Anthropology

Les Hommes Fossiles de la Pierre Taillée (Paléolithique et Mésolithique). Robert Jullien. Collection "L'Homme et ses Origines." Boubée, Paris, 1965. 363 pp. Illus. F. 60.

This is a useful book although it probably does not contain a great deal that professional anthropologists will find very novel or thought-provoking. It is a sober and fact-filled work by a Parisian anatomist, intended for a serious lay audience and for students; it is lacking in dramatic pictorial "reconstructions" of primeval man's bestial features or his social life but has an abundance of line drawings and photographs of fossils and a reasonably good number of illustrations of the tools and art of Paleolithic and Mesolithic man. Topics such as prehistoric religion, psychology, and art are discussed cautiously, with the possibility of alternate explanations of the scanty evidence constantly underlined.

Several early chapters deal with the Tertiary primates, the processes of hominization, and the Quaternary background. Jullien sensibly does not put all his protohominid evolutionary eggs in one African basket, and he recommends that southern Asia, particularly the Siwalik region of India, should not be underestimated. The fossil hominids of the Pleistocene are classed in four groups: the Australopithecines; the Archanthropines (Pithecanthropus, Sinanthropus, Atlanthropus, and Mauer); the Paleoanthropines (including the Würm Neanderthals, and the pre-Würm men such as Swanscombe, Fontéchevade, and others); and finally the Neanthropines or *Homo sapiens fossilis* of the Old and New Worlds. The specimens within each group are described in generous detail, along with discussions of what is known of their cultural activities.

Some criticisms of fact and of design might be made. The "Negroid" features of the Grimaldi skeletons, judging by Legoux's recent study, are probably due simply to Verneau's faulty reconstruction. One can legitimately have doubts about the "Early Perigordian" cultural associations of the Combe-Capelle skeleton, considering the way it was excavated. A chapter on the growth of the idea of prehistory and the antiquity of man would have been useful. There is a complete lack of chronological tables for the Pleistocene geological and cultural stages discussed, and not enough maps are provided.

Nevertheless, Jullien has done a creditable job of presenting the basic facts of hominid physical and cultural evolution to a nonspecialist audience. The volume might also be satisfactory as an academic handbook, since finds made as recently as 1964 are described. The typically spare, rather formal style of presentation may not be what English-speaking readers on this side of the Atlantic are accustomed to in "popular" books on anthropology, but the French can hardly be criticized for preferring a more austere treatment. The book is well bound and attractively printed, as it should be for the price.

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Mathematical Analysis

Non-Linear Differential Equations. G. Sansone and R. Contri. Translated from the Italian by Ainsley H. Diamond. Pergamon, London; Macmillan, New York, ed. 2, 1964. xiv + 536 pp. Illus. $15.

This book is concerned with the mathematical analysis of certain ordinary nonlinear differential equations. The treatment throughout is rigorous and remarkably clear, and it provides for a systematic study of some important problems. It is not so much a book on the theory of nonlinear equations as it is a detailed working out of the theory in special circumstances.

An introductory chapter that includes a few traditional results on the existence, uniqueness, extension, and differentiability of solutions for arbitrary systems precedes five chapters (400 pages) devoted solely to two-dimensional systems. This is the most complete treatment of these systems published in any single volume and includes many results heretofore available only in research journals. Singular points of plane autonomous systems are systematically investigated, beginning with homogeneous equations of arbitrary degree. These are followed by detailed studies of analytic perturbations, the problem of the center, the singularities of Briot-Bouquet, geometrical-topological qualitative theory of limit sets, and limit cycles including the Poincare-Bendixson theory and index theory, and finally nonanalytic perturbations.

Two chapters cover second-order equations which represent either free or forced oscillations of one-degree-of-freedom systems. The main question considered is that of the existence of periodic solutions. Some consideration is given to stability, particularly in the forced oscillation case. Twenty-five pages are devoted to the analysis of the pendulum equation and somewhat less space is devoted to van der Pol's and Lienard's equation. Results of Yoshizawa, Lefschetz, Levinson, Cartwright, Littlewood, Reuter, Antosiewicz, and Langenhop are presented in detail. However, boundary value problems and methods of approximation, per se, are not considered.

The book concludes with a chapter on linear systems of arbitrary order and a brief chapter on stability using the direct (Liapunov second) method.

The volume is attractive, well written, and carefully translated. Each chapter is followed by an extensive bibliography, which substantiates, extends, and in general relates to many of the topics covered. This makes the book valuable as a reference source as well as appropriate for use as a textbook for a graduate course in differential equations.

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Point Set Topology and Analysis

Topological Spaces. H. J. Kowalsky. Translated from the German edition (Stuttgart, 1961) by Jay E. Strum. Academic Press, New York, 1964. viii + 288 pp. $9.75.

This is an interesting and well-organized introduction to that part of point set topology which is most closely related to analysis. The dominant feature of the book is the use of filters and the lattice of filters on a given set to introduce topology and the elementary topological concepts. This use of filters and the inclusion of such theorems as those of Ascoli, Dini, and Stone-Weierstrass indicate the leaning that the book has toward analysis.

The book begins with some brief statements concerning set theory and lattices and a rather careful discussion