Book Reviews – Buchbesprechungen – Livres Nouveaux

Primatological Symposia of 1962x

The remarkably rapid and wide-spread rise in research on and with primates has already resulted in a number of recent meetings devoted exclusively to this specialized work. A brief review of the published proceedings of these meetings can hardly attempt to enumerate the great many and mostly very significant results of all these diversified studies, but can merely serve to indicate the modern trends of interest in primatology, particularly the fact that morphology does no longer play the most prominent role, having recently become overshadowed by work on behavior and rivalled by studies on comparative cytogenetics and biochemical variations.

From April 10 to 12 of 1962 the first and well-attended primatological symposium in Germany took place in Giessen. A majority of the papers on the program has been collected in the *Zeitschrift für Morphologie und Anthropologie* (Vol. 53, Heft 1/2, 1963, DM 69.20). An introduction on the present status and the significance of primatology by the symposium's organizer, H. Hofeb, is followed by a paper on "the cranial centre" by A. A. Abbie. For this centre of orientation the pituitary fossa is recommended and its topographic relations to the ear-eye horizon and the direction of the foramen magnum are shown in different young and adult primates. A detailed contribution by H. Hofeb and W. Spatz describes the kyphoses in fetal and newborn skulls of numerous prosimians and monkeys, showing that this bent in the wedge-shaped cranial base lies always in front of the sella turcica, except occasionally on the pharyngeal side. The morphology of the prehensile tail of South-American monkeys is discussed by F. Ankel, who finds the proximal caudal region (= vertebrae with spinal canal) to be specially long and capable of marked dorsal flexibility and the middle caudal vertebrae to be more numerous and flatter than in non-prehensile tails. H. Pbeuschoft studied the feet of a young chimpanzee and gorilla in walking and analyzes the detailed mechanical stresses in the feet of such apes together with the relevant adaptations in skeletal parts. G. H. R. von Koenigswald presents his ideas on the systematics of the family Hominidae, based almost exclusively on odontological considerations, and discusses critically the relevant views of other authors. He regards *Oreopithecus* as the sole representative of a separate superfamily and the australopithecines as an extinct side-branch in the family of Hominidae. He also is opposed to placing all fossil and recent men into a single genus *Homo*.

Dealing chiefly with problems of physiology, development and behavior are the following contributions to the same symposium: In a paper on "growth and behavioral changes in chimpanzees" A. J. Riopelle presents most welcome data from the extensive records of the Yerkes Laboratories in Florida on the age changes in weight, dentition, epiphyseal union and certain aspects of behavior, separately for both sexes and in comparison with corresponding data for man. An all-too-brief

1 The exact titles of the papers, published in the proceedings of these symposia, will be listed in "Current Literature",

report by Dr. and Mrs. U. Rahm on the birth and early infancy of a mountain gorilla, born in the Institut pour la recherche scientifique en Afrique Centrale, gives some interesting, detailed observations and six fine photographs. An article by A. C. V. Van Bemmel on the breeding of orang-utans in zoos describes the cages and diet for these apes, used in Rotterdam, and their successful reproduction. The conclusion that "high cages are important because mating occurs in hanging position" might be changed to: high cages are essential for natural exercise, but mating certainly does take place in many different positions. In his "human-psychological thoughts for the raising and care of apes" P. Spindler emphasizes the importance of the emotions in the upbringing of man-like apes and that the lack of proper early inter-individual relationships, such as between mother and child, leads to severe disturbances in the normal maturation of the behavioral pattern. The behavioral observations on Saimiri by R. Kirchshofer deal with the preparation of certain food, impregnation with urine, playing, and the remarkable fear of snakes, shown merely in pictures. D. Ploog also used Saimiri for his quantitative behavior studies in which two groups with different compositions of the sexes were compared with each other. It is found that the sexual behavior of the squirrel monkey is not solely concerned with reproduction, but that genital display in particular has become a ritualized social signal, influencing the group structure. In a carefully documented report J. Tigges shows that tree-shrews have a well-developed color sense.

The three remaining papers from this symposium are chiefly of anthropological interest, being limited to the study of man. B. Rensch describes his experiments for finding possible release mechanisms, operating in man in the preference for certain bodily characteristics. U. Schaefer discusses the many difficulties in obtaining reliable data on the cranial capacity of prehistoric man. G. Heberer describes briefly the middle-pleistocene hominid skull, discovered by Leakey in the Oldoway gorge, and gives an excellent photographic side view of this highly interesting specimen.

