Lieutenant Henry Shrapnel, R.A., in 1784 (page 166)—or on the amazing predictions by Roger Bacon (page 72) and Giovanni da Fontana (page 160 ff). A particular joy are the general remarks with which the book is liberally sprinkled: on scholasticism (page 64) or on governments and history (page 187).

This rich and many-dimensional book is a highly valuable addition to Partington's outstanding historical work.

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Metallurgical Society Conferences. vol. 1, *Flat Rolled Products*. Rolling and treatment. T. E. Dancy and E. L. Robinson, Eds. xix + 128 pp. Illus. $3.75. vol. 2, *Reactive Metals*. W. R. Clough, Ed. xiv + 610 pp. Illus. $15. vol. 3, *Quality Requirements of Super-Duty Steels*. R. W. Lindsay, Ed. x + 309 pp. $8.50. vol. 4, *Physical Metallurgy of Stress Corrosion Fracture*. Thor N. Rhodin, Ed. xiii + 394 pp. Illus. $13. Interscience, New York, 1959.

Under the series title, *Metallurgical Society Conferences,* proceedings of technical conferences sponsored by the Metallurgial Society of the American Institute of Mining, Metallurgical and Petroleum Engineers are being published by Interscience Publishers. The first four volumes include: volume 1, *Flat Rolled Products*; volume 2, *Reactive Metals*; volume 3, *Quality Requirements of Super-Duty Steels*; and volume 4, *Physical Metallurgy of Stress Corrosion Fracture*. Additional volumes on recent and forthcoming conferences are scheduled for publication and the continuing series will cover the entire spectrum of metallurgy. Publication of the conference volumes serves to preserve and make widely available the scientific and technical information presented at the conferences.

The first volume contains four papers on rolling and annealing of steel, together with discussion of the papers and a panel discussion on the surface texture of flat rolled products; this is the proceedings of a conference-symposium held at Chicago, Ill., on 21 January 1959. The applied technical information presented at the conference and recorded in volume 1 is available in no other publication and will be of interest to anyone concerned with flat rolling of steel.

Volume 2 is the proceedings of the third Reactive Metals Conference, held at Buffalo, N.Y., 27–29 May 1958. Thirty-seven papers and the discussions that followed are presented. The topics cover a wide range of subjects on 11 reactive metals and the special processing techniques necessary for these unusual metals. Engineers concerned with nuclear reactor materials; moderately high-temperature, light-weight structures; and very high temperature structures will find the material in volume 2 useful in their work.

The proceedings of a technical conference on quality requirements of super-duty steels, held in Pittsburgh, Pa., 5–6 May 1958, are recorded in volume 3. Steels to meet special service requirements, such as very high strength, high temperature, or low temperature are considered. Four papers were presented in sessions on each of the following general topics: environment of use and required properties; relationship between composition structure and properties; air melting practices; special steelmaking practices. Volume 3 contains information helpful to both the producer-metallurgist and the consumer-metallurgist in understanding each other's quality requirements.

A symposium on the physical metallurgy of stress corrosion fracture was held at Pittsburgh, Pa., in April 1959; and the proceedings were published as volume 4 of this series. This volume contains 16 papers by well known workers in the stress corrosion field. It will be a welcome addition to the library of all those concerned with stress-corrosion.

O. CUTLER SHEPARD
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Shots without Guns. The story of vaccination. Sarah R. Riedman. Rand McNally, Chicago, Ill., 1960. 232 pp. Illus. $3.50.

Man's war against his unseen enemies makes no less exciting reading than his battles against visible foes, especially when told by an author who combines insight into the scientific and human aspects of the fight against disease with a sense for the drama involved in the adventures of the giants who waged this fight. Whether the inquiring Jenner, the genial Pasteur, the meticulous Koch, the imaginative Ehrlich, or the cautious Salk is pictured, the portraits are always impressive and lively. While we are fascinated by the life history of the heroes who conquered ignorance and disease, we refresh our memory or learn new aspects of bacteriology, virology, and immunology.

FRANCIS JOSEPH WEISS
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Anatomy of Seed Plants. Katherine Esau. Wiley, New York, 1960. viii + 376 pp. Illus. $6.95.

Katherine Esau is a plant anatomist of distinction, with a particular interest in the developmental anatomy of flowering plants. In 1953 her well-known *Plant Anatomy*, a book of 735 pages, was issued by John Wiley and Sons. The present briefer text is very welcome, for the older book, with all its many virtues, fell short, owing to sheer volume, of being an ideal text for a one-semester course. The present text is not a condensation of the older book but has been entirely rewritten, and fewer than 20 percent of the illustrations are from *Plant Anatomy*. The nature and sequence of the topics, after two short introductory chapters on the embryo and the development of the adult plant from the embryo, do not differ radically from those of the *Anatomy*: histology of tissues; primary and secondary growth in root and stem; the leaf, flower, fruit, and seed. The emphasis, wherever possible, is on development. The photomicrographs used as illustrations are scattered through the text instead of being concentrated at the end, as in the *Anatomy*. In general, the illustrations are of the high quality we have come to expect from Katherine Esau, but a few are too greatly reduced, and one plate of photomicrographs is poorly reproduced. The student who judges from the size of this relatively slender volume that his powers will not be taxed unduly will be badly deceived, for this is a tight, closely written book, into which the author has packed an astonishingly large mass of information. Among the innovations are a key to the microscopic identification of certain woods and a very extensive and useful glossary.

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