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Book Reviews

Robert W. Sussman (ed.)

Primate Ecology: Problem-Oriented Field Studies

Wiley, New York 1979

596 pp., numerous figures and tables; E 9.50

ISBN 0-471-03823-7

This well-produced and modestly priced compilation will be welcomed by all those who have faced the problem of assembling literature to accompany courses in primate ecology. It consists of 28 articles, all, except one, previously published elsewhere over the past 20-odd years, and all, as the book's subtitle suggests, more or less problem-oriented or theoretical, rather than purely descriptive. For reasons of compactness, a few articles have been abridged, even drastically, as in the case of the contribution by Gartlan and Struhsaker in 1972 on polyspecific associations among West African primates; but the pruning has been sensitively done, preserving intact the flavor and import of the originals.

The papers are divided into two sections. The first of these brings together 16 field studies: 3 on strepsirhines; 3 on ceboids; 3 on arboreal, and 4 on terrestrial, cercopithecoids; and 3 on hominoids. Some will find the selection of papers better fits their requirements than will others, and everyone will find a favorite species or study unrepresented; but this is inevitable in a book which must remain of manageable – and affordable – size. Each subsection is prefaced by a brief introduction which puts its contents in context and reviews its main features. Such linking commentaries fall far short of transforming the book into a text, but they do greatly help the integration of the work, and will be appreciated by all students using it.

The second section is composed of papers more theoretical in orientation, and concerned largely with the relationships between ecology and social organization. These contributions do not all represent the latest approaches to the understanding of such relationships; some go back to the early and middle sixties, and their arrangement in chronological order gives a valuable historical perspective, underlined by Sussman in his introductory notes.

Altogether, then, a very useful collection. Although the volume, as is appropriate in a reader, contains almost nothing new, the juxtaposition of the articles it contains will provide a refreshing perspective for professionals as well as an invaluable supplement to primatology courses.

Ian Tattersall, New York, N.Y.

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Karl J. Zilles

Ontogenesis of the Visual System

Springer, Berlin 1978

138 pp., 43 figs., 2 tab.; US \$ 24.00

ISBN 3-540-08726-5

This volume on light microscopy of the Ontogenesis of the Visual System reports a qualitative and quantitative analysis of the development of 11 visual brain centers of the male Tupaia

belangeri. The brains of 35 animals from 36 to 536 ontogenetic age (day postconception, not days after birth) were prepared for quantitative and histologic study. Accurate account is made of the shrinkage factor of each brain because shrinkage following fixation is systematically greater in younger than in older animals. The shrinkage factor for each brain is utilized as a correction factor in each brain to obtain the 'fresh-volume' that is in fact the volume in the living animal. The qualitative studies demonstrate that a distinct heterochrony of maturing visual centers is apparent. Cortical visual regions mature later than do subcortical regions. Phylogenetically younger regions mature later than phylogenetically older regions.

The quantitative analysis of fresh-volume growth of 11 visual centers also demonstrates heterochrony. An overshooting growth curve is expressed by the striate cortex, dorsal nucleus of the lateral geniculate body and pulvinar. In contrast, a monotonically increasing growth curve is characteristic for the ventral nucleus of the lateral geniculate body, posterior thalamic nucleus, pretectal area, nucleus of transverse peduncular tract, superior colliculus, oculomotor nucleus, trochlear nucleus and abducent nucleus. The quantitative analyses of the fresh volumes of the compartments of a single nerve cell and glial cell show an earlier maturation for the nerve-cell nucleus than for cytoplasm, followed by fresh volume of the total nuclear region and fresh volume of all glial-cell nuclei, respectively.

The book should be read by all investigators interested in the quantitative development and growth of the nervous system, both for the methods used and the results obtained.

Charles R. Noback, New York, N.Y.

D. Falk

External Neuroanatomy of Old World Monkeys (Cercopithecoidea)

Contributions to Primatology, vol. 15 Karger Basel 1978. VIII + 96 pp., 20 fig., 22 tab.; US \$ 29.50 ISBN 3-8050-2834-5

This volume reports a study of the gyral and sulcal patterns on the external surface of the cerebrum of seven genera of cercopithecine and seven genera of colobine monkeys based upon endocasts prepared from 163 skulls. A computer analysis of these endocasts was made with data obtained by a photogrammetric method: 150 anatomical points on the sulci present on 107 endocasts. Included in the text are discussions and speculations: (1) on the

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relationship between sulci and brain size; (2) asymmetry in brains of cercopithecoids; (3) generic differences in cortex and sulcal patterns; (4) interpretations of endocast morphology, and (5) evolutionary trends.

A comparison of sulcal patterns in these monkeys suggests that cercopithecines have relatively larger prefrontal, temporal and (perhaps) occipital integration (association) areas than colobines have. Asymmetry in lengths of certain sulci suggests that some colobine and cercopithecine genera have significantly larger left compared to right prefrontal and parietal integration cortices. Based on these and related observations, the author theorizes on their possible relation to: (1) shift from arboreal to terrestrial to semiterrestrial conditions in primates; (2) handedness; (3) selection for localization systems, and (4) development of language.

This study points to the need for further comprehensive observations on the sulcal and gyral patterns of: (1) the medial surface of the cerebrum of Old World monkeys, and (2) the entire cerebral cortex of New World monkeys and prosimians. These would update such reviews in the literature as those of Connolly (1950).

The basic significance of the evolutionary meaning of these sulcal and gyral patterns awaits further advances in the field of functional and experimental neuroscience.

Charles R. Noback, New York

G.C. Ruppenthal and D.J. Reese (eds.) *Nursery Care of Nonhuman Primates*

Plenum Press, New York 1979 XVI+ 333 pp.; US \$ 32.50 ISBN 0-306-40150-9

The breeding and care of primates has become an increasingly sophisticated skill as well as a subject of scientific and practical interest. Recent advances made in this area are amply demonstrated in a new book edited by G.C. Ruppenthal and D.J. Reese. This collection of papers emanates from a symposium on the nursery care of infant primates and goes considerably beyond being a veterinarian's source book of physiological data. As one would expect, several chapters are devoted to practical considerations involved in the hand-rearing of primates, offering specific information on nutrition and health care. There are also a number of chapters which investigate biomedical issues, such as the effects of stress on pregnancy, high- and low-risk pregnancies, and the merits of different growth parameters for assessing development. In addition, the long-term behavioral consequences of different rearing methods are considered in two good overview chapters.

One limitation of the book, however, is the absence of more review chapters. It could have been considerably enriched by a few summary papers on nutritional needs, important diseases or comparative physiological data. Nevertheless, it will still serve as an important source of basic information for the laboratory breeder of primates.

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An additional point which impressed this reviewer was the obvious difficulty and cost of producing viable infants with minimal behavioral disturbances via nursery-rearing. The problems discussed in this book seem to indicate that unless research aims necessitate the nursery-rearing of primates, there is no easy substitute for a good mother and a stable social group.

Christopher L. Coe, Stanford, Calif.

D.J. Chivers and W. Lane-Petter (eds.) *Conservation*

Recent Advances in Primatology, vol. 2 Academic Press, London 1978 XIII+ 312 pp.; £10.50 ISBN 0-12-173302-5

'The world will be very different when the International Primatological Society holds its biennial meeting in 2000 AD. Judging from current trends, we can expect most, if not all, tropical forests to have been destroyed. The result will be that most of the primate species living today will be extinct in the wild. A few will survive in captivity, but not many for extended periods of time. These extinctions will have profound effects on our science.' This statement by Richard Thorington in the first paper of the volume sets a chilling and pessimistic tone for the future of primate conservation. Thorington identifies the need for habitat preservation as the key for a successful world-wide program of primate conservation, and he emphasizes that this must be accomplished within the political and economical environment of African, Asian, and South American countries with endemic primates.

The present volume is the published results of three symposia presented at the 6th Congress of the International Primatological Society in Cambridge, England during August 22–28, 1976. The first section (organized by R.W. Thorington, Jr.) is devoted to current problems of primate conservation, and features several reports on the status of primates in South America, Africa, and Asia by biologists from these countries. As emphasized by Thorington, it is these scientists,

representing a minority of the membership of the IPS, who must play a major role in formulating sound conservation policies within their own countries.

Primate conservation must be considered realistically in light of the demands for primate use in biomedical research, and the second section of the volume (organized by R.E. Hackett) deals with the trade and supply of primates for research and zoos. Differences are described in the methods of trapping and export of primates from Malaysia, Indonesia, India, and Thailand. There is considerable variation in the skill and standards with which primates are processed in these different countries, and in the resulting mortality during the trapping and transport phases. Unfortunately, there are no data presented on these problems in Africa or South America.

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The last section of the volume (organized by W.R. Dukelow and W. Lane-Petter) is concerned with the breeding of primates in captivity as a compromise solution for conservation and the demands of biomedical research. This section covers a wide range of information on the reproductive biology and management of colonies of tupaids, callitrichids, cebids, cercopithecids, and chimps. A brief but excellent summary to the volume is provided in W. Lane-Petter's discussion of the many factors that should be weighed when considering the economic and conservational costs of continued trapping or breeding programs to meet the future demands of primates for research and zoos.

W.P. Luckett, Omaha, Nebr.