useful for reference, and as a guide to the published data, any need for a critically evaluated tabulation of such data does not seem to be filled here.

RICHARD EASTMAN

Department of Chemistry,  
Stanford University

**The Orchids.** A scientific survey. Carl L. Withner, Ed. Ronald Press, New York, 1959. ix + 648 pp. Illus. \$14.

The Orchidaceae, one of the largest plant families, has until recently been neglected by students of the various phases of botany, except taxonomy. Withner's book, long awaited by scientists, horticulturists, and amateurs, attempts to bridge this gap for the first time.

The various phases of orchid biology are discussed by 16 scientists and horticulturists. "Not only have the several authors covered their respective fields as they exist at present, but they have attempted to correlate and evaluate the researches of different scientists so that the body of information included in this book means much more than an annotated bibliography or a report on a number of scattered papers." In fact, ideas for further research may be based upon the following informative chapters: "Classification," "Developmental anatomy," "Aspects of variation," "Embryology," "Orchids and cytology," "Hybridization," "Physiology," "Mycorrhiza of orchids," "Photoperiodic and temperature responses," "Fungal and bacterial diseases," "Virus diseases," "Orchid pests and their control," and "Vanilla, the orchid of commerce."

Perhaps one of the most valuable contributions of the book is its key to the tribes and subtribes of the family, presented for the first time in English, and thus making understandable and available to the public the intricate correlation among the various groupings in a field previously limited to scientists. Special mention also should be made of the two-fold approach in the chapter "Orchids and cytology." "This chapter has been written for two types of readers: one who knows little about orchids but a great deal about cytology, and the other who knows a great deal about orchids but little about cytology. An attempt has been made here to satisfy both without offending either, by assembling the information in the

framework of the history of cytology in orchids and by incorporating the results of research of the author not published elsewhere."

Of course, as with most scientific books, *The Orchids* has its shortcomings. One would expect that a scientific survey of a family would contribute towards the understanding of such problems as origin, evolution, distribution, and biogeography. Unfortunately these important and basic phases are not included in this scientific survey.

In general, I welcome *The Orchids* as the first and as a comprehensive scientific treatise on the family as a biological unit, and I hope that other readers will find it to be a useful source of information.

LESLIE A. GARAY

Orchid Herbarium of Oakes Ames,  
Botanical Museum, Harvard University

### New Books

*Advances in Agronomy.* vol. 11. A. G. Norman, Ed. Academic Press, New York, 1959. 438 pp. \$12. Contents: "Water and its relation to soils and crops," "The economics of fertilizer use in crop production," "Recent developments in agricultural machinery," "Fertilizer production and technology," "Soils and land use in the Netherlands," "Effect of nitrogen on the availability of soil and fertilizer phosphorus to plants."

*A History of the American Dental Association.* A century of health service. Robert W. McCluggage. American Dental Assoc., Chicago, Ill., 1959. 520 pp. In the introduction Richard H. Shryock says, "This isolation of one specialty [dentistry] as a distinct guild is one of the most interesting phenomena in the history of medicine as a whole. In order to understand it, one needs to follow the evolution of dental practice, and particularly the development of what may be termed 'organized dentistry' in the United States. It is just this theme which is followed in the present work."

*Scientific Manpower, 1958.* Papers of the seventh conference on scientific manpower. Symposium on demographic and sociological aspects of scientific manpower. National Science Foundation, Washington, D.C., 1959. This report is the third in a series of annual summaries of developments relating to scientific manpower. The report contains the papers of the annual scientific manpower conference held during the meeting of the AAAS; it also contains four papers on related topics read at a meeting sponsored by the American Sociological Society.

*Solid State Physics.* Advances in research and applications. vol. 9. Frederick Seitz and David Turnbull, Eds. Academic Press, New York, 1959. 563 pp. \$14.50. Contents: "The electronic spectra of aromatic molecular crystals" (H. C. Wolf);

"Polar semiconductors" (W. W. Scanlon); "Static electrification of solids" (D. J. Montgomery); "The interdependence of solid state physics and angular distribution of nuclear radiations" (E. Heer and T. B. Novey); "Oscillatory behavior of magnetic susceptibility and electronic conductivity" (A. H. Kahn and H. P. R. Frederikse); "Heterogeneities in solid solutions" (A. Guinier); and "Electronic spectra of molecules and ions in crystals." Part 2, "Spectra of ions in crystals" (Donald S. McClure).

*Soil, Grass and Cancer.* Health of animals and men is linked to the mineral balance of the soil. André Voisin. Translated from the French by Catherine T. M. Herriot and Henry Kennedy. Philosophical Library, New York, 1959. 319 pp. \$15.

### Reprints

*Civilization.* V. F. Lenzen, Stephen C. Pepper, George P. Adams, D. S. Mackay, Edward W. Strong, A. I. Melden, William R. Dennes. Univ. of California Press, Berkeley, 1959 (originally published as vol. 23 of the University of California's *Publications in Philosophy*, 1941). 184 pp. \$1.50. In the preface Dennes writes that "In these studies, first published seventeen years ago, the authors examined issues which in 1941 they judged to be fundamental in the twin enterprises of explaining and evaluating patterns of human social living. Their republication invites us to consider whether the processes of history during two turbulent decades, or the progress of philosophical interpretation and criticism, have either resolved or moved beyond the problems here discussed, or whether and in what respects the analyses are still relevant."

*Folkways.* A study of the sociological importance of usages, manners, customs, mores, and morals. William Graham Sumner. Dover, New York, 1959 (unabridged republication of 1906 ed.). 699 pp. \$2.49. Sumner, who was a professor of political and social science at Yale University from 1872 until his death in 1910, provided an examination of usages, manners, customs, mores and morals. Among the subjects treated in this work are characteristics of the mores, societal selection, infanticide, killing the old, the social codes, primitive justice, and popular sports.

*An Elementary Treatise on Fourier's Series and Spherical, Cylindrical, and Ellipsoidal Harmonics.* With applications to problems in mathematical physics. William Elwood Byerly. Dover, New York, 1959 (unabridged republication of the last edition; originally published by Ginn, 1893). 296 pp. \$1.75.

*A History of Science, Technology and Philosophy.* In the 16th and 17th centuries. vol. 1 and vol. 2. A. Wolf. Second edition prepared by Douglas McKie. Harper, New York, 1959 (reprinted from ed. 2, 1950). 686 pp. \$1.95 each. The earlier edition was described by I. Bernard Cohen in *Isis* as "An indispensable work for studying the period. . . ."

*On Understanding Physics.* W. H. Watson. Harper, New York, 1959 (reprint of 1938 edition). 160 pp. \$1.25.