LABORATORY PRIMATE NEWSLETTER

Volume 4, Number 1

January, 1965

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with the assistance of

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POLICY STATEMENT
(Revised January, 1965)

The primary purpose of the Newsletter is to provide information on maintenance and procurement of nonhuman primates for laboratory studies. A secondary purpose is dissemination of general information about the world of primate research. Examples of the kind of practical information that would be useful are as follows: new drugs; novel aspects of cage design; new products; evaluations of various products; references to or short summaries of articles of general interest; experiences in connection with the procurement of monkeys. The Newsletter will also publish offers to exchange monkeys (for example, older monkeys for young or infant monkeys) and requests for monkeys with special characteristics (for example, good breeders or pregnant females). If someone has a special problem, he might want to request help through the Newsletter.

As a rule, only research articles or summaries which have some practical implications or which provide general information likely to be of interest to investigators in a variety of areas of primate research will be accepted for inclusion in the Newsletter. Descriptions of current research projects will also be welcome. It should be kept in mind that the Newsletter is not a formal publication and it is not likely to be obtainable in libraries. Therefore citation of Newsletter notes or articles in publications should be limited to special circumstances.

Information for the Newsletter will be welcome from anyone in any research area who is using monkeys or apes. The Newsletter will appear quarterly and will continue so long as people are interested enough to contribute items of information. The mailing list is open to anyone expressing an interest. There is no charge for new issues and back issues for the current year. Volumes 1 and 2 of the Newsletter may be purchased for $2.00 per volume and Volume 3 for $1.00. (Please make checks payable to Brown University.)

All correspondence concerning the Newsletter should be addressed to:

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Acknowledgment

The Newsletter is supported in part by U. S. Public Health Service Grant MH-07136 from the National Institute of Mental Health.

EDITOR'S NOTES

An article by Bernstein and Guilloud in this issue of the Newsletter points out, among other things, that stump-tailed monkeys may not be as tame as Kling and Orbach claimed in Science in 1963, and that, indeed, some of them may be rather vicious. We have had a group of 24 stump-tailed macaques in our laboratory for close to a year. Although we have not found them to be as angelic as Kling and Orbach suggested, we have been impressed by the ease by which they can be handled and the speed with which they adapt to test situations, when compared with Philippine macaques, rhesus macaques, and squirrel monkeys. There is no question that they must be handled with caution. Some of them will attempt to bite, particularly if they are handled abruptly. Nevertheless, the description of the behavior of these animals given by Bernstein and Guilloud does not correspond too well with our experience at the Brown Primate Behavior Laboratory.

However, we, too, have some reservations in recommending these animals. The colony room in which they are housed is maintained in the same manner as those which house our rhesus, Philippine, and squirrel monkeys, yet it has a distinctly unpleasant odor, whereas the other colony rooms do not. In part, the odor seems to be accounted for by the fact that the cages of the stump-tailed monkeys and the animals themselves are more frequently smeared with feces than is the case with the other monkeys. However, it looks as if removing the solid perches from the cages helps to alleviate the problem. The vocalizations of the stump-tailed monkeys are louder and more piercing than are those of the other animals.

On the other hand, we have found it much easier to get the stump-tailed animals in and out of the restraining chairs that we use for some of our experiments. In addition, they adjusted to our operant conditioning boxes and other training situations almost immediately. They learned a series of discrimination problems at least as well as the Philippine macaques.

If you are looking for a tractable animal, we would still highly recommend stumptails. But it should be noted that our experience is restricted to 3- to 4-year-old animals, caged individually.

CONTENTS

REPRODUCTION IN SEMIFREE-RANGING *SAIMIRI SCIUREUS*[1]

Detailed field studies of squirrel monkeys have not been performed as yet, and, therefore, little is known about their reproductive behavior in the wild. It is for this reason that it seems worthwhile to describe the observations made by Frank V. DuMond of a semifree-ranging group of squirrel monkeys. These animals are maintained in a unique establishment in Goulds (Miami), Florida, called the Monkey Jungle.

