



The author of *Environmental Biology of Agaves and Cacti* holding the stem and attached leaf bases of a plant of *Agave tequilana*. This part of the plant "is called a piña because it resembles a pineapple (or a 'cabeza,' meaning head). This piña was harvested from an eight-year-old plant and will be taken to a local factory for roasting 24–36 h followed by shredding and then fermenting of the mash for 36–48 h as a prelude to distillation to obtain tequila." [From *Environmental Biology of Agaves and Cacti*]

model by correlation with actual growth of agaves and cacti was possible.

The book is unique in that it is not only a thoroughly documented study of the environmental biology of the plants it deals with but an exceptionally clear account of the physical aspects of plant ecophysiology. It is an outstanding biophysical ecology text because it clearly integrates the principles it develops with the functioning of plants in their natural environment. In addition, it is a nice review of CAM giving support to the notion that it is a metabolic sequence resulting in adaptation to drought.

Although the book is based primarily on the work of Nobel and his associates, it is prepared in a scholarly manner, drawing on the published literature. It is a pity that so many of the excellent photographs are reproduced poorly, even to the extent that rulers and rattlesnakes referred to in captions are not visible. Throughout, the subject is presented with little teleology except in the chapter treating PAR and the orientation of cactus cladodes. Here the thesis is developed that orientation with respect to radiation is advantageous for maximizing CO₂ uptake. No doubt this is true, but one wonders about the cause-and-effect relationship. In any case, the orientation studies are

fully documented and contribute to our understanding of PAR interception in relation to subsequent growth and development.

I highly recommend this book to students and researchers alike who have interest in biophysical ecology, arid regions, and succulent plants in general.

IRWIN P. TING
Department of Botany
and Plant Sciences,
University of California,
Riverside, CA 92521

Some Other Books of Interest

Milestones in Immunology. A Historical Exploration. DEBRA JAN BIBEL. Science Tech, Madison, WI, 1988. xx, 330 pp., illus. \$35.

"Modern immunology," writes Debra Jan Bibbel, "taps our deepest concerns, addressing the question of individuality" and offering immunologists the opportunity to join other scientists in "probing directly the epistemological questions of existence." Seeing history both as offering "one of the proven paths to such philosophical pondering and transcendence" and as having practical uses, she has prepared this "guided historical exploration of immunology that focuses on the classic contributions." In it are printed abridgements of 73 such contributions, from Jenner's "Inquiry into the cause and effects of the variolae vaccine" (1798) to Kiessling *et al.*'s "Natural killer cells in the mouse, II," and Köhler and Milstein's "Continuous cultures of fused cells secreting antibody of predefined specificity" (1975). The papers are grouped according to theme: immunotherapy; allergy, hypersensitivity and immunopathology; immunochemistry; cells and interactions; theories; agents and adjuncts; immunogenetics; technology; and systems. For each group and for each individual paper there is an introduction in which Bibbel discusses in a nontechnical style the scientific issues involved and gives some biographical information about the author or authors, along with an occasional anecdote. Suggestions for further reading are included at appropriate intervals. In an epilogue that further develops the theme stated in her preface, Bibbel poses some zen koans and scientific enigmas and provides a philosophical view of immunology based on the view that "as in the web of Indra's jeweled beads, each facet of existence is reflected by all others." In conclusion she expresses the hope that "by . . . increasingly higher spiral orbits—undergoing cycles of reductive and holistic frameworks—science [will] not only

tolerate, but actually incorporate the formless, wordless reality that is beyond its manipulative grasp," a development she believes will entail an increasing role for psychobiology and psychophysics.—K.L.

Drugs, Athletes, and Physical Performance. JOHN A. THOMAS, Ed. Plenum Medical, New York, 1988. xvi, 237 pp., illus. \$39.50.

Not an examination of actual practices in the sports world, this book is, rather, a summary of biomedical information regarding various endogenous and exogenous substances that have been associated with athletics. Written at a level suitable for students or for a lay audience but citing primary research literature, the volume includes chapters on vitamins, anabolic and androgenic steroids, analgesics, calcium, muscle relaxants, anti-inflammatory agents, human growth hormone, and central nervous system stimulants. In addition there are chapters on nutrition and fluid balance, fuel utilization and insulin requirements, immunity, and female reproduction as related to exercise and physical performance. A chapter on drug abuse, which includes a table listing 82 drugs banned by the National College Athletic Association, categorizes such drugs as ergogenic, restorative, and recreational, reviews some of their therapeutic and deleterious effects, and predicts for the first category that "it will be increasingly difficult to separate therapeutic use and abuse." In all, 20 authors, most of them affiliated with medical schools, have contributed to the work.—K.L.

