Book Reviews

Man in the Primitive World. An introduction to anthropology. E. Adamson Hoebel. McGraw-Hill, New York, ed. 2, 1958. xvi + 678 pp. Illus. $9; text ed., $6.75.

The late Ralph Linton once remarked that an author who attempts to write an introductory book in anthropology faces the same dilemma as does a swimming instructor. He may throw the neophyte into a sea of small facts to sink or eventually swim. Or, he may choose to start with theory with the hope that the student will get bearings which will not be lost as he faces the reality of data. Linton concluded his analogy by saying that neither method had proved successful and that anthropology is a science which needs more than one introduction since it subsumes so many differing disciplines and traditions.

Hoebel's revised text will serve to reduce the pessimism which a number of anthropologists have shared with Linton. Using traditional chapter headings, the author manages to wed problem and subject matter in an unusually successful manner. Lucidly written, *Man in the Primitive World* does an excellent job of setting forth the central interest areas of anthropology. Eclectic in approach, the author manages not to become pallid and political in his choice of quoted positions and authorities.

Although they are hardly serious in the perspective of the full volume, I have certain reservations which are exemplified in chapters 32 and 33. Chapter 32, "Language and culture," in attempting to fill a gap so evident in many introductory texts, seems to overstress psycholinguistics and glottochronology. These are promising leads rather than tested analytic tools. And, while many linguists and anthropologists (including myself) share Hoebel's concern with these approaches, an introductory text possibly should include a more complete statement to the student concerning the status of their validation. Similarly, chapter 33, "Personality and culture," while clearly written, omits mention of a number of research techniques whose testing is part of the central focus of this aspect of the discipline. Yet, it is the author's right to decide whether to stress methodology or results in an introductory presentation. And he must make this decision or the book will soon become too large for the student's purse. At $6.75, the text edition is probably priced at the outside limit.

Well organized, clearly written, and beautifully printed and illustrated, *Man in the Primitive World* (a somewhat regrettable title) should find a place in the library of the general scholar as well as in the list of basic textbooks in anthropology. It clearly demonstrates that Hoebel's continuing contributions to the study of comparative law rest on a firm acquaintance with general anthropology.

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Nuclear Structure. Leonard Eisenbud and Eugene P. Wigner. Princeton University Press, Princeton, N.J., 1958. viii + 128 pp. $4.

Originally prepared as a section for the *Handbook of Physics* (McGraw-Hill), this small book provides a succinct description of the models and phenomena pertinent to an understanding of nuclear structure. The description is for the most part qualitative; however, quantitative formulae are often quoted. To write a short book on such a broad subject is difficult. To write a short *understandable* book is an even greater task. The authors have succeeded in selecting those comparisons and consequences of the various theories that contribute most to an understanding of the real significance of the numerous approaches to nuclear structure.

It is of course risky to write a book on the quickly changing field of nuclear physics, and the authors are quite naturally guilty of making the same mistakes that every physicist was making at the time of publication (for example, the choice of scalar-tensor-pseudoscalar for the beta-decay interaction). These mistakes do not, however, detract noticeably from the general value of the summary of nuclear structure. Topics covered include the energy systematics of complex nuclei, the properties of nuclear levels, nuclear reactions, the nucleon-nucleon interaction, α-decay, β-decay, and γ-decay. Emphasis is placed on the relations that these topics have to models of the nucleus.

Literature references are given at the end of the book, with brief comments relating to roles played by these investigations in the development of the subject. This manner of presentation is particularly pleasing and useful.

While the book can in no way be considered comprehensive, it is to be recommended as a fine brief survey of present attempts to understand the nucleus.

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White Dwarfs. E. Schatzman. North-Holland, Amsterdam; Interscience, New York, 1958. vii + 180 pp. Illus.

The author has done brilliant work on the structure of, and the energy generation in, white dwarfs, and one may, therefore, expect considerable emphasis on theory rather than on observations in this monograph. Yet, it seems to me, this has resulted in a serious unbalance between the two. The discussion of the discovery of white dwarfs is quaint, to say the least. Thus, in the count for 1950, "discoverers" are named (rather incorrectly) for one-third of the total, but the name of the person who found the other two-thirds are omitted. Twenty-two white dwarfs are mentioned as components of binaries, though 33 had been published before the book was written.

One extensive table and two diagrams were reproduced from an article I published in 1952—with reference duly given, but I never was asked about this. Some of my discussions of, and conclusions from, these data are presented as if they were the author's own. Altogether, this hasty hash of the observational material takes up 13 pages, plus three pages of bibliography, while 160 pages are given over to theoretical considerations. Here the author is in his own field and has succeeded admirably in producing a logically developed and fascinatingly presented summary of our present knowledge—and speculation. The difference between the two is not sufficiently stressed, however, and often conclusions derived from pure theory are described as things *known*. Thus, the author laments the fact that the masses of only two white dwarfs are known (this is correct) but then states categorically that the range in mass *is* small and, still later, produces two separate diagrams in which

the masses of seven more white dwarfs are used, and described as *known*. I must admit to a feeling of unreality about theories "proved" in this manner.

The final chapter is frankly labeled "speculations," but the argument given to test the hypothesis that all bright stars evolve into white dwarfs is so oversimplified as to be no more than the proverbial straw man—put up to be knocked down.

