This is a book of high quality, scholarly and accurate. Few plant anatomists today could have prepared a volume of this general excellence, and Katherine Esau has earned the gratitude of her fellow teachers for providing them with an outstanding text in a field so basic and so necessary to other disciplines.

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Beaches and Coasts. Cuchlaine A. M. King. Arnold, London; St Martin's Press, New York, 1959. xii + 403 pp. Illus. $14.50.

The intersection at the shoreline of land, sea, and air brings into dynamic interplay a wide variety of physical, chemical, and biological factors which produce an environment of remarkable diversity and great stress. Its characteristics as a joint boundary zone between the three major realms of the earth have given the shoreline an importance in terrestrial evolution and human affairs far out of proportion to its insignificant areal extent and have stirred the minds, the emotions, and the pens of men as few natural phenomena have.

It is principally in the last few decades, however, that interest has been focused on the mathematical description and experimental replication of the purely physical processes that shape and move the materials of which the shore is made. *Beaches and Coasts* is a valiant attempt to summarize this work, integrate it with field observations, and produce a modern synthesis of coastal processes and evolution. More than a third of the book is concerned with waves and wave action, but chapters are also devoted to the main variables affecting the beach, methods of study, wind, the movement of material, beach gradient and profiles, and the classification and development of coastal types. Documentation is drawn mainly from recent British and American publications, and from the North Sea and Channel coasts.

In view of the large volume of useful information which the author has assembled and condensed, it seems a pity that she did not take the additional steps necessary to achieve the logical cohesiveness and critical balance one has come to expect of British scientific books. The individual chapters in *Beaches and Coasts* are essentially independent essay reviews, each interesting and useful in its own right, but with very little interconnection. The disjointed effect is increased by a haphazard sequence of chapters, each having an independent list of references. Some subjects are repeatedly reintroduced (for example, the 1953 North Sea storm surge), while others that one might expect to find examined in such a book are left out or are only superficially treated (for example, biological processes, climatic variation, applications).

Taken separately, however, these chapters provide a useful introduction to the subjects considered. With few exceptions (for example, amphidromic systems), theoretical concepts and experimental data seem to be accurately grasped and are understandably presented. Much interesting observational information is also summarized, especially with regard to wave evolution, depth of wave action, and movement of sediments. The importance of onshore movement of sediments and coastal accretion is stressed and is backed up with some surprising statistics—the British Isles are reported to be gaining area from coastal accretion six times as fast as they are losing it by coastal erosion.

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The Face of the Ancient Orient. A panorama of Near Eastern civilizations in pre-classical times. Sabatino Moscati. Quadrangle Books, Chicago, Ill., 1960 (published in Italy as *Il Profilo Dell'Oriente Mediterraneo*). xvi + 328 pp. Plates.

For well over a century now, archeologists have been excavating ancient cities and towns, temples and palaces, houses and tombs, all over the Near East from Egypt to India and from the Caspian Sea to the Persian Gulf. They have uncovered innumerable artifacts and art objects made of stone, metal, and wood, as well as myriad inscriptions on clay, stone, papyrus, and metal. This enormous treasure of archeological and epigraphic material has been made available primarily in the form of specialized and technical monographs, reports, and articles which have accumulated over the decades to ominous proportions. Only rarely have more general studies and evaluations of this conglomerate mass of archeological sources been attempted, and these usually have taken the form of political and cultural histories of one or another of the rediscovered and resurrected peoples of the Ancient Near East. More recently, however, a number of scholars and humanists, taking their cue from the physical sciences and their current high prestige, have begun thinking and writing of "organic wholes" and universal laws in history and culture, even utilizing at times the language and terminology of the physical sciences. The book under review reflects this recent, and in some ways not unpromising, approach as it is being applied to the history and culture of the Ancient Orient.

The physical science that seems to have a special attraction for Moscati is chemistry, and so we find the book divided into sections labeled "The components," "The catalysts," and "The synthesis." The reader should not be discouraged or misled by this rather superficial chemical "facade"; actually Moscati organizes the relevant historical, literary, and cultural data with considerable skill, and presents it in "orthodox" scholarly language with all its virtues and defects. After an introductory chapter outlining the area and the time to be covered, the book proceeds to delineate briefly and eclectically the history, religion, literature, and art of all the more important peoples of the Ancient Orient: Sumerians, Babylonians and Assyrians, Egyptians, Hittites and Hurrians, Canaanites and Aramaeans, Israel, and Persians. The closing chapter, to be sure, introduces once again scraps of "scientific" terminology, such as *isoid, reagents, component elements, catalyst,* and *compound.* But the title of the chapter, "The face of the Ancient Orient" sounds more like alchemy than chemistry, and the conclusions it presents are no more precise, accurate, or valid than those found in historical works that "stick" to the customary humanistic diction with its "built-in" vagaries and shortcomings.

Psychologically speaking, there are two contrasting types of scholars: the specialist who digs an inch wide and a mile deep, and the generalizer who digs a mile wide and an inch deep; both are indispensable to creative scholarship, and the two are equally pleasing in the eyes of Jahweh. Moscati combines to some extent the virtues of both types, but his heart, head, and hand are with

the second. In preparing his broad panoramic book, *The Face of the Ancient Orient*, he necessarily had to resort to secondary sources for most of his data; so a rather narrow Sumerologist like myself, when reading his chapter on the Sumerians, cannot help being pained and depressed by some of his oversimplifications, misunderstandings, and quotations from outdated and untrustworthy translations. By and large, however, this book presents a lucid, intelligent, and lively summation of some of the more important aspects of the culture of the Ancient Orient, and I recommend it warmly for use in schools and colleges, and for the culturally minded layman, as an appetizing and stimulating introduction to the study of man's early civilizations.

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Sinopsis de la flora chilena, claves para la identificacion de familias y generos. Carlos Muñoz Pizarro. Ediciones de la Universidad de Chile, Santiago, 1959. 840 pp. Illus. Paper, $14.

The flora of Chile is a key piece, and usually a missing one, in attempted comparisons of the plant life of the temperate Americas or in any analysis of the vegetation of the isolated portions of the southern temperate zone. It may come as a surprise to those who blissfully assume that the pioneering labors of plant taxonomy were happily consummated in the earlier 19th century and digested by Darwin, that there has never been anything like a complete manual to serve as an introduction to this taxonomically and phytogeographically rich and interesting flora. The classical floristic account of the country by Claudio Gay is now more than a century old, and the more recent (1896–1911) studies by Carlos Reiche did not cover vascular cryptogams, gymnosperms, or "amentiferous" dicotyledons. In addition to this lamentable situation succinctly pointed out by Carl Skottsberg in his prologue to the present volume, there is the unmentioned fact that the uncritical multiplication of taxa by the great naturalist, R. A. Philippi, in his later years, has effectively frustrated work on the Chilean flora.

Muñoz, well known in this country from his graduate days at Harvard and his subsequent participation in various conferences and congresses, does not offer his *Sinopsis* as the full answer to the acknowledged lack. Indeed, his present work is visualized as a necessary and useful preliminary to a truly modern flora of Chile. His work is heavily indebted to the assistance of Benkt Sparre, and he has had the aid of most of the Chilean botanists and that of all of us who were fortunate enough to be able to visit Chile and to enjoy the unfailing hospitality of the author and his compatriots during the more than a decade of the book's gestation.

As indicated by the subtitle, the *Sinopsis* consists essentially of 220 pages of carefully executed dichotomous keys to some 91 orders, 182 families, and the nearly 1000 genera of vascular plants believed to be native to, or established in, mainland Chile and its insular possessions. The latter include the fabulous archipelago of Juan Fernández, so beautifully monographed by Skottsberg, the offshore islets of San Félix and San Ambrosio, and the strongly discordant Isla de Pascua (Easter Island). Each family is provided with a brief diagnosis, a list of some of its more common and better known species, and a key to its genera. There are no generic descriptions, but their lack is more than compensated for by the provision of more than 200 full-page analytical plates prepared by the skilled botanical illustrators Fusa Sudzuki de Meza and Eugenio Sierra R. This central core is buttressed by a 25-page glossary, largely adapted from the excellent botanical dictionary of Font Quer; a 26-page bibliography lists the works consulted in the preparation of keys and descriptions.

A useful tabulation of the authors of taxa described from Chile provides a digest of the country's botanical history. It is notable that only four of those listed as contemporaneous are Chileans: Acevedo de Vargas, Espinosa, Kausel, Looser. This is not an entirely fair picture of present-day Chilean plant taxonomy, although economic conditions and professional opportunities in recent decades have not been the sort that encourage botanical careers. There is some heartening evidence that the scientific climate may be improving. Active groups of plant scientists have developed in Concepción, Santiago, and perhaps elsewhere. However, a great deal of basic exploratory effort and simple amassing of material still remains to be done, while senseless destruction of the beautiful and unique vegetation proceeds apace. To my knowledge, there is nothing like a "complete" reference collection of the Chilean flora anywhere in the world; to attempt work with any part of it necessitates a large expenditure of time and effort in locating and accumulating even the basic materials.

The appearance of Muñoz's useful and very attractive volume suggests that there is now some official backing for a thorough appraisal of the country's natural resources. The *Sinopsis*, excellent as far as it goes, may also be a symbol that basic scientific investigation in Chile can anticipate public understanding and support. The realization of a modern Chilean flora may thus be less of a mirage than it has long appeared to those awaiting it.

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Miscellaneous Publications

(Inquiries concerning these publications should be addressed not to Science, but to the publisher or agency sponsoring the publication.)

The Future of Latin American Exports to the United States: 1965 and 1970. Louis O. Delwart. And a statement by the Interamerican Research Committee. National Planning Association, Washington, D.C., 1960. 127 pp. $2. The Interamerican Research Committee, established by the National Planning Association, has approximately equal representation from the peoples of the Western Hemisphere. In this report, the first of a series, the committee warns that "The export situation of Latin America . . . requires urgent and sympathetic attention" and that in the past few years a "virtual stagnation in the overall volume of Latin American exports to the United States" has already contributed to a slow-down in the rate of growth of the Latin American economy as a whole. The report warns that "the inability to find needed markets in the United States may induce these countries to accept bilateral agreements with the countries of the Soviet Bloc."

Japanese Journals in Science and Technology. An annotated checklist. Compiled by George S. Bonn. New York Public Library, New York, 1960. 134 pp. $2. A list of 660 titles selected from approximately 900 journals examined by Bonn. Arrangement is by subject, with each subject subdivided into six major types of publishing bodies—societies, government agencies, industries, private publishers, pre-1948 universities and post-1948 universities.

Laboratory Exercises in Invertebrate Physiology. John H. Welsh and Ralph I. Smith. Burgess, Minneapolis, rev. ed., 1960. 179 pp. $3.50.

Science and Engineering in American Industry. Report on a 1956 survey. National Science Foundation, Washington 25, 1960 (order from Supt. of Documents, GPO, Washington 25). 117 pp. $0.70.