The Monkey Jungle was started by Mr. DuMond's father in 1933 and now consists of 15 acres. The unique feature of the Monkey Jungle is a 4-acre tract of dense tropical vegetation surrounded by fences, which is called the "Rain Forest," and within which South American monkeys are allowed to roam freely. The restraining fences are 7 feet high, with metal flashing covering the top 30 inches. This effectively confines the animals immediately after liberation. Some eventually learn to escape, but they return at feeding time. The observation paths which wind through the area are not enclosed since the primate inhabitants are not at all aggressive. Visitors are not allowed to feed the animals. The foliage in the Rain Forest is confined to South American plants and trees with the exception of the Asiatic banana plant. The South American plants include a number indicated by Carpenter (1934) as composing the diet of the howler monkey. Moisture is provided by tree-top sprinklers. The squirrel monkey, *Saimiri sciureus*, was the first species introduced to this area and it has definitely been the most successful species to date. Other species introduced later are 10 red uakari (*Cacajao rubicundus*), a pair of sakis (*Pithecia monacha*), a pair of red howlers (*Alouatta seniculus*), 15 white-lipped tamarins (*Leontocebus nigricollis*), and 1 cotton-top pinché (*Leontocebus oedipus*).

The exact location in South America from which the original stock of *Saimiri* was derived is not known. In mid-1960, 15 male and 25 female squirrel monkeys were freed in this enclosure. The first squirrel monkey babies were born between February and May of 1961. No additions, other than by births within the group, have been made since 1960 and the total squirrel monkey population now numbers between 75 and 90.

A detailed chronological report follows:

A. Introduction to the Enclosure

1. 3 August 1960--one male released; was sighted on August 6. Then 4 females and 2 males were released; they were sighted in the afternoon high in the trees and appeared very timid.

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[1]This report was compiled from material supplied by Robert W. Cooper, Primate Research Colony, San Diego Zoological Gardens, San Diego, Calif., and Frank V. DuMond, General Manager of Monkey Jungle, Inc., Goulds, Fla.

2. 16 August 1960--after observing the actions of the first seven animals for 10 days, 11 males and 19 females were released. This group behaved somewhat differently from the first seven. Many of them remained around the edge of the fence for several days before taking to the trees; it took these animals some time to find the feeding station. Remains of three that had died were found; the bodies were too decomposed to determine their sex.

3. Although a fence kept them from immediately fleeing the premises, they learned later to cross it. A group of about 10 adult males is now observed outside the fenced area much of the time. They do return for feeding, but at this time they are actually not confined.

B. Reproduction

1961--A number of females appeared to be pregnant during early January. The first baby was observed February 24, 1961, and by April 6, 1961, there were 6 babies; births continued into the middle of May. A total of 8 to 10 babies was born in this season.

1962--Females were observed to be pregnant in late March with the first birth occurring April 21, 1962. The births continued through May and into mid-June, and totalled 15 to 20.

1963--First birth observed May 10, 1963. The period of births extended into July, and totalled 15 to 20.

1964--The first pregnant female was observed in early June; the first birth was observed June 30. There were about 15 births up to this writing and there are certainly more to come. A number of the mothers were born in the colony in 1961. (If it can be assumed that some were born about March, 1961, this would put sexual maturity at approximately 36 months in this species.)

The successively delayed birth periods for the group indicate either that there is a 13- to 14-month reproductive cycle (doubtful) or that the group is shifting to a spring conception and fall birth cycle as the cynomolgus macaques in the other semifree-ranging section of the Monkey Jungle have done.

C. Infant Behavior

The babies ride on their mothers' backs, nursing under an arm with only the head under the armpit. They ride more or less continuously for several months, then work their way off gradually as they begin to play. Since the mothers stay together the babies play together. At about 9 months they become rather independent of their mothers and are seldom seen riding them.

D. Colony Behavior

At this point, there seems to be no population pressure, and from the behavior observed none is anticipated, because the squirrel monkeys do not seem to have the male-dominated social structure found in many other primates. They seem to expect no subservience or domination from one another. The males, females, and half-grown juveniles tend to run in more or less separate groupings, even though at a given time all may be in the same area of the Rain Forest. The groups seem to stay together for the safety and security of numbers and for companionship. Mating may occur en masse with a large group (as many as 30 animals) on the ground in one area all copulating simultaneously in a sort of orgy. Some "mating" partners in these groups were noted to be of the same sex. Occasional single matings may occur but due to the normal association of males with males this doesn't appear to happen as often as do the group matings.

