Reviews

Jojoba in a Nutshell.

P. Lynn Scarlett. Jojoba International Corporation. Carpinteria, Calif. 1978. 55 pp. $5.00.

This paperback book seems to be aimed at persons considering growing commercial acreages of Jojoba. The subtitle reads *"The Natural History, Cultivation and Market Demand of Jojoba (Simmondsia chinensis)*. It is essentially a literature review tempered with observations on recent research and commercial development. The book relies heavily on publications of Howard Scott Gentry, the University of Arizona and the National Academy of Sciences. In some instances, however, sources of information are not documented. Let us examine, as an example, pages 18–20 where relations to wildlife and pests are summarized. On page 18 it is stated that Jojoba may have once ranged more northerly but during the ice age foraging animals may have moved south and "virtually wiped out these more northerly varieties." Scientists who have studied Jojoba for a number of years would quickly point out that the culprit from the north was more apt to be Jack Frost. On page 19 of the book it is stated that although certain rodents, insects and birds will taste and collect Jojoba seed, they do not seem to prefer it as a source of food. This is at variance with published research indicating that *Perognathus baileyi*, a pocket mouse, regularly uses Jojoba seed as its preferred source of food. On page 20 it is stated that the plant does not have any pests peculiar to it. There has been ample published evidence, however, that certain injurious insects are more or less restricted to Jojoba.

Creosote Bush. Biology and Chemistry of Larrea in New World Deserts.

T. J. Mabry, J. H. Hunziker and D. R. DiFeo, Jr., editors. Dowden, Hutchinson & Ross, Inc. Stroudsburg, Pa. 1977. xvi + 284 pp.

The chapters of this book are separate essays on particular aspects of Creosote Bush. A total of 27 authors are listed, from one to five for each of the ten chapters. There are five species of *Larrea* in the world: four in South America and one in North America. The bushes cover hundreds of thousands of square miles of desert, often forming pure stands. Creosote Bush is adapted to dry conditions partly by virtue of its small leaves which resist desiccation by means of a thick waxy cuticle. These leaves can maintain photosynthesis and cell division at lower tissue water potentials than most other species.

Water potentials as low as -115 bars can be tolerated. The resinous coating on the leaves tends to repel leaf-chewing insects. It also chemically inhibits digestion of food by such insects.

Nordihydroguaiaretic Acid (NDGA) extracted from the resin has many potential applications and might someday give Creosote Bush an economic value. This chemical acts as an oxidation inhibitor. It can therefore be used to stabilize industrial polymers, lubricants, rubber, perfume or other substances that might otherwise break down. It inhibits growth of mold and bacteria. It displays cancer antimetabolite activity and sensitizes certain tumor cells to x-ray treatment. It has been used as a food additive but is presently not on the U. S. Food and Drug Administration GRAS (generally recognized as safe) list.

Creosote Bush may have come to North America through chance long-range dispersal in relatively recent geologic time. There is an absence of older *Larrea* fragments in Pleistocene packrat deposits in the Southwest. Plants of the Chihuahuan Desert have a normal (diploid) number of chromosomes, whereas those of the Sonoran Desert have a doubled (tetraploid) number and those of the Mojave Desert have a tripled (hexaploid) number. *Larrea* is known to be an invader in parts of New Mexico in the last 100 years. The book is an example of renewed interest in a subject kindled by the International Biological Program. Persons interested in the plant from many different aspects will find the book a handy reference. Although much of the material has been previously published, it is brought together in good fashion by the very researchers responsible for many of the original discoveries.

The Agaves of Baja California.
Howard Scott Gentry. Occasional Papers of the California Academy of Sciences. San Francisco. 1978. 119 pp. $8.00.

This monograph results from field work by Dr. Gentry over a 30-year period. It is an excellent and complete taxonomic revision of three groups of *Agave*, the *Deserticolae, Campaniflorae* and *Umbelliflorae*. The abstract published opposite page 1 indicates that of the 23 taxa described, 4 are proposed as new species and 8 new taxa are subspecies. In the introduction, however, 25 taxa are said to be described, 3 of which are proposed as new. This discrepancy prompted a careful study of the text by the reviewer, with the finding that 25 kinds of *Agave* are treated, 5 of which are stated to be new to science (4 new species and 1 new subspecies.)

