

Introduction to Solid State Physics

By Prof. Charles Kittel. Pp. xiii+396. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1953.) 56s. net.

THIS book forms a valuable addition to the literature on solid-state physics, and can be strongly recommended to those engaged in the preparation of university honours degree courses in this subject. The range of subjects included is wide: the sixteen chapters deal with crystallography, elastic, thermal, electric and magnetic properties, the electron theory of metals, and crystal imperfections, problems for the student being suggested at the end of each chapter. Prominence is given to relatively new subjects such as ferroelectricity and antiferromagnetism.

The emphasis is almost entirely on theory; experimental methods are referred to only briefly. A high standard of theoretical ability is expected of the reader, and occasionally the author seems to have taken a delight in starting from unnecessarily general premises. For example, he defines the unit cell of a crystal as a polyhedron, whereas it is always taken to be a parallelepiped; and in equation 1.12 it is fair to the student to allow the same symbol— i —to have two different meanings, clear as these may be to the expert?

In fact, the first chapter, on X-ray crystallography, is the weakest in the book, and contains several statements that would not be accepted in crystallographic circles. For example, on p. 9 symmetry elements called rotation-reflexion axes are introduced; they should be rotation-inversion axes. It is hoped that in future editions of the book, Chapter 1 will either be largely rewritten or will consist mainly of references to standard crystallographic text-books.

Yale University Publications in Anthropology

No. 49: Excavations at Wari, Ayacucho, Peru. By Wendell C. Bennett. Pp. 126+12 plates. No. 50: On the Excavation of a Shell Mound at Palo Seco, Trinidad, B.W.I. By J. A. Bullbrook. Pp. 114. (New Haven, Conn.: Yale University Press; London: Oxford University Press, 1953.) 3 dollars.

THIS volume is made up of two papers, each dealing with a particular aspect of American archaeology. The first is a posthumous publication of Prof. Wendell C. Bennett, whose premature death last summer deprived South American archaeology of one of its most notable scholars. It describes his excavations, in 1950, at an extensive habitation site, spelt variously Wari and Huari, in the little-known but important highland basin of Mantaro, which lies just north-west of the Cuzco basin. The chief remains at Wari are contemporary with the Classic Period at the well-known ceremonial site of Tiahuanaco in Bolivia, with which they have many features in common; but they include a pottery style more closely related than any at Tiahuanaco itself to the Coastal Tiahuanaco style which has such a wide distribution on the coast. Prof. Bennett discusses fully the relationships between the various Tiahuanaco sites and makes suggestions as to the nature of the contacts between them.

In 1919, Mr. J. A. Bullbrook excavated a shell mound in southern Trinidad with official support, and the resulting material and the report went to the British Museum. Mr. Bullbrook is a geologist with considerable archaeological experience, and his work was done very carefully; for various reasons it was not published at the time, and for many years after-

wards he got little encouragement. He continued to live in Trinidad, and when members of Yale University began to work on the West Indies about fifteen years ago, his researches came to their notice. Subsequent work, mainly by Dr. Irving Rouse of Yale, has confirmed his results, and Dr. Rouse has considered it worth while to edit the report and publish it in spite of the long interval since it was written. The Palo Seco mound was inhabited at two periods in Pre-Columbian times, separated by a short interval, by people who lived on shell-fish, fish and game, probably with some cultivated plants, although there is no direct evidence of agriculture. There are few artefacts other than pottery, which forms the basis for the definition of one stage, the Palo Seco style, in a succession of rather similar types established by Dr. Rouse. The British West Indies have been very much neglected by archæologists until recently, and most of the modern work has been done by Americans. Mr. Bullbrook's pioneer work, which satisfied the exacting standards of the school at Yale, is much to his credit.

G. H. S. BUSHNELL

Advances in Electronics

Edited by L. Marton. Vol. 5. Pp. xii+420. (New York: Academic Press, Inc.; London: Academic Books, Ltd., 1953.) 9.50 dollars.

ENGINEERS and physicists will again be indebted to Dr. L. Marton for bringing together further review articles in this Vol. 5 of "Advances in Electronics". A wide field of specialization is represented, the most topical of which are colour television and junction transistor applications. Other subjects include thoria emitters, solid-state luminescence, detectors for visible and infra-red radiation, β -ray spectroscopy and modern vacuum pumps. The articles are authoritative, clear, well illustrated and contain abundant references; the cumulative index includes earlier volumes. This book is to be highly recommended.

L. JACOB

Explorers of the Pacific

European and American Discoveries in Polynesia. By Te Rangi Hiroa (Peter H. Buck). (Bernice P. Bishop Museum Special Publication 43.) Pp. viii+126. (Honolulu: Bernice P. Bishop Museum, 1953.) 1.75 dollars.

THIS is a posthumous work which arose apparently out of Sir Peter Buck's monograph, "An Introduction to Polynesian Anthropology". It purports to be an important anthropological document, "for it describes the early contacts of Polynesians with Europeans and Americans, hence provides a picture of the setting in which the culture change of modern times had its origin". What it does is to give a brief account of voyages in the Pacific between 1486 and 1849 in chronological order and without any real attempt to estimate their importance. Some of the brief judgments on the explorers give a wrong impression: for example, that Drake "fooled" the Spaniards by not returning via Magellan's Strait, or that Cook, on his third voyage, "dispelled the theory of a northern passage into the Atlantic". The list of "literature cited" is incomplete as a bibliography, and, although a great many islands are mentioned in the text, there is only one small map on which the main groups of islands are marked. This book has its use as a brief guide to voyages in the Pacific; but is too brief to make any serious contribution to our understanding of any of them.

J. N. L. BAKER