Domestication of Plants in the Old World. The Origin and Spread of Cultivated Plants in West Asia, Europe, and the Nile Valley. DANIEL ZOHARY and MARIA HOPF. Clarendon (Oxford University Press), New York, 1988. x, 249 pp., illus. \$75.

This volume is an attempt to provide "a review of the origin and the spread of cultivated plants in southwest Asia, Europe, and Africa north of the Sahara . . . up to classical times." After a brief introduction discussing the nature of the available evidence, information about genetics, wild ancestry, and history of domestication is presented crop by crop, with chapters devoted to cereals, pulses, oil and fiber crops, fruit trees and nuts, vegetables and tubers, condiments and dyes, and fruit collected from the wild—some 70 species or other categories in all. A further chapter lists plant remains

found in a selection of representative Neolithic and Bronze Age archeological sites, grouped according to country or area. A brief chapter of conclusions, a chronological chart, maps showing the main archeological sites mentioned, a 20-page reference list, and an index complete the volume.—K.L.

Books Received

The Acid Rain Controversy. James L. Regens and Robert W. Rycroft. University of Pittsburgh Press, Pittsburgh, PA, 1988. xviii, 228 pp., illus. \$24.95; paper, \$12.95. Pitt Series in Policy and Institutional Studies.

Acquired Traits. Memoirs of a Geneticist from the Soviet Union. Raissa L. Berg. Viking, New York, 1988. xii, 483 pp. \$19.95. Translated from the Russian edition (New York, 1983) by David Lowe.

Advanced Probability Theory. Janos Galambos. Dekker, New York, 1988. vii, 405 pp. \$99.75. Probability, vol. 3.

Advances in Biomedical Measurement. Ewart R. Carson, Peter Kneppo, and Ivan Krekule, Eds. Plenum, New York, 1988. xii, 499 pp., illus. \$95. From a conference, Bratislava, Czechoslovakia, May 1987.

Against Criminology. Stanley Cohen. Transaction Books, New Brunswick, NJ, 1988. xii, 310 pp. \$34.95; paper, \$16.95.

The alpha-2 Adrenergic Receptors. Lee E. Limbird, Ed. Humana, Clifton, NJ, 1988. xiv, 367 pp., illus. \$69.50. The Receptors.

Anderson Localization. T. Ando and H. Fukuyama, Eds. Springer-Verlag, New York, 1988. xii, 376 pp., illus. \$65.50. Springer Proceedings in Physics, vol. 28. From a symposium, Tokyo, Japan, Aug. 1987.

Antibodies. Vol. 1. D. Catty, Ed. IRL Press, McLean, VA, 1988. xiv, 203 pp., illus. Paper, \$38. Practical Approach Series.

Applied Sedimentology. Richard C. Selley. Academic Press, San Diego, CA, 1988. xii, 446 pp., illus., + plates. \$79.50; paper, \$34.

Archaeometry. An Introduction to Physical Methods in Archaeology and the History of Art. Ulrich Leuterich, VCH, New York, 1987. xii, 176 pp., illus. \$25.

Aspects of Nutritional Physiology. Geoffrey H. Bourne, Ed. Karger, Basel, 1988. x, 262 pp., illus. \$149.50. World Review of Nutrition and Dietetics, vol. 56.

Astrodynamics 1987. John K. Soldner *et al.*, Eds. Published for the American Astronautical Society by Univelt, San Diego, CA, 1988. Two volumes. xviii, 1749 pp., illus. \$180; paper, \$150. Advances in the Astronautical Sciences, vol. 65. Based on a conference, Kalispell, MT, Aug. 1987.

Asymptotics for Generalized Chi-Square Goodness-of-Fit Tests. F. C. Drost. Centrum voor Wiskunde en Informatica, Amsterdam, The Netherlands, 1988. iv, 104 pp., illus. Paper, Dfl. 16.50. CWI Tract 48.

ATBMs and Western Security. Missile Defenses for Europe. Donald L. Hafner and John Roper, Eds. Ballinger (Harper and Row), Cambridge, MA, 1988. xviii, 325 pp. \$34.95.

The Atlas System of Morocco. Studies on its Geodynamic Evolution. Volker H. Jacobshagen, Ed. Springer-Verlag, New York, 1988. vi, 499 pp., illus. Paper, \$59.40. Lecture Notes in Earth Sciences, vol. 15.

Bacterial Protein Toxins. F. J. Fehrenbach *et al.*, Eds. Fischer, Stuttgart, 1988. xii, 459 pp., illus. \$110. Zentralblatt für Bakteriologie, Mikrobiologie und Hygiene, supplement 17. From a workshop, Überlingen, June–July 1987.

Basic Exploration Geophysics. Edwin S. Robinson and Cahit Coruh. Wiley, New York, 1988. xiv, 562 pp., illus. \$51.50.

