

such as error detectors, motors, and hydraulic and pneumatic devices.

I especially enjoyed the two chapters on the design of linear systems. Here the authors include down-to-earth advice: "Once a design has been made acceptable by changes which satisfy test conditions, further changes should be avoided. It often happens that additional changes are requested in order to further improve performance, lower cost, etc. Such changes seem insignificant and unrelated to sources of trouble, but often prove very unwise." They also provide a step-by-step discussion of the design of several control systems which were actually built. The volume contains a large number of exercises for the students, and reflects throughout the authors' experience, both in the classroom and on the workbench. It should serve its intended purpose admirably.

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Cultivated Palms. Special issue of *The American Horticultural Magazine*. R. Bruce Ledin, Guest Ed. American Horticultural Society, Washington 2, D.C., 1961. 189 pp. Illus. Paper, \$3.

The general thesis of this handbook on the palms is "what the plants look like taxonomically and horticulturally . . . how to grow the plants. . . [and] the difficulties that may arise" in cultivation. The idea of preparing such a volume was presented by W. H. Hodge to the executive committee of the Palm Society when he was president of the society.

The material is divided into three sections: "An introduction to the palms," "Culture of palms," and "Uses of palms." The first section includes a paper by Hodge, entitled "The world of palms," eight pages (containing 32 illustrations) showing palm characteristics (fruit clusters; palm flowers, leaves, and stems; and others), a series of 80 full-page illustrations, arranged alphabetically by botanical name, called "Palm portraits," as well as other illustrations and papers.

The second and third sections contain 16 contributed papers, a check list of palms known to be growing in Hawaii (by L. W. Bryan), a list (one page) of living palm collections, and an index of palm names.

The Bradley Volume. A special volume of the *American Journal of Science* in appreciation of Wilmot Hyde Bradley on his sixty-first birthday. American Journal of Science, Sterling Tower, New Haven, Conn., 1960. 433 pp. Illus. \$4.75.

The Bradley Volume comprises 38 papers dealing with modern geologic science, written by 48 authors who hail from a dozen or so different institutions. This fine collection honors Wilmot Hyde Bradley who, as chief geologist of the U.S. Geological Survey from 1944 to 1959, directed an inspired program by the Geologic Division, a program that constantly sought and explored new vistas in geologic research. Traditionally the survey's forte has been the investigation of geologic problems by means of surface and subsurface detailed mapping and attendant topical studies. Bradley, dedicated to the growing importance of the interdisciplinary connections of geology with chemistry, physics, biology, and engineering, created within the survey another forte that is currently being maintained by a staff of vigorous young scientists who are setting the stage for future break-throughs in the understanding of geologic processes. It is this contribution to the development of the science and of the survey's research program that is the true focus of *The Bradley Volume*; accordingly, the assembled papers represent a spectrum of inquiry which recreates the image of this enlightened leader.

To list the papers by title or to comment on their excellence would be tedious. The book has no central theme other than the breadth of geology itself, as expressed in these short papers. Strong emphasis emerges on the experimental, theoretical, and philosophical aspects of the subject matter. In the papers dealing with geochemistry and geophysics, for example, measurements per se are stepping stones en route to the formulation of conclusions in crystal chemistry, mineral genesis, solution chemistry, and mineral stability in natural environments. Field observations and compilations, set forth in detail or graphically summarized, lead to the philosophical treatment of crustal formation, rock alteration, distribution of elements, and the petrologic history of igneous, metamorphic, and sedimentary rocks. Biological inquiry is used to develop perspective on organic resemblance and evolution, stratigraphic and

zoogeographic distribution, and paleogeology and sedimentary basins.

Although the individual specialist may find only a few papers in his field within this volume, the whole is much more than the sum of its parts; the assemblage represents a formidable sampling of modern geology, which brings credit to the *American Journal of Science* for its role in sponsoring *The Bradley Volume*. Certainly the volume brings great pride and pleasure to those of us who find that it is also a fitting tribute to Bill Bradley's keen sense of human values which underscores his concept of a creative research community. If you are interested in what modern geologists are thinking and writing about, you will want your own copy.

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The Rich and the Poor. A study of the economics of rising expectations. Robert Theobald. Potter, New York, 1960. 196 pp. \$4.50.

The title suggests that this book could have been written 100 years ago when farsighted people in industrial countries were concerned with the broad gulf between the rich and the poor and when, in several countries, conservative statesmen urged the adoption of progressive taxation and social policy measures in order to forestall a revolt of the poor. They did it because of humanitarian motives and enlightened self-interest. They knew that a small group of rich people could not survive surrounded by hopeless poverty.

A very similar appeal, to both humanitarian motives and enlightened self-interest, is now addressed to the rich countries urging them to pursue a more vigorous policy in support of economic development in the poor countries. In this respect Theobald adds his voice to many others who have felt the same sense of urgency.

Most interesting is his elaboration of the thesis that different economic reasoning should apply to the industrially advanced and the underdeveloped countries. He points out, for instance, that even relatively stiff progressive income taxes do not seriously interfere with incentives to great effort or with the necessary capital formation in the industrial countries. If poor countries