Reviews

Classified Bibliography on Native Plants of Arizona.

Ervin M. Schmutz. University of Arizona Press. Tucson. 1978. xi + 160 pp.

The author, a professor of range management, has studied Arizona vegetation since 1937. About 12 years ago he began compiling accumulated references as a beginning for the present bibliography. Citations of 3,000 publications are divided into 30 categories. The full citation for a given publication will be found under only one category. If the publication deals with more than one category, a cross-reference to author and date (without title) appears under the additional category. One must then consult the primary reference to discover the title of the publication. One must be thoroughly familiar with the system and the various categories to locate specific articles. For example, J.S. Horton's bibliography of papers relating to riparian and phreatophyte management is cited in full under the *bibliographies* category rather than under *aquatic and riparian vegetation.* An inconvenience arises from not having a single integrated alphebetic list. This is partially compensated for by the author index at the end of the volume. But the author index does not list titles.

Some of the categories such as *general ecology* or *floras and taxonomic reports,* being widely defined, contain numerous pages of references. Other lists such as those for *mistletoe, creosotebush* or *sagebrush* as can be expected have fewer titles. Many categories, e.g. *mesquite* or *pinyon-juniper* deal not only with the plants named but also with the plant-animal communities associated with them. Other intriguing groupings include *ethnobotany, poisonous plants, paleoecology* and *paleobotany.*

The volume is made more useful by inclusion of references to masters theses and doctoral dissertations. Omitted were some taxonomic, herbicidal or physiological publications but only if data on ecology, distribution or species composition were lacking. Plant species covered in the bibliography are only those which occur spontaneously in the state without introduction or cultivation by man. The author reveals himself to be a careful scholar and there is every indication that nothing has escaped his attention in preparing the book.

A Catalogue of the Flora of Arizona.

J. Harry Lehr. Desert Botanical Garden. Phoenix. 1978. vi + 203 pp.

This is intended, according to the author, as a checklist of the plants commonly accepted as grow-

ing in Arizona. Nonenclatural changes or new records are not included and the book might properly be classified as a compilation. The work summarizes and updates names listed in *Arizona Flora,* a book written by Thomas H. Kearney and Robert H. Peebles (University of California Press. 1960.) It integrates the information supplied in the supplement to *Arizona Flora* by John Thomas Howell and Elizabeth McClintock printed as an appendix in the 1960 edition. Recent research reports touching on the classification of Arizona plants, amounting to 240 titles, were read and used in determining the correct scientific name for each plant. Common English names are given if any were found in standard reference works. No new English names were coined.

After carefully inspecting the volume, it seems to be a careful and faithful compilation of the taxonomic and nomenclatural opinions of an entire generation of recent plant systematists. A few typographical errors together with an occasional *lapsus calami* have inevitably crept into the book. For example "*P. leritus* Pennell" in the treatment of *Penstemon* on page 141 must be a *sphalm* for *Penstemon lentus* Pennell. On page 174 the author of *Tagetes lemmoni* is given as Cavanilles, an impossibility considering that he died before the discoverer of the plant in question was born. Such minor errors are ones to be expected in the first edition of a book. The catalogue will be quite useful and the author is to be commended for his dilligence.

Leucaena, Promising Forage and Tree Crop for the Tropics.
Philippine Council for Agriculture and Resources Research and the United States National Academy of Sciences.
Publ. by National Academy of Sciences. Washington. 1977. vii + 115 pp.

[Although a promising crop plant for the tropics, *Leucaena leucocephala* also is commonly cultivated in deserts. Together with the Texas Lead Tree *(Leucaena pulverulenta)* it has been cultivated for many years at the Boyce Thompson Southwestern Arboretum.—editor.]

Leucaena seems to have originated as a crop in southern Mexico and Central America from which region it was spread along the Pacific and Caribbean coasts by pre-Columbian Indians. The principle plant surviving in these regions today is a shrubby type which is also cultivated in Hawaii and happens to go by the designation "Hawaiian Type." The plant native to the southwestern portion of the region is generally a tall tree perhaps 60 feet high known as the "Salvador Type." Unfortunately these are both rather sensitive to frost. Recently, hybridization with the Texas Lead Tree promises to introduce cold-hardiness into the crop plant.

