

copy; the historical context within which he discusses the progress of man's knowledge of the constitution of his physical environment is as authoritative as it is fascinating.

The topics discussed are the cosmic abundances and behavior of several of the most important elements and molecules; the general chemistry and classification of bodies in our solar system—meteorites, comets, the planets, and the sun; and the compositions and nature of different types of stars, nebulae, and galaxies. In the final chapter Merrill outlines some advantages of our new ability to escape from the bottom of our "ocean of air" and conduct experiments from rockets or orbiting vehicles. It is lamentable that Merrill died 18 months before the closeup investigation of the chemistry of the atmosphere of Venus by Mariner II.

The figures are numerous and well presented; most are sample spectrograms, photographs of astronomical bodies in light of important wavelengths, graphic illustrations of stellar spectral classifications and the like. The index could be much more complete and more references to more detailed and advanced literature would be helpful to scientific readers, but these shortcomings do not materially detract from the excellent overall presentation. One can only wish that the book were longer.

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## Arid Lands

**Land and Water Use.** A symposium. AAAS Publication No. 68. Wynne Thorne, Ed. AAAS, Washington, D.C., 1963. x + 364 pp. Illus. Members, \$7; others, \$8.

One of the better ways of tying things together is to consider them in a specific geographical context. Such is the aim of this book, a collection of 22 papers on the problems of land and water resources in the plains and mountain regions of the western United States. Twenty-one of the papers were presented at the 1961 annual meeting of the AAAS (Denver, Colo.). The contributors are almost exclusively from the land-grant colleges of the intermountain West or from the federal agencies (in Washington, D.C.) re-

sponsible for the administration of government land and monies in that vast area. Thirteen papers are devoted to the resource setting of the intermountain states; the remainder are concerned with conflicting interests among users and with goals, criteria, and public policy with respect to resources administration. Grazing, recreation, and water receive the principal emphasis. There is no consideration of minerals, and little of timber management.

In the arid West, where so much of the land is in the public domain, decisions about the allocation of resources tend to be made by the courts and government agencies rather than in the "marketplace." Economic and non-economic considerations are equally involved, and personal value judgments loom large. Providing better data, so that decision making in this area can be as effective and rational as possible, is the concern of most of those who contributed to this volume. With some agricultural economists it is almost an article of faith that eventually it will be possible to assign quantitative values to such nonmarket uses as recreation, wilderness, and big game; this will, they believe, open the way to programming for maximum economic benefits or "optimum use." Others are less optimistic, or some would say more realistic. In the concluding essay, Luna Leopold warns that monetary value is not the total substance of public worth and that the fiscal yardstick "could lead us into a cultural desert where all the signposts are dollar signs."

Demands for land and water in the West are numerous, varied, and increasing. In one of the most thoughtful essays, Stephen C. Smith emphasizes the importance of clarifying the issues and the relative roles and responsibilities of public and private agencies in allocating (rationing) these resources, which so often have been underpriced. Treading where few economists have trod, Maurice Kelso calls attention to the cost of space in the West; he compares the space-affected costs of services with the unmeasurable satisfactions that are derived from spaciousness, or "room, lots of room." More than 30,000 farmers and ranchers graze livestock on public lands in the western states, and they are capable of generating a lot of heat. Yet, according to M. L. Upchurch, these public lands supply only one-eighth of the livestock feed consumed within the area; recently, we have been shipping abroad nearly twice

as much feed as we get from public lands. In marked contrast to the contemporary, problem-solving orientation of the other contributors is Homer Aschmann's perceptive essay on the manner in which different types of societies have evaluated and used the world's dry-land environments through time. One may wonder how it came to appear in this volume, but nevertheless be pleased that it does.

Despite a certain repetitiousness, this is a worthwhile book that should have a considerable circulation. Although it is largely concerned with the intermountain West, there is no adequate geographical characterization of the region and no good map. A subtitle that indicated the regional focus of the volume would have been appropriate.

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## New Books

### Economics and the Social Sciences

**Aboriginal Cultural Development in Latin America: An Interpretative Review.** Betty J. Meggers and Clifford Evans, Eds. Smithsonian Institution, Washington, D.C., 1963. 155 pp. Charts. Paper.

**Computer Simulation of Personality.** Frontier of psychological theory. Silvan S. Tomkins and Samuel Messick, Eds. Wiley, New York, 1963. 339 pp. Illus. \$5.

**Creativity and Psychological Health.** Origins of personal vitality and creative freedom. Frank Barron. Van Nostrand, Princeton, N.J., 1963. 304 pp. Illus. \$6.50.

**Ekade Ektab.** Die Felsbilder Fezzans. Leo Frobenius. Akademische Druck, Graz, Austria, 1963. 104 pp. Plates.

**The Hard Way to Peace.** A new strategy. Amitai Etzioni. Collier, New York, 1962. 285 pp. Paper, 95¢.

**Independent Adoptions.** A follow-up study. Helen L. Witmer, Elizabeth Herzog, Eugene A. Weinstein, and Mary E. Sullivan. Russell Sage Foundation, New York, 1963. 463 pp. Illus. \$7.50.

**Man the Tool-Maker.** Kenneth P. Oakley. British Museum (Natural History), London, ed. 5, 1963. 104 pp. Illus. Paper, 4s.

**The Paliau Movement in the Admiralty Islands, 1946-1954.** Theodore Schwartz. American Museum of Natural History, New York, 1962. 210 pp. Illus. Paper.

**The Prehistory of East Africa.** Sonia Cole. Macmillan, New York, ed. 2, 1963. 382 pp. Illus. \$7.95.

**Primitive Classification.** Emile Durkheim and Marcel Mauss. Translated from the French edition (1903) by Rodney Needham. Univ. of Chicago Press, Chicago, 1963. 144 pp. Illus. \$3.

**Textbook of Abnormal Psychology.** N. H. Pronko. Williams and Wilkins, Baltimore, Md., 1963. 470 pp. Illus. \$7.50.