Les Bébés de l'Humour. Paule Aimard. Mardaga, Liège, 1988. 339 pp. Paper, FF 222. Psychologie et Sciences Humaines.

Behavior of the Growth Plate. Hans K. Uthoff and James J. Wiley, Eds. Raven, New York, 1988. xxiv, 409 pp., illus. \$99. From a symposium, Ottawa, Ontario, May 1987.

Biochemical Engineering. A Challenge for Interdisciplinary Cooperation. H. Chmielewski, W. P. Hammes, and J. E. Bailey, Eds. Fischer, Stuttgart, 1987 (U.S. distributor, VCH, New York). xvi, 515 pp., illus. Paper, \$60. Based on a congress, Stuttgart, F.R.G., Sept. 1986.

The Biogeography of the Island Region of Western Lake Erie. Jerry F. Downhower, Ed. Ohio State

University Press, Columbus, 1988. viii, 280 pp., illus. \$65. From a colloquium, Columbus, OH, May 1985.

Biomechanisms Regulating Growth and Development. George L. Steffens and Theron S. Rumsey, Eds. Kluwer, Norwell, MA, 1988. Beltsville Symposia in Agricultural Research, vol. 12. From a symposium, Beltsville, MD, May 1987.

Biotechnology in Agriculture. Avshalom Mizrahi, Ed. Liss, New York, 1988. xii, 266 pp., illus. \$96. Advances in Biotechnological Processes, vol. 9.

Brain Iron. Neurochemical and Behavioural Aspects. Moussa B. H. Youdim, Ed. Taylor and Francis, Philadelphia, 1988. x, 148 pp., illus. \$54. Topics in Neurochemistry and Neuropharmacology, vol. 2.

Calcium and Ion Channel Modulation. Alan D. Grinnell, David Armstrong, and Meyer B. Jackson, Eds. Plenum, New York, 1988. xxii, 435 pp., illus. \$85. From a symposium, Los Angeles, CA, Feb.–March 1987.

The Caledonian–Appalachian Orogen. A. L. Harris and D. J. Fettes, Eds. Published for the Geological Society by Blackwell, Palo Alto, CA, 1988. x, 643 pp., illus. \$146. Geological Society Special Publications, no. 38. From a symposium, Glasgow, Scotland, Sept. 1984.

Cancer in the Netherlands. Scenarios on Cancer, 1985–2000. F. J. Cleton and J. W. W. Coebergh, Eds. Kluwer, Norwell, MA, 1988. Two volumes. Vol. 1, Scenario Report. viii, 366 pp., illus. Vol. 2, Annexes, vi, 194 pp., illus. Paper, \$52.

Cell to Cell Signals in Plant, Animal and Microbial Symbiosis. Silvano Scannarini *et al.*, Eds. Springer-Verlag, New York, 1988. xx, 414 pp., illus. \$144.50. NATO Advanced Science Institutes Series H, vol. 17. From a workshop, Torino, Italy, May 1987.

Cellular Ca²⁺ Regulation. Douglas R. Pfeiffer, Jeanie B. McMillin, and Steve Little, Eds. Plenum, New York, 1988. x, 273 pp., illus. \$59.50. Advances in Experimental Medicine and Biology, vol. 232. From a symposium, Seattle, WA, July 1986.

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Clay Minerals for Petroleum Geologists and Engineers. Eric Eslinger and David Pevear. Society of Economic Paleontologists and Mineralogists, Tulsa, OK, 1988. Various pages, illus. Paper, \$33. SEPM Short Course Notes, no. 22.

Clinical and Experimental Toxicology of Cyanides. Bryan Ballantyne and Timothy C. Marrs, Eds. Wright, Bristol, 1987 (U.S. distributor, PSG, Littleton, MA). xii, 512 pp., illus. \$110.

Coherence in Atomic Collision Physics. For Hans Kleinpoppen on His Sixtieth Birthday. H. J. Beyer, K. Blum, and R. Hippler, Eds. Plenum, New York, 1988. xviii, 349 pp., illus. \$69.50. Physics of Atoms and Molecules.

Complexation Reactions in Aquatic Systems. An Analytical Approach. J. Buffle, Horwood, Chichester, U.K., and Wiley, New York, 1988. xxii, 692 pp., illus. \$145. Ellis Horwood Series in Analytical Chemistry. Translated from the French by S. P. Kounaves, A. Kounaves, and R. S. Altman.

Confronting AIDS. Update 1988. National Academy of Sciences. National Academy Press, Washington, DC, 1988. xii, 239 pp. Paper, \$15.95.