Being primarily an observational astronomer, I feel that the main lesson to be drawn from so excellent a summary of our present theoretical knowledge is that observations of all kinds are urgently needed to put a firm foundation under the quicksand of astrophysical theories.

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The Planet Jupiter. Bertrand M. Peek. Macmillan, New York, 1958. 283 pp. Illus. $8.50.

Bertrand Peek has been for over 35 years an assiduous observer of the planet Jupiter and has served for 15 years as director of the Jupiter Section of the British Astronomical Association. In this book he summarizes the accumulated knowledge of the visual phenomena exhibited by the cloudy atmosphere of the planet, principally the motions and periods of rotation of the various belts and of the spots observed in them. In this respect this is an excellent "digest" of the wealth of material accumulated over half a century by an active group of British observers whose work is an outstanding example of the type of activity where amateur astronomers can make their best contribution. The professional astrophysicist may well feel somewhat disappointed by the rather sketchy nature of Peek's account of the more elaborate physical studies—spectroscopic, radiometric, radioelectric, and theoretical (and there is nothing at all on polarization)—but he cannot fail to learn a great deal about the basic superficial phenomena of the planet that he has seldom occasion to study for himself in any detail.

The British observers of Jupiter have been alarmed in recent years by a regrettable decrease in the number of amateurs actively engaged in the basic type of observation involving the timing of transits of spots across the central meridian of the planet. Peek's work is to some extent an appeal and a guide to younger amateurs to carry on the good work. He gives fairly complete instructions on how to observe most usefully the visual phenomena of Jupiter and how to reduce the data—a simple and straightforward process. The role of photographic observations is rather summarily dismissed (in five pages); this certainly does not do justice to the excellent and fairly continuous series of photographs secured over the past 50 years at the Lowell Observatory. Nor does Peek seem aware of the important physical investigations based on this photographic material of the general circulation of the Jovian atmosphere. He completely ignores the considerable visual, photographic, and polarimetric work of the French astronomers and the photometric studies of German and Russian astronomers. The brief section on the satellites and their phenomena gives next to nothing on their physical aspects. In this respect Peek's work definitely suffers from an excessively "insular" outlook.

Another serious deficiency is the almost total lack of bibliography, apart from the many references to the *Memoirs* of the British Astronomical Association, from which are extracted a good many drawings and sketches illustrating the main visual phenomena discussed in the text. There are also a number of Lowell, Pic-du-Midi, Mt. Wilson, and Palomar photographs, but little is said of the phenomena observed in blue, violet, and ultraviolet light.

Nevertheless, this is a useful and serious work by a serious amateur, and the book has obviously been prepared with the loving care of a dedicated observer; it gives a good and convenient summary of a tremendous amount of observational data, and the phenomena described—the complicated laws of motions of the spots—will long stand as a challenge to the theorist. This book fills a notable gap in the astronomical literature, and it will be consulted with profit by any astronomer, whether amateur or professional, who intends to take up Jovian studies, but it will have to be supplemented by reference to other sources.

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The Industrial Challenge of Nuclear Energy. Research uses, social problems. Papers given during the Second Information Conference on Nuclear Energy for Management, Amsterdam, 24–28 June 1957. Organisation for European Economic Co-operation, Paris, 1958. 301 pp. Illus. $3.50.

The Organisation for European Economic Co-operation includes the development of nuclear industries among its several spheres of international activity. Under the leadership of its newly created European Nuclear Energy Agency, cooperative programs are being planned in all major aspects of nonmilitary nuclear development, including such matters as the planning of nuclear test reactors, the construction of chemical processing facilities, and the international operation of demonstration power reactors. In addition, as an aid to industrial management generally, two conferences were held during 1957, the first in Paris in April and the second in Amsterdam during June. The papers which were presented over a period of several days at the latter conference comprise this volume.

A wide variety of material is covered, ranging from a general survey of nuclear energy in Europe, by L. Nicolaidis of Greece, to radioactive waste discharge problems, by M. d'Hont of Belgium. Authoritative descriptions of the ambitious British and French nuclear power programs are given, respectively, by G. C. Duckworth and Y. Teste. Other papers include discussions of nuclear research centers in Europe, reactor research, uranium supplies, and the manufacturing and processing of nuclear fuel elements.

Some of the material will, of course, become quickly out of date. For example, P. Huet, now director of the new European Nuclear Energy Agency, spoke of some of the plans of the OEEC to create this agency, now a reality. Cost estimates, such as those given for fuel costs for nuclear ship propulsion, are bound to change as the technology advances. But most of the material presented is of a fundamental character and will continue to be accurate, useful, and thought-provoking; moreover, it is described with a clarity which only experts can achieve. The book should therefore be in the library of those who are studying the general aspects of industrial nuclear development.

Furthermore, it is becoming obvious that the European requirements for expanding and cheaper sources of fuel for electric power will accelerate the development of a nuclear power industry. In addition to the well-publicized plans of the British, France alone is visualizing 8 million kilowatts of installed nuclear capacity by 1975. Italy, too, is moving rapidly with plans for at least three large atomic power plants, which are expected to be under construction within the next year. Europe will, therefore, become a major proving ground for the nuclear industry, and the United States will have much to learn. The lessons will be pertinent not only to our constructive participation in the European program but also to the development of our own nuclear industry.

Unfortunately, there is much of the story which is not covered in this book, partly because of the specific coverage which was planned and partly because the story is so large. Nevertheless, this