E. Nutrition

Squirrel monkeys in this semifree-ranging environment are maintained with a minimum of labor and at a relatively small expense once the land area is provided. The animals are completely self-sufficient except for the provision of food at frequent intervals as a supplement to that growing in the Rain Forest. During the day, food is put out at various times accompanied by the ringing of a bell. The animals arrive at random and choose the food they wish. Food is supplied in large oven pans which are hoisted by pulleys into stands located 15 feet high within the trees. The diet offered consists, at a morning feeding, of homogenized milk, whole wheat bread dipped in a vitamin-enriched mixture of milk and raw egg, and Purina monkey pellets (relatively few of these are consumed). During the afternoons, sliced bananas, apple, and other fruits in season, e.g., melons, pears, peaches, grapes, etc., are supplied. Peanuts, sunflower seeds, carrots, string beans, and onions are always available to the animals. The feeding stations are frequented by all the species in the "Rain Forest" and thus it is not possible to state how much of each food the squirrel monkeys consume. It has been observed that only squirrel monkeys consume the morning feeding of milk and monkey pellets. The squirrel monkeys prefer grapes and peanuts over all the other foods except bananas.

The animals spend a great deal of time foraging in the jungle and perimeter. They have been observed eating tender new buds, flowers, wild berries and fruits that are available, and some insects. The vast variety of diet is probably not necessary for the squirrel monkey, but individual preferences are apparent and the requirements of other species eating from the same feeding stands must also be met.

F. Mortality

Three or more deaths occurred in the first 6 weeks after the original group was introduced. Two more deaths were recorded in the first year. Since then, there has been no observed mortality. The close observation of the colony at the feeding stations and the presence of attendants throughout the area much of the time make it unlikely that any significant amount of illness or deaths among the adult or growing stock would be missed, but an occasional death could go undetected. Infant mortality has not been observed. It is assumed that mothers would carry a dead baby for a short period of time as do other primates, and there would be adequate opportunities to observe these animals. No dead infants abandoned by mothers have been found, so there is no confirmed evidence of any mortality in the young colony.

Reference

Carpenter, C. R. A field study of the behavior and social relations of howling monkeys (Alouatta palliata). Comp. Psychol. Monogr., 1934, 10, No. 2 (Whole No. 48).

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NATIONAL REFERRAL CENTER FOR SCIENCE AND TECHNOLOGY[1]

A solution to the mounting problem faced by scientists and engineers in search of information is offered by the National Referral Center for Science and Technology, which provides a single point to which anyone can turn for advice on "where to go." The Center does not answer technical questions directly, but refers the inquirer to those who can answer such questions. It neither stores nor disseminates scientific or technical information, but knows where such information is stored, in what form, and the means by which it is disseminated. In response to an inquiry, the Center lists the information centers, special libraries, Government agencies, professional societies, industrial laboratories, abstracting services, and individual specialists able to supply the data or material desired. It also informs the requester what particular service, including restrictions and cost, he may expect from each organization or institution to which he is referred.

Requests for referral service may be made by calling 202-967-8265 or by writing to the National Referral Center for Science and Technology, Library of Congress, Washington, D. C. 20540.

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[1]From the October, 1964, "Communicator," published by Lehigh Valley Electronics, Fogelsville, Pennsylvania.

REEVALUATION OF *MACACA SPECIOSA* AS A LABORATORY PRIMATE

Irwin S. Bernstein and Norman P. Guilloud

Yerkes Laboratories of Primate Biology, Inc.
Orange Park, Florida

Subsequent to the reports of Kling and Orbach (1963) and Orbach and Kling (1964) regarding their favorable evaluation of the stump-tailed macaque (*Macaca speciosa*), a number of investigators have selected this monkey for laboratory use. Some investigators with no previous primate experience have made inquiry of the Yerkes Laboratories prior to making a final decision, and in light of our own experiences we have been somewhat less enthusiastic in recommending these animals.

Twelve stump-tailed macaques were received at these Laboratories directly from a dealer in Southeast Asia. On receipt, they were discovered to range from 3 years to fully adult in age, as judged by dentition, and hence were older than those specimens previously described. The animals arrived in poor condition, exhibiting symptoms of malnutrition and dehydration. Experienced monkey-handlers transferred the animals from shipping crates to quarantine cages and, in light of previous reports, we were surprised at their resistance to handling and their attempts to bite personnel.

