

Research in Primatology

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What has become of the old-fashioned distinction between a book and an issue of a scientific journal? The title of the present work, **Evolutionary and Genetic Biology of Primates** [Academic Press, New York (vol. 1, 341 pp., 1963, \$12; vol. 2, 342 pp., 1964, \$12.50), edited by John Buettner-Janusch], and its subtitle, "A Treatise in Two Volumes," imply a comprehensive and systematic treatment of the evolutionary and genetic biology of primates.

In fact, the volumes are an unassimilated collection of research papers; the editor frankly states his intention of presenting a sample of "articles that cover some of the newer and developing research interests of contemporary students of Primates." This modest proposal has certainly been fulfilled in a generally excellent series of articles. But binding this miscellany together does not produce a treatise. The prospective buyer may well ask what the editor and publisher have contributed to justify the issuing of these 13 research papers in an expensive, two-volume, hard-cover format.

Actually, few of the "chapters" in this collection could fairly be said to be, in any but a very general sense, either evolutionary or genetic, and nearly all of the authors disclaim any attempt to provide more than a provisional summary of the early descriptive phases of their fields.

In fairness to the contributors, then, this work should be judged not as a treatise but as a symposium—which, in fact, it originally was. Most of these "chapters" represent expanded or modified versions of papers presented at a conference held at the New York Academy of Sciences in April 1962. Significantly, neither the editor nor the publisher acknowledges this heritage—see *The Relatives of Man*, J. Buettner-Janusch, Consulting Editor [*Ann. N.Y. Acad. Sci.* **102**, 181–514 (1962)].

Certain of the authors do provide reviews of broad topics in a comprehensive and original way. The best

of these is that by Simons, "A critical reappraisal of Tertiary primates." Simons draws on his wide field experience and knowledge of the great museum collections, to survey fossil evidence and to reassess phylogenetic conclusions, though the new ones are necessarily few and tentative. He insists, as is the paleontologist's wont, on the exclusive nature of fossil evidence—"... the one direct way to approach the evolution of Primates..."—as though there need not intervene between the view of a fossil fragment and a phylogenetic conclusion a series of biological judgments akin to those besetting the student of modern forms. Certainly his epigrammatic dismissal of phylogenies based on all other sorts of evidence as "at best metaphorical and at worst irrelevant" seems a bit cavalier. This is the only chapter that is strictly evolutionary; none of the other chapters deal with comparative anatomy of the skull, teeth, or locomotor system—areas that traditionally have permitted close integration with the fossil record.

Three long papers in volume 2 do, however, review some functional data, much of it original, that is very relevant to the interpretation of evolutionary clues from fossils and comparative anatomy. In a concise review, "Reproductive physiology and behavior of the Lemuroidea," A. Petter-Rousseaux, drawing on her unique opportunities to study lemurs in Madagascar and in her laboratory in Paris, packs her 40 pages with a clear, precise harvest of original observations, integrated with a review of the literature. A. Bishop's long paper, "Use of the hand in lower primates," based on her doctoral thesis, records an extensive series of observations on the hands of prosimians. A general section extends her observations and reflections to higher primates. Some of her vivid descriptions are more telling than the 24 pages of graphs and diagrams in which she attempts quantitatively to analyze hand grasps. A large section of her own and Buettner-

Janusch's photographs, while hardly art pieces as here reproduced, shows several lemurs rarely seen outside Madagascar. Andrew reviews a whole universe in "The displays of the primates," a long, scholarly chapter that is fascinating in its details and ethological significance.

Three chapters are devoted to the skin. Montagna and Ellis account for two of them. In the first, "New approaches to the study of the skin of primates," they are disarmingly frank about their feelings of frustration in attempting an evolutionary perspective on primate skin; they discuss the few discernible patterns without attempting to write a broad review or to record new data. In their second chapter, "The sweat glands of the Loriscidae," this time with Ellis as the senior author, they treat, in their accustomed detail, a specific subject, and thus add another paper to their long series that is steadily providing the sure knowledge on which the broader perspective must eventually be based. Winkelmann's survey, "Nerve endings in the skin of primates," is in an excellent chapter that includes some striking photographs of organelles notoriously difficult to demonstrate.

Noback and Moskowitz, in a chapter with the ambitious title "The primate nervous system: Functional and structural aspects in phylogeny," limit themselves to a study of the integration of two functions critical in the evolution of primates—vision and forelimb use. They deal largely with human neuroanatomy but give it a comparative setting.

Four papers illustrate the widening search for new taxonomic characters among the many structural details recently made accessible as the result of advanced microscopic and biochemical techniques. Two of the papers treat hematological aspects. The meager data available for the analysis of serum proteins by means of immunological techniques are elegantly presented by C. A. Williams. John and Vina Buettner-Janusch report some preliminary data from starch-gel electrophoresis and alkali-resistance tests, which, as is true of so many of these newer techniques, have thus far shed less light on evolutionary biology than had been anticipated. Hsiung, Black, and Henderson,

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in a very clear and succinct summary, "Susceptibility of primates to viruses in relation to taxonomic classification," present the available data on this topic. Bender and Chu give their latest review of the chromosomes of primates, revealing how complex is the task of relating karyotype of taxonomy, not to mention phylogeny.

