Book Reviews

From Ape to Angel. An informal history of social anthropology. H. R. Hays. Knopf, New York, 1958. xxxvii + 440 pp. $7.50.

At the end of the 15th century, when the men of Europe finally broke the powerful bonds of ethnocentric ignorance in which nature and the alien cultures of hostile nations had long held them, their navigators and explorers brought back the first new knowledge about the diversity of life, the complexity of nature, and, for them, an expanding universe. The traditional patterns for identifying and placing the objects of the natural world and themselves and for explaining human experience began to undergo change. Later, when migration and travel spread Western culture across the world, further knowledge and experience resulted in the creation of whole new sciences and secular explanations, such as evolution, to categorize and explain man and his place in nature. Among these new sciences, and rather late in arriving, was social anthropology—the comparative study of men in social groups.

The present volume tells of the development of this science from its early beginnings, when the frontier ethnographers, missionaries, administrators, and others wrote their accounts of the strange cultures of the peoples of Australia, Africa, and the Western Hemisphere; it describes the classical evolutionists' attempts to substantiate simpler unilinear evolutionary theories as substitutes for the sacred account of Genesis. Although Hays, by trade a novelist, centers his account around the persons of the great figures who contributed to the new science of man, he tells his story in such a way that the lay reader is usually informed about the major contributions of each. In part 1 we read about Lewis H. Morgan and his passionate interest in the Indians of upper New York State, of the extension of this interest to the primitive peoples of the world, and of the later development of his evolutionary theories. Here the reader learns about E. B. Tylor, the Englishman who, for many, is the founder of anthropology; about the Scotsman Robertson Smith, whose scientific interest in the traditional Christian doctrine of the sacrifice got him into trouble; and about

Sir James Frazier, whose interest in such problems in other cultures got him a knighthood.

In part 2, "The critical reaction," later developments are traced: Westermarck and his evolutionary theory of human marriage (from brutish promiscuity to Victorian monogamy); Van Gennep's *rites de passage*; and Freud's, and others', notions about totemism—the "worship" of species, both plant and animal.

The various theories about the diffusions of culture—among them those of Father Schmidt, Clark Wissler, Robert H. Lowie, and Franz Boas and his followers—are described. This section is followed by chapters on Emile Durkheim, A. R. Radcliffe-Brown, and others intent on developing laws about the nature of human groups. The last part of the book is devoted to contemporary anthropologists and to the use of anthropology in the study of our own people and its implications for present problems.

The book is well written, and at times the story is amusingly told. The anthropologists will find a number of small errors, but most will enjoy reading again about the great and the near great of the past. Others will acquire knowledge about the people who created the science of anthropology and will enjoy the thumbnail sketches of some of the institutions, religions, and cultures of the world. There are short bibliographies (one for each of the 38 chapters), an extensive index, and 32 pages of illustrations.

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Introduction to Fourier Analysis and Generalised Functions. M. J. Lighthill. Cambridge University Press, New York, 1958. viii + 79 pp. Illus. $3.50.

Although delta-function techniques had been widely used in physics for 25 years, a unified underlying mathematical justification for *all* of these methods was lacking until Laurent Schwartz developed his theory of distributions. However useful this theory may have been, it had little chance of filtering down to

the applied mathematician or theoretical physicist, since it was phrased in the language of abstract spaces. M. J. Lighthill has, in the present book, presented an extremely lucid and well-written account of a simplified version of the theory, attributable to George Temple. By choosing a sufficiently restricted class of functions, Lighthill shows that many of the "illegal" tricks that use delta functions and Fourier transforms which do not exist in the ordinary sense have, in fact, a prosaic legality.

After discussing the basic notions of one-dimensional generalized functions, Lighthill goes on to the application of distribution theory to the asymptotic evaluation of Fourier transforms and the coefficients of Fourier series. In passing, Lighthill is able to show that Hadamard's theory of the finite part of an infinite integral is an almost trivial result of the present theory. The only defect of the book is one of omission— there is no discussion of generalized functions in higher dimensions. Apart from that, I find the book to be a stimulating and valuable addition to the literature of applied mathematics, with a good deal of the charm of 18th-century mathematics. It may well become a minor classic before very long.

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Concepts of Classical Optics. John Strong. Freeman, San Francisco, 1958. xvi + 692 pp. Illus. $9.50.

Written as a textbook for an intermediate course in optics, this volume, with its lively and original treatment of the subject, will also be useful for reference purposes. In the first 12 chapters the author covers physical optics, intentionally omitting spectra and most of crystal optics; the following four chapters are devoted to geometrical optics. The reason for reversing the usual order is not apparent, since no attempt is made to discuss the diffraction theory of aberrations. The latter part of the book— almost half—is devoted to 17 appendices consisting of essays written by outstanding authorities on topics of current research interest. Several of these are valuable summaries of material that cannot be conveniently found elsewhere. Outstanding in this respect are the articles by Jacquinot on apodization, by Greenler on optical filters, by Yates on radiation detectors and measuring devices (including the eye), and by Kapany on fiber optics.

The author, professor of physics at Johns Hopkins University, is well known for having carried on that university's