From April 12 to 14 of 1962 the first British symposium on primates was held in London with an attendance of about 400 people, having been arranged conjointly by the Anatomical Society of Great Britain, the Society for the Study of Human Biology and the Zoological Society of London. The entire proceedings have been published by the last-named society as Number 10 of its series of symposia (The Primates, 289 pp., London, 1963, £ 4. 10). The first and longest section is centered on behavior in wild and captive primates. K. R. L. Hall reports his field experiences on the ecology and social life of the South African Chacma baboon with a wealth of detailed observations. Notes on the behavior of the gorillas in Uganda are contributed by R. M. Osborn. J. Goodall gives a preliminary report on the feeding behavior of wild chimpanzees in Tanganyika, especially her remarkable observations on the apes' eating ants by means of small twigs, brought along to be poked into nests, and on their eating of freshly killed mammals. A paper on "the carnivorous propensity of baboons" by R. A. Dart collects the evidence for the killing and eating of small mammals by wild baboons. Predatory behavior is also discussed in an article by A. Kortlandt and M. Koou on "protohominid behavior in primates" which deals chiefly with agonistic throwing and clubbing, as observed in captivity and in the field. R. J. Andrew has studied vocalization in many different Old World monkeys and apes, which he describes in its connection with motivation and

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with anatomical movements. In a similar way J. A. R. A. M. van Hooff analyzes the facial expressions of higher primates. J. Cole gives a wealth of information on the care, training,

behavior, and sensory and mental characteristics of captive pig-tailed macaques. A remarkable case of "use of a tool by a captive capuchin monkey" is reported by G. M. Vevers and J. S. Weinek. W. C. O. Hill, finally, concludes from various reports on what natives call the Ufiti that there may exist in Nyasa-land "a small relic population of *Pan satyrus*, . . . which may be a distinct subspecies". This section on primate behavior closes with interesting concluding remarks by the chairman, Sir Solly Zuckerman.

The part of this symposium devoted to functional anatomy begins with a brief discussion by J. Scott of some "factors determining skull form in primates". This is followed by a paper on "brachiation in New World monkeys and in anthropoid apes" by G. E. Erikson in which the author has finally given a most interesting account of his studies during many years on a mass of material, specially rich in platyrrhines. The correlations between locomotion and body proportions as well as many other morphological characters are described systematically and compared in platyrrhines and man-like apes. The scholarly study by C. E. Oxnard on the "locomotor adaptations in the primate forelimb" analyzes the functional adaptations of muscles and joints to different types of locomotion. J. Napier describes the locomotor habits of some monkeys and apes with special emphasis on brachiation and defines his proposed classification of primates as "true, modified, pro- and semi-brachiators". In a historical note by J. C. Trevor it is pointed out that the word "brachiator" had been introduced by R. Owen in 1859, but applied only to gibbons. In a preliminary report on "the relative lengths of the foot skeleton and its main parts" the reviewer shows some of the marked quantitative differences in the composition of this structure among representatives of nearly all recent primates. These papers on functional anatomy are summarized by concluding remarks of the section chairman, J. Z. Young.

The third part of this symposium is devoted to "characters of genetical interest in primates". It starts with a paper on comparative chromosome morphology, including some valuable new data for hominoids, by J. L. Hamerton, who concludes that increasing specialization in primates appears to lead to a reduction in the number of acrocentric chromosomes and of diploid numbers. The rapidly accumulating mass of data on the blood groups of primates is reviewed and very interestingly discussed by D. Franks. That the last decade's intensive investigation of primate serum proteins by means of electrophoresis has not yet yielded unequivocal results regarding primate evolution is ably shown by L. Beckman. J. Moor-Jankowski also discusses the same field of research, especially the most promising methods for future work. Based largely upon his own observations in Africa N. C. Tappen uses data on distribution, adaptation, skull shape, chromosomes and haemoglobin of Old World monkeys for his discussion of "genetics and systematics in the study of primate evolution". A. B. Chiarelli gives a brief report on the relative frequencies of P. T. C. tasters among large series of different primates and tabulates the published cases of hybrids among catarrhine monkeys. In his critical review of these papers on "primate genetics" N. A. Barnicot warns against premature conclusions in regard to primate classification and phylogeny. A few remarks by the section chairman, L. S. Penrose, completes this highly interesting volume on *The Primates*.

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Also in April of 1962 a symposium on "The relatives of man: modern studies of the relation of the evolution of nonhuman primates to human evolution" was held at the New York Academy of Sciences on the 27th and 28th of that month. This has since been published in full under the same title in the *Annals of this Academy* under the editorship of J. Buettner-Janusch (*Annals*, N. Y. Acad. Sc, Vol. 102, Art. 2, pp. 181-514, 1962, \$ 5.00). The volume begins with a timely

warning by F. Bourlière that the demand for non-human primates by laboratories all over the world, which has so suddenly increased at a shocking rate, is endangering the survival of many species and urgently calls for a wise conservation policy. W. Montagna contributes new histological observations on the skin of three species of lemurs. C. R. Noback and N. Moskowitz discuss briefly the newer discoveries appertaining to the “structural and functional correlates of ‘encephalization’ in the primate brain”. With many valuable data on the immunochemistry of primates M. Goodman speculates on the phylogenetic significance of different serological affinities and attempts an analysis of primate evolution in general. Based upon his extensive study of hemoglobins and transferrins in primates J. Buettner-Janusch shows the marked inter- and intra-specific polymorphism of these traits. These last two papers are critically discussed by C. A. Williams, JR. with special consideration of the “immunochemical approaches to the study of protein evolution in the primates”. The literature on the number and morphology of the chromosomes of primates is briefly reviewed and enriched by new data in a report by E. H. Y. Chu and M. A. Bender who consider also the role of such observations for taxonomic conclusions.