After recovery from initial debilitation symptoms, nine survivors, two males and seven females, were housed in an 8 ft. x 8 ft. x 8 ft. outdoor cage and efforts were made to adapt the animals to their new environment and to win their confidence through consistent good treatment.

One male and one female were removed for use in a behavioral study and placed in a large cage containing representatives of a number of monkey taxa. The male stumptail in the mixed-taxa group, through persistent and prolonged attacks, inflicted multiple wounds on a capuchin monkey which so debilitated the latter that removal for intensive medical treatment was required. Similar episodes involving this male stumptail and other monkeys occurred, but only moderate injuries resulted.

The seven stump-tailed macaques living together established a status heirarchy, and the lowest-ranking members were subjected to repeated attack within the group. After four months, two animals had suffered such extensive bite wounds on the extremeties that large necrotic lesions resulted which required prolonged treatment. These injuries were produced by persistent chewing of the submissive animals. Despite the extent of necrosis and the severity of the injuries, both animals recovered, but could not be returned to the group.

Routine tuberculin tests 5 months after removal from quarantine required capture of the animals. Again, experienced monkey handlers,

who had been very successful in winning the cooperation of individuals of a number of other monkey taxa, found that protective gloves were required in handling the stump-tailed macaques. One man suffered a bite which broke the skin through his protective gloves. It is to be noted that although all animals that remained from the original group had erupted permanent canines, none had fully developed dentition.

Based on these and similar experiences with additional stump-tailed macaques, we believe that the previous descriptions of the docile nature of these animals should be modified to indicate that at least certain larger animals may become quite dangerous to both personnel and subordinate cagemates. (Stump-tailed macaques housed with dominant monkeys of other taxa have proven to be amiable cagemates.) We do not mean to imply that the stump-tailed macaque is not more tractable than the rhesus monkey, nor that the stumptail is not suitable for many laboratory projects. We do, however, wish to note that many other primate taxa may also be considered as more tractable replacements for the rhesus monkey when tractability is a consideration. Certainly all primates should be handled with caution inasmuch as many may harbor contagious diseases and almost all have the potential, as adults, of inflicting serious wounds. The docile nature of some as juveniles should not be generalized to all members of the species regardless of age.

We should like to note that we have individual animals of the following taxa: Macaca nemestrina, Macaca maurus, Cynopithecus niger, Ateles spp., Cebus albifrons, Lagothrix spp., etc., which are at least as permissive as the most docile Macaca speciosa described previously. Although these individuals may be freely handled and carried with impunity, other individuals of the same taxa are less cooperative and some are even dangerous.

References

Kling, A., and Orbach, J. The stump-tailed macaque: A promising laboratory primate. Science, 1963, 139, 45-46.

Orbach, J., and Kling, A. The stumped-tailed macaque: A docile Asiatic monkey. Anim. Behav., 1964, 12, 343-347.

SQUIRREL MONKEY PERCHING HABITS

Caged squirrel monkeys will spend most of their time on perches if perches are provided as noted by Feldman and Green (Lab. primate Newsltr, 1964, 3 [No. 3], 9). We have found, however, that if given a choice they prefer a shelf to a perch. We use suspended wire cages 30 in. square and 72 in. high with up to six monkeys per cage and have tried a variety of perches and shelves. During the day the monkeys show a distinct preference for resting between periods of play or other activity on a shelf rather than a perch. At night, however, they roost on the highest thing provided for them.

Since a shelf is sometimes soiled with feces or urine, we do not use shelves now but instead use a pair of 1-in. perches at the same height and about 1 in. apart; the monkeys seem to find this double perch equivalent to a shelf. We provide two double perches in each cage and two single perches, thus adding to the total space the monkeys can actually occupy within the cage and giving them increased living room and a chance to sit apart as well as together. The material of the perch seems to make little difference to the monkey and since plastic is easier to clean and nonabsorbent compared to wood, we use plastic pipe perches.

A squirrel monkey's preference for resting on a shelf or double perch seems to relate to the fact that he need make no effort to balance or brace himself as he does on the single perch. On the single perch the resting monkey usually reaches out to the side or top of the cage to brace himself, whereas on the shelf or double perch he curls up like a resting cat with all four limbs tucked under him and seems more relaxed.