Indigenous uses of the plants as food are recorded together with data on sapogenin and other chemical content of the species. The technical descriptions of the various species and subspecies are very well prepared and are supplemented by 62 black-and-white figures, 7 color plates and 11 tables of data. Dr. Gentry recounts how he began monographing *Agave* while employed in the Plant Exploration and Introduction branch of the USDA Agricultural Research Service. *Agave* has been of interest economically primarily because of the presence in the plants of corticosteroid precursors from which cortisone can be synthesized. Secondarily, *Agave* plants represent a source of food (mescal) and drink (tequila). Gentry's present publication is a major contribution to our knowledge of these desert plants, very carefully and accurately written by the world's foremost scholar on this subject.

Arid Lands Research Institutions. A World Directory.
Patricia Paylore. Revised and updated edition. University of Arizona Press. Tucson. 1977. xv + 317 pp. $7.50.

Names and addresses of institutions, scientists and administrators who deal with problems of arid lands can easily be found in this directory. It is a welcome update of the original 1967 edition. The information provided comes directly from correspondence between the Office of Arid Lands Studies (University of Arizona) and the various institutions.

The institutions listed are arranged geographically by continents and then alphabetically under country names. Institutions are classified as private, governmental, international, academic and then by scope of interest. The governing body is listed when known. Full postal addresses as well as telephone and telex numbers are given. Geographic locations of headquarters and field sites are provided together with information on climate, vegetation types, elevation and exposure when known. Research programs are listed under three categories, 1) completed, 2) current and 3) planned. Chief scientists and their areas of specialization, department heads and directors are listed. Information on laboratory space and equipment, nature and size of library holdings, serial publications, experimental areas and arrangements for visiting scientists are provided. A historical paragraph concludes each institution's treatment.

Indice de Proyectos en Desarrollo en Ecologia de Zonas Aridas.
E. Martinez Ojeda, L. F. Pacheco Llanes, C. Saldivar Rojas and M. Gonzales Banos, editors. Instituto de Investigaciones Sobre Recursos Bioticos, A. C. Xalapa, Veracruz, Mexico. 1978. vii + 97 pp. $8.00 (U.S.)

This very useful index lists 168 major projects around the world dealing with ecology of arid regions. The information provided for each project includes 1) title, 2) objectives, 3) date of initiation and probable date of completion, 4) name of institution responsible for the research, 5) names of scientific personnel participating in the investigation, 6) title of the most recent contribution on the subject, 7) country and region where the research is carried out, and 8) additional information. Mexico emerges as the country with the most projects (30), followed by Argentina (25), Israel (25), the United States (25) and Australia (14). A key-word index is included to make the work more useful and complete.

Design and the Desert Environment: Landscape Architecture and the American Southwest.
James D. Miller, Arid Lands Resource Information Paper Series. Office of Arid Lands Studies. University of Arizona. Tucson. 1978. iii + 216 pp.

The author approaches the subject by examining the physical parameters of climate in the deserts of the Southwestern United States, defines the limits of human comfort and then explores methods of modifying the desert environment to be more acceptable to man. Recommended plant materials are treated in 16 pages of text, 55 pages of "Plant Matrix" charts and 16 pages of photographs. The Arizona Native Plant Law, 6 pages long, is reprinted in full. A bibliography of 132 items, complete with abstracts, makes the book even more useful.

Successful Gardening with Limited Water.
Margaret Tipton Wheatly. Woodbridge Press Publishing Company. Santa Barbara, Calif. 1978. 128 pp. $3.95.

This book tells how to select labor-efficient and water-efficient plantings and shows methods for carefree growing of trees, shrubs, flowers, fruits and vegetables. It is a natural response to recent water shortages that have plagued several parts of the world, for instance the drought in California during 1977. Although the book does not specifically so state, it is essentially geared to southern California conditions. The author says that she first became aware of gardening with drought-enduring plants through botanical gardens specializing in this particular type of plant. Several photographs in the book were taken at the Boyce Thompson Southwestern Arboretum, the Santa Barbara Mission or the Los Angeles State and County Arboretum.

The book includes lists of plants classified according to landscape use. Plants mentioned are generally those which are available from commercial sources. These lists include 1) plants for dry walling, 2) plants to enclose or screen the garden, 3) plants to landscape the parking area, 4) plants for training, 5) plants for concealing and covering, 6) plants to shade and shelter the garden, 7) plants for pots and tubs, 8) plants for ground cover, and 9) plants for alkaline soils, sand, wind and ocean. The reader naturally wonders why other such lists were not drawn up of plants for instance which render the house more energy-efficient — deciduous vines and trees that let sun through in the winter but block it out in summer.