The most puzzling sections to evaluate are the editor's two prefaces and his chapter "An introduction to the primates" (the first chapter). These are almost exclusively concerned with naming and classifying the living members of the order. In the first half of his chapter, the editor gives his views on the relationships of the major groups and discusses, often with refreshing candor, the roles that data from the more modern techniques are and are not playing in the elucidation of problems in primate taxonomy and evolution. The latter half of the chapter presents two outline classification schemes: a longer, "comprehensive" scheme and a shorter, "synoptic" one. It is unclear what purpose these two lists of names, which extend for 25 pages, are intended to serve: they are not used as a taxonomic or nomenclatorial standard by the other authors—in fact, their use would present a problem because the two schemes are so contradictory, one being an extreme "splitter's" view and the other, a "lumper's." Furthermore, in the face of the current tangle of multiple synonyms and half-synonyms in certain families, these bare lists would need copious annotations to be of real use. The most original parts of this chapter are those dealing with animals from Madagascar and East Africa. Buettner-Janusch has had field experience in both regions, and the animals that he has imported have provided part of the basis for his own studies and for those of other contributors to these volumes. Unfortunately some of his clear photographs of rarely seen lemurs are so badly reproduced that they are of little scientific value. As the result of poor cropping, uneconomic spacing, and the muddy quality of the reproduction, the illustrations in this chapter contrast with the generally high technical standards maintained elsewhere in the book.

Intrinsically, then, these 13 chapters are valuable contributions to primatology. Surely their authors should have been better served by editor and publisher. Although the routine procedures

of book manufacture have been carried out creditably (the volumes are sturdily bound and well printed on glossy paper), nevertheless, in many of those processes whereby the publishing of a book is distinguished from its physical production, these volumes are seriously deficient. Certainly the editor deserves commendation for initiating and contributing to this project, but it is abundantly clear that he was not at hand during crucial stages in the production of the first volume—the careful reader can discover, printed inconspicuously at the very end of the second volume, two full pages of the editor's corrections, "Errata for volume 1." Furthermore, there are few signs of any editorial attempt to correlate disparate elements in these papers—evolutionary concepts, nomenclature both taxonomic and anatomical, or even simple spelling. The editor is uneasily aware of this deficiency and frankly admits it in the preface to volume 2. It would also seem that had both editor and publisher been less intent on rushing their book into print, the two volumes might have been issued as a single, carefully edited and integrated unit, with one comprehensive index, and the reader might have been spared both expense and inconvenience.

Cultural Change

When Caste Barriers Fall: A Study of Social and Economic Change in a South Indian Village. Dagfinn Sivertsen. Universitetsforlaget, Oslo; Humanities Press, New York, 1963. 141 pp. Illus. \$4.

Caste in India and its neighboring countries is a social phenomenon about which Indologists and social scientists, as well as social and economic planners, share a strong and abiding interest. And with good reason, for in its many regional variations, caste permeates many spheres of life among the peoples who share the Indian cultural tradition. But it is not the granitic system of social division that some have portrayed it as being. In contemporary India it is changing rapidly in response to deliberate political, economic, and social action. What happens when alien political ideologies and organizations collide with traditional authority as it is embedded in the caste system? This

is the question that Dagfinn Sivertsen asks in *When Caste Barriers Fall*, a case study of just such a confrontation in a single village of Madras State where Sivertsen worked during 1957 and 1958.

The small community of this study is a multicaste agrarian village; the central social and economic issues are over land; and the alien influences are the national political parties, the unions, and state intervention. The results of the social action triggered by this tense situation were changes in feudal, contractual, and ritual interrelations among castes. In short, significant alterations in the system of authority and power relationships were observed. However, the caste system does not collapse as the title of the book might suggest.

This book, unlike so many on the subject of caste, is not written with only the specialist in Indian sociology in mind. Throughout there are brief explanatory passages that give the background essential for understanding the many facets of caste in this South Indian village. Fortunately, too, more of the book is devoted to the technology and economics of agriculture than to other topics, so the basis for the unrest that precipitates political action is clearly presented to the reader. This is a modest study that is topical and has significant relevance to the now voluminous literature on caste in India and to broader aspects of social and culture change. Moreover, it is well done and equally well presented.

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Polarography

Organic Polarographic Analysis. Petr Zuman. Pergamon, London; Macmillan, New York, 1964. x + 313 pp. Illus. \$6.50.

This volume by Petr Zuman extends the list of distinguished books on polarography which have come out of the Polarographic Institute at Prague. The author comments in the preface that "even though organic chemists interested in physical methods . . . have contributed much to our knowledge and understanding of this branch of applied electrochemistry, organic chemists are still little informed about the potentialities of polarography." Within these