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PRIMATE GROUP FORMED IN ENGLAND

A meeting of senior representatives of various disciplines concerned with nonhuman primate researches in England was convened at Bristol University on the 1st and 2nd May 1964. Sixteen people attended, representing behavioral, physiological, anatomical, veterinary, and medical disciplines. The purpose of the meeting was to discuss ways and means of improving research facilities and general scope of nonhuman primate research in this country, possibly through the formation of a National Primate Centre in addition to asking the research foundations for greater support for individual projects in university departments.

A second meeting was held in the offices of the Zoological Society of London on the 15th October 1964. The informal membership of the group was extended to twenty, and the business meeting was followed by a very valuable session of research talks and discussions. It was agreed that the group should, at present, remain informal, and should aim at holding two meetings a year. The next meeting is scheduled for the spring at Oxford University.

Further information about this primate group can be obtained from K. R. L. Hall, Department of Psychology, University of Bristol, 8-10 Berkeley Sq., Bristol 8, or John Napier, Royal Free Hospital School of Medicine, 8 Hunter Street, London W.C.1.

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FETAL SPECIMENS NEEDED

We are studying the time and sequence of primate deciduous tooth formation with a broad comparative framework. We are, therefore, in need of fetuses from nonhuman primates, both New and Old World. It would be appreciated if anyone capable of supplying these specimens would contact the undersigned.

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BIBLIOGRAPHIA PRIMATOLOGICA STILL IN PRINT

We have received a letter from an investigator using primates saying that he was told that the original Bibliographia Primatologica is out of print. This statement is not true. Copies are available from the Historical Library, Yale University, School of Medicine, 333 Cedar Street, New Haven, Connecticut 06511.

(Mrs.) Maryeva W. Terry
Primate Information Center
Regional Primate Research Center
University of Washington
Seattle, Washington 98105

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PRIMATE REFERENCE LISTS AVAILABLE

A weekly listing of unverified and unclassified primate references with the addresses of the first authors, for convenience in requesting reprints, is available from us. This list is a product of our weekly search of the literature and is reproduced in such a manner that it does contain typographical errors. However, it has proved sufficiently popular that we are now duplicating it so that we can offer it generally at no charge. We can also provide special bibliographies, selected by subject and species from our interim system, on request.

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INCIDENCE OF TB IN SQUIRREL MONKEYS AND MARMOSETS

In response to Clewe's request for information on TB in squirrel monkeys (Lab. primate Newsltr, 1964, 3 [No. 3], 11), R. N. Fiennes of the Zoological Society of London (Regent's Park, London, N.W.1) reported the following[1]:

"In our experience tuberculosis in squirrel monkeys, as in other South American primates, is rare. In our records I can find only two cases:

1. No. 42/52. Tubercles were present in the spleen only.

2. No. 77/52. Tubercles were present in lungs and spleen, and there was a tuberculous gland in the neck.

"Neither monkey died of tuberculosis and the disease was possibly regressive. It was due to the human type Mycobacterium, and occurred at the height of a serious epidemic in Old World species. I should regard tuberculosis of squirrel monkeys as a remote hazard and only worth the trouble of tuberculin testing if they are in contact with infected Old World species."

Fiennes also reported the following with regard to marmosets:

"Between 1951 and 1963 we lost 89 of these animals only one of which suffered from tuberculosis; this appeared to be due to bovine type organisms and showed only caseating nodules in the spleen.

"It is my opinion, therefore, that tuberculin testing of marmosets is unnecessary, especially since this period covered the major outbreak of tuberculosis in these gardens."

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[1] See also the Editor's Notes in the October, 1964, issue of this Newsletter.

DEDICATION OF DELTA REGIONAL PRIMATE RESEARCH CENTER

Ceremonies dedicating The Delta Regional Primate Research Center of Tulane University were held November 1, 1964.