Leucaena pods are a traditional human food in Mexico and Central America and now are utilized in most of the warm countries of the world. Oaxaca, the name of a state and city in southern Mexico, is reputedly an Aztec word translated to mean "the place where *Leucaena* grows." The plant is suitable for use as a forage for cattle and goats but in many animals when constituting over half the diet for six months, mimosine toxicity may result in hair loss, excessive salivation and poor growth. Hybridization with the Texas Lead Tree has already resulted in a low-mimosine strain which is quite promising as a forage. In Australia, sheep fed regular high-mimosine *Leucaena* exclusively for ten days can be "sheared" by a simple stroke of the hand. The process is not used commercially yet because separation of wool from the animals is so complete that the bald sheep are quickly sunburned.

The crop can be turned into the soil to increase nitrogen content as is the case with most other legume crops. *Leucaena* is said to be capable of fixing 500 pounds of nitrogen per acre, equivalent to 2500 pounds of ammonium sulphate per acre per year. The wood can be made into paper and a sample of a good wrapping paper has been bound into the book. The seeds are commonly made into necklaces in Southeast Asia and throughout the Pacific and these can be seen as imports in the United States. In central Amercia, the seeds, pods and bark of *Leucaena* have traditionally been extracted to give yellow, red, brown and black dyes.

The book is a fascinating revelation on a plant which promises to be of much greater value to man as it becomes further domesticated and improved. It seems quite appropriate for the National Academy of Sciences to nurture this type of research and they have done an excellent job in conjunction with the Phillipine Council for Agriculture and Resources Research. The report was prepared for publication by Noel Vietmeyer and Beverly Cottam and edited by F. R. Ruskin.

Ecology of the Saguaro: II.
Warren F. Steenbergh and Charles H. Lowe.
National Park Service Scientific Monograph Series No. 8 Superintendent of Documents.
Washington. 1977. xxii + 242 pp.

Part I of this series was not a separate book but rather pages 69-92 in a 1976 work entitled *Research in the Parks. National Park Service Symposium Series No. 1.* The present volume is a very complete treatment of the life-cycle of the giant cactus of Arizona. It is the result of two decades of research and has been long awaited. It attempts to settle the controversy concerning causes of decline in this cactus at Saguaro National Monument. "Bacteria necrosis disease" is thought to be a result of rather than a cause of death in the plant. The "causative organism," *Erwinia carnegiana,* is thought to live on and decompose dead succulent tissues of cacti which died from other causes. [This is contrary to much newspaper, radio and television publicity over the years to the effect that the *Erwinia* "disease" threatened the existence of the Saguaro and that the "epidemic" might cause the cactus to become extinct.—editor.]

Students of desert plants will find the book required reading and a very useful reference at a modest price (\$4.00.) The volume is very well illustrated with black-and-white photographs documenting a wide variety of intriguing phenomena. Decline of the Saguaro in certain locations is attributed largely to freeze-damage that may not be evident for a year or more. This delay between cause and effect is thought to have confused many previous researchers. An appendix provides management recommendations to cope with the apparent decline of the species in Saguaro National Monument. Although freeze-damage itself can scarcely be prevented, the overall syndrome of Saguaro decline can hopefully be ameliorated by eliminating conscious as well as unintentional damage by man.

The Illustrated Encyclopedia of Succulents.

Gordon Rowley. American Consultant Charles Glass. Crown Publishers Inc. New York. 1978. 256 pp.

Without reservation this is the best book on the subject ever produced and will become a standard. Without being pedantic it offers knowledge to the professional and amateur alike in such spendid fashion that it is a joy to read. Unique would be the professional who would claim to already know all of the quite educational material presented. Likewise unique would be the plant-lover who could not understand it readily. Indeed, the book should change many a cactus and succulent *fancier* into a *student* of the subject. The author is quite generous in sharing his knowledge with the reader and takes every opportunity to teach in the manner of a true scholar. He perceives the material so clearly himself that it is almost automatically projected to the reader and instilled in his mind.

Aside from the quite knowledgeable text, the book is basically a vivid rainbow of color flashes, page after page, of the very best photographs of cacti and other succulents that could be envisioned. Every square inch, including the end-papers and dust-cover, is filled very effectively with material that enchants the reader. Many will be the person who wished that he were the author. The book was typeset in England, color reproduction was by three companies in England and the book was printed in Belgium. The author, publishers and all concerned with its production can be proud of a job well-done. The volume seems extremely reasonably priced at \$14.95.

The Desert.

John Cloudsley-Thompson. G. P. Putnam's Sons. New York. 1977. 128 pp.

The author has participated in many desert expeditions and was a professor at the University of Khartoum and Keeper of the Sudan Natural History Museum until 1971. He is presently Professor of Zoology at the University of London. The book is a treatment of the deserts of the world, dealing with physical conditions, geography, climate, plants and animals. Arctic areas are classified as "polar desert" because moisture is often tied up in ice and not readily available. The quite similar alpine zones of mountains, which many scientists believe were quite properly classified by C. Hart Merriam with Arctic tundra as the "Arctic-Alpine Life Zone" are not considered to represent desert.

Whereas 22 pages are devoted to "polar desert," only a single page is given over to the "Great North American Desert" with a single sentence of this specifically referring to the Sonoran Desert. The chapter on desert life betrays the author's training as a zoologist since 10 pages are devoted to plants and 32 pages to animals.

This book is well-written for popular interest. It does not purport to be a compendium for reference purposes. Some persons will find it confusing to treat the Arctic in a volume on deserts and might wish that the space had been used to go into more detail on the traditional deserts. The book is hardly inexpensive at \$14.95 and the price itself might discourage those who have only a casual interest in deserts. On the other hand, it is quite readable and will undoubtedly interest many into digging deeper into

some of the books listed in the bibliography. A little strange, perhaps, is the fact that none of the many books on cacti and other desert plants are listed in the bibliography.

Ethnic Medicine in the Southwest.
Edward H. Spicer, editor. University of Arizona Press. Tucson. 1977. viii + 291 pp.

Parts of this book will be extremely fascinating to persons studying medicinal uses of desert plants. The tables on pages 142-4 in the chapter by Margarita Artschwager Kay record a number of quite interesting uses of plants by Mexican-American people. Other chapters deal with popular medicine in a Black neighborhood (by Loudell F. Snow), disease and curing in a Yaqui community (by Mary Elizabeth Shutler) and medical beliefs and practices among lower-income Anglos (by Eleanor Bauwens). An excellent introductory chapter has been written by Edward H. Spicer, who also edited the entire book.

Journal of Arid Environments.
J. L. Cloudsley-Thompson, editor.
Quarterly. London (£ 18.15) and New York ($35.00.)
Volume 1, 1978.

The initial editorial statement of this journal promises a high-quality multi- and interdisciplinary organ for publication of original research and comprehensive reviews dealing with the arid lands and their development. It will address itself to scientists and technologists but intends also to cater to the needs of administrators and government officials in arid developing countries. Sociological and anthropological contributions will be included. The editorial viewpoint is expressed that major problems in the world's deserts are socio-economic rather than scientific, but that science and the contributed articles can provide guidance for administrative action.

Articles in the first issue demonstrate the intended multidisciplinary scope. Topics covered are 1) historic change in African climates, 2) chemistry of flash-flood waters in Arizona, 3) temperatures beneath stones in Morocco, 4) small arthropods in plant litters in New Mexico, 5) distribution of African cattle in relation to rainfall and tsetse flies, 6) rodent species-diversity in normal and dry habitats in Israel, 7) rotting of dead elephants in Kenya, 8) Islamic principles dealing with the right use to water.