Connections and Symbols. Steven Pinker and Jacques Mehler, Eds. MIT Press, Cambridge, MA, 1988. viii, 255 pp., illus. Paper, \$17.50. *Cognition* Special Issues. Reprinted from *Cognition*, vol. 28 (1988).

Environmental Aesthetics. Theory, Research, and Applications. Jack L. Nasar, Ed. Cambridge University Press, New York, 1988. xxviii, 529 pp., illus. \$59.50. Based on symposiums and workshops, College Park, MD, 1982, and Lincoln, NE, 1983. Intended for students of design, social and behavioral sciences, and philosophy and for “environmental practitioners” (architects, landscape architects, and planners).

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Making Time. Ethnographies of High-Technology Organizations. Frank A. Dubinskas, Ed. Temple University Press, Philadelphia, 1988. vi, 232 pp. \$24.95.

Managing American Wildlife. A History of the

International Association of Fish and Wildlife Agencies. Dian Olson Belanger. University of Massachusetts Press, Amherst, 1988. xvi, 247 pp. + plates. \$25; paper, \$11.95.

Marine Populations. An Essay on Population Regulation and Speciation. Michael Sinclair. Washington Sea Grant Program, Seattle, WA, 1988 (distributor, University of Washington Press, Seattle). x, 252 pp., illus. \$25; paper, \$15. Books in Recruitment Fishery Oceanography.

Mass Outflows from Stars and Galactic Nuclei. Luciana Bianchi and Roberto Gilmozzi, Eds. Kluwer, Norwell, MA, 1988. xvi, 440 pp., illus. \$119. Astrophysics and Space Science Library, vol. 142. From a workshop, Torino, Italy, May 1987.

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Mathematics as a Service Subject. A. G. Howson *et al.*, Eds. Cambridge University Press, New York, 1988. iv, 90 pp. \$39.50; paper, \$14.95. ICMI Study Series. From a symposium, Udine, Italy, April 1987. Reports from an international study on the teaching of mathematics—“in its entirety”—to students of other disciplines.

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Nuclear Containment. D. G. Walton, Ed. Cambridge University Press, New York, 1988. xiv, 445 pp., illus. \$80. From a conference, Cambridge, U.K., April 1987.

Perspectives on Ecosystem Management for the Great Lakes. A Reader. Lynton K. Caldwell, Ed. State University of New York Press, Albany, 1988. x, 365 pp. \$44.50; paper, \$16.95. SUNY Series in Environmental Public Policy.

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Pesticide Fact Handbook. U.S. Environmental Protection Agency. Noyes, Park Ridge, NJ, 1988. x, 827 pp. \$96.

Pharmaceutical Manufacturing Encyclopedia. Marshall Sittig. 2nd ed. Noyes, Park Ridge, NJ, 1988. Two volumes. xxxii, 1756 pp. \$225.

The Pharmacology of Nicotine. Michael J. Rand and Klaus Thureau, Eds. Published for ICSU Press by IRL, McLean, VA, 1988. xii, 418 pp., illus. Paper, \$90. ICSU Symposium Series, vol. 9. From a symposium, Gold Coast, Australia, Sept. 1987.

Physical Properties of Biological Membranes and Their Functional Implications. Cecilia Hidalgo, Ed. Plenum, New York, 1988. xii, 236 pp., illus. \$55. Series of the Centro de Estudios Científicos de Santiago. From a lecture series, Santiago, Chile, Oct. 1985.

Plants of Dhofar, the Southern Region of Oman. Traditional, Economic and Medicinal Uses. Anthony G. Miller and Miranda Morris. Office of Conservation of the Environment, Muscat, Oman, 1988. xxviii, 361 pp., illus. £35.

The Politics of Health in India. Roger Jeffrey. University of California Press, Berkeley, 1988. xii, 348 pp. \$39.95. Comparative Studies of Health Systems and Medical Care, vol. 21.

Possums and Opossums. Studies in Evolution. Michael Archer, Ed. Surrey Beatty, Chipping Norton, New South Wales, and The Royal Zoological Society of New South Wales, 1987. Two volumes. lxxxiv, 788 pp., illus., + plates. \$112.

Power and Penury. Government, Technology and Science in Philip II's Spain. David C. Goodman. Cambridge University Press, New York, 1988. xii, 275 pp., illus. \$44.50.

Proceedings of the Retina Research Foundation. Vol. 1. Dominic Man-Kit Lam, Ed. Portfolio, The Woodlands, TX, 1988. xii, 203 pp., illus., + plates. Paper, \$24.95. From a symposium, The Woodlands, TX, March 1988.

Public Lands Conflict and Resolution. Managing National Forest Disputes. Julia M. Wondollock. Plenum, New York, 1988. xvi, 263 pp. \$39.50. Environment, Development, and Public Policy.