On November 5 through 8, a symposium and seminar were held at the new Center. The following papers were presented:

Baboons and Macaques--A Problem in Evolutionary Systematics, by John Buettner-Janusch, Department of Anthropology, Laboratory of Physical Anthropology, Yale University, New Haven, Connecticut

Systematic and Phylogenetic Position of Gigantopithecus, by G. Heberer, Anthropologische Forschungstelle, Zoologische Institut, Gottingen, Germany

Molecular Records of Primate Evolution, by Morris Goodman, Harry Maisel, and Frank Syner, Wayne State University School of Medicine, Detroit, Michigan

Constitutional and Skeletal Research in the Chimpanzee, by Ellis Kerley, Orthopedic Pathology Branch, Armed Forces Institute of Pathology, Washington 25, D. C.

Kyphosis of the Brain and Skull Base in Primates, by Helmut Hofer, Max-Planck Institut für Hirnforschung, Frankfurt, Germany

Functional Structure of Leg and Foot in Hominoids, by H. Preuschoft, Anthropologische Institute der Universität, Frankfurt, Germany

Patterns of Parasitism in Primates--Phylogenetic and Ecological Interpretations, by Frederick Dunn, The George Williams Hooper Foundation, San Francisco Medical Center, University of California, San Francisco, California

Renal Transplantation from Nonhuman Primates, by Keith Reemstma, Department of Surgery, Tulane University School of Medicine, New Orleans, Louisiana

Brain Mechanisms in Sleep, by Carmine Clemente, Department of Anatomy, University of California, Los Angeles, California

Social and Reproductive Behavior in Five Species of Tree Shrews, by Marion Sorenson and Clinton Conaway, Department of Zoology, University of Missouri, Columbia, Missouri

Behavioral Development of an Infant in a Captive Gibbon Group, by Gershon Berkson, Illinois State Pediatric Institute, Chicago, Illinois

Some Physiological Effects of Maternal Deprivation, by Seymour Levine, Department of Psychiatry, Stanford University School of Medicine, Palo Alto, California

Auditory Sensitivity of the Rhesus Monkey, by Isaac Behar, Psychology Division, Army Medical Research Laboratory, Fort Knox, Kentucky

Fifteen Years Study on the Natural Life of the Japanese Monkey, by Kinji Imanishi, Research Institute for Humanistic Studies, Kyoto University, Kyoto (Sakyo), Japan

Ecological Relationships of Men and Primates in Selected Parts of West Africa, by Neil Tappen, Department of Surgery, Tulane University School of Medicine, New Orleans, Louisiana

General View of the Ecology of the Japanese Monkey by Syunzo Kawamura, Department of Biology, Osaka City University, Osaka, Japan

Dynamics of Rhesus Monkey Bands on Cayo Santiago, by Carl B. Koford, Laboratory of Perinatal Physiology, San Juan, Puerto Rico

The Sexual Behavior of the Japanese Monkey, by Kisaburo Tokuda, Institute of Biology, Faculty of Liberal Arts, Wakayama University, Wakayama, Japan

Social Contacts in Langurs, by Suzanne Ripley, Department of Anthropology, University of California, Berkeley, California

Some Basic Problems of the Troop Organization of the Japanese Monkey, by Masao Kawai, Institute of Primatology, Japan Monkey Centre, Aichi-ken, Japan

On the Sub-Culture of the Japanese Monkey, by Syunzo Kawamura, Department of Biology, Osaka City University, Osaka, Japan

Social Changes in Troops of Japanese Monkeys, by Hiroki Mizuhara, Institute of Primatology, Japan Monkey Centre, Aichi-ken, Japan

Social Communication of Bonnet Macaques, by Paul Simonds, Department of Anthropology, University of Oregon, Eugene, Oregon

A Comparison of Repertoires of Behavior in Macaques and Baboons, by Stuart Altmann, Department of Zoology, University of Alberta, Edmonton, Alberta, Canada

Daily and Seasonal Movement, Range, and Inter-Troop Relationships of the Japanese Monkey, by Kisaburo Tokuda, Institute of Biology, Faculty of Liberal Arts, Wakayama University, Wakayama, Japan

A Field Study of the Social Organization of the Socay Monkey, Callicebus ornatus, by William Mason, Delta Regional Primate Center, Covington, Louisiana

Social Differences Between "Artificial" and "Natal" Enclosure Groups of Rhesus Monkeys, by John G. Vandenbergh, Laboratory of Perinatal Physiology, San Juan, Puerto Rico

Reproduction and Growth of Marmosets, Particularly Oedipomidas oedipus, by John K. Hampton and Suzanne H. Hampton, Department of Physiology, Tulane University School of Medicine, New Orleans, Louisiana

Characteristics of Primate Social Organizations, by Irwin Bernstein, Yerkes Laboratories of Primate Biology, Orange Park, Florida

Responsiveness to Complex Objects in Free Ranging Japanese Monkeys, by Emil W. Menzel, Yerkes Laboratories of Primate Biology, Orange Park, Florida

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INFORMATION ON THERMAL TOLERANCE OF MONKEYS REQUESTED

I recently lost a stump-tailed monkey following an exposure to 104° F, 60% R.H. for 2 hours. Under the same conditions, a second animal was unconscious for about 6 hours but survived. In discussing this with several people, I found that there is little information concerning the upper thermal tolerance of the monkey. I have heard of a case in which two rhesus monkeys were lost following a 6-hour exposure to 97° F. I have observed that the usual responses for losing heat, sweating or panting, are not exhibited by monkeys. They will sweat on the palms of the hand and soles of the feet but nowhere else. Since information such as this would not ordinarily find its way into the literature, I would appreciate hearing from any individual making similar observations or knowing of any definitive research on the tolerance of monkeys to high thermal stress.

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RECENT BOOKS AND ARTICLES

Books

Naturalistic behavior of nonhuman primates. C. R. Carpenter. University Park, Pennsylvania: Pennsylvania State Univer. Press, 1964.

Included in this book are Carpenter's monographs on the howler monkeys of Panama, the gibbons of Thailand, the orangutans of Sumatra, and other monkey colonies, with new introductions and discussions by the author.

Disease

Naturally-occurring B-virus infection in cynomolgus monkeys. Hartley, E. G. (Medical Research Council Laboratories, Hampstead, London, N.W.3, England) Vet. Rec., 1964, 76, 555.

This report describes the occurrence of 30 clinical cases of B-virus infection among 300 cynomolgus monkeys imported from Cambodia. Within 72 hours after arrival each monkey was sedated with phencyclidine (Sernylan: Parke-Davis) and the mouth, tongue, and buccal cavity were examined. Only 1 of the 30 had an externally visible ulcer; and only 6 showed evidence of the conjunctivitis which has been reported associated with this infection. Mouth lesions varied from a single ulcer to several lesions mainly on the tongue dorsum; they were 5-8 mm in diameter and were covered with a pale yellowish-gray translucent tissue. Cultures were made of the lesions and the identity of the virus was confirmed by rabbit inoculation. The occurrence of so many cases without externally visible ulcers or conjunctivitis emphasizes the need for thorough examination of the mouth when checking monkeys for this disease.

A study of the effectiveness of Thiabendazole in the rhesus monkey. Bingham, G. A., & Rabstein, M. M. (U.S. Army Research Laboratories, Fort Detrick, Maryland) Lab. anim. Care, 1964, 14, 357.

Fifty of a group of 100 juvenile rhesus were given 100 milligrams of Thiabendazole per kilogram of body weight orally. Thiabendazole was shown to be an effective anthelminthic against Strongyloides spp. and Oesophagostomum spp. No eggs of either species were seen in the stool samples of the treated group examined six days, three and five weeks post-treatment. Small numbers of eggs of both species were present in a few fecal samples from the treated group examined at seven, nine, and eleven weeks post-treatment. A high percentage of samples from the control monkeys contained eggs of one or both of the above two parasites throughout the study.

Clinically, as determined by weight gains and incidence

of diarrhea, there were no significant differences between the treated and the control monkeys.

Shigellosis, amebiasis and simian malaria. Geiman, Q. M. (Dept. of Preventative Med., Stanford Univer. School of Med., Palo Alto, California) Lab. anim. Care, 1964, 14, 441.

Histopathologic evaluation of a laboratory primate: The squirrel monkey (Saimiri sciureus). Furry, D. E. BuMed Project MR005. 13-9010 Subtask 5, Report No. 1 and NASA Order No. A-34681. Pensacola, Fla: Naval School of Aviation Medicine, 15 August.

Tissues from the major organ systems of 15 squirrel monkeys were prepared for microscopic evaluation. Eleven of these primates, initially classified as essentially normal animals, were found to have numerous alterations of