The remaining and much larger part of this monograph is devoted to papers centered on primate behavior. J. J. Petter gives a fascinating report of his important studies on the ecology, locomotion, diet, social grouping and reproductive behavior in wild lemurs. The very limited “fossil evidence relating to the early evolution of primate behavior” is presented by E. L. Simons with highly interesting comments on stereoscopic vision, “tooth scrapers”, brachiation, etc. R. J. Andrew gives a systematic account of situations producing vocalization in primates after having discussed other aspects of vocalization at the London symposium. The “control of the hand in lower primates” is discussed in careful detail and documented with many excellent pictures of captive prosimians by A. Bishop. In a paper of nearly 100 pages S. A. Altmann gives a most interesting account of his studies during two years on the sociobiology of the large colony of rhesus monkeys on Cayo Santiago, Puerto Rico. The great many, carefully documented observations include even extensive tables of the ages, sexes, weights, sitting heights and the status of the dentition of 173 tattooed and hence identifiable animals. Another outstanding study of this category deals with the “patterns of intergroup social behavior in primates, with special reference to rhesus and howling monkeys” by C. H. Sotjth-WICK. This author had collected many careful data in India and in Panama and compares his findings with relevant reports on other primates from the literature. Based upon her remarkably successful observations during 18 months in Tanganyika J. M. Goodall gives a thorough account of the nest building activities of chimpanzees. A brief paper on the maternal behavior of langurs by P. C. Jay also contributes many new and significant data. The excellent “observations on the behavior of *Cercopithecus* monkeys” in Kenya by C. Booth deal mainly with mating, breeding season, birth and infantile development. Every one of all these papers

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on behavior is finally reviewed at length by C. R. Carpenter with many valuable comments, including suggestions for future work on the abundance of unsolved problems. The volume closes with a highly interesting chapter by G. G. Simpson on “primate taxonomy and recent studies of nonhuman primates” which, it is to be hoped, will be read by all those primatologists, eager to “reform” the classification of primates by means of their own findings alone. In reviewing the entire symposium and hence referring particularly to the biochemistry and the behavior of primates Simpson states that these fields of research “obviously bear on

classification and open exciting new taxonomic vistas, but they also obviously are still inadequate to be used uniformly throughout the order as major sets of taxonomic criteria". A fourth primatological symposium was held at the dedication of the large, new Oregon Regional Primate Research Center at Beaverton, Oregon, on May 5 and 6, 1962, most of the papers having since been collected in a volume, entitled "Proceedings of a Conference on Research with Primates" (edited by D. E. Pickering, IV + 104 pp., Tektronix Foundation, Beaverton, Oregon, 1963, \$ 2.50). The opening address by Sir Solly Zuckerman is probably the first historical review of work with "Laboratory monkeys and apes from Galen onwards". This interesting essay illustrates clearly the initially very slow, but recently extremely rapid progress in the highly advantageous use of non-human primates for investigating a great variety of biological and medical problems. D. E. Pickering, the first director of the Center, deals partly with the same subject by discussing the results as well as the promises of research with a carefully controlled laboratory primate (i. e. the Rhesus monkey) with special reference to reproduction and development. The same author, together with several collaborators, has also contributed a most interesting report on their current studies of fetal thyroid function in macaques and another paper, describing a new "four π spiral scintillation detector" for the efficient finding of low energy beta particles in bone solutions. Based also upon the use of Rhesus monkeys are the reports on psycho-physical studies of vision by A. M. Schrier and D. S. Blough, on the induction of ovulation in these monkeys by human post-menopausal gonadotrophin by M. E. Simpson and G. Van Wagenen, and on the dermatoglyphic patterns in 13 Rhesus monkeys of a single kindred, spanning 8 generations, by R. L. Tips, F. S. Shininger and A. L. Perkins. Dealing with a man-like ape are the valuable contributions by A. J. Riopelle on "chimpanzee-associated hepatitis" and by F. H. Rohles and his three collaborators on the thorough analysis of complicated tests during "fourteen day restraint for an orbital flight with a chimpanzee". The receptor potentials of the retinas of Macaca and of Aotops have been studied by K. T. Brown and K. Watanabe. New World monkeys, especially Cebus and Lagothrix, have been found very useful in nutritional research, as it relates to atherosclerosis and certain other pathological conditions, described in a splendidly illustrated paper by F. J. Stare and his co-workers. R. F. Foran, finally, reviews briefly some of the literature on blood groups in non-human primates and contributes new relevant data and his modified methods of obtaining them. In contrast to the three earlier symposia this fourth one was chiefly devoted to research with primates, rather than to the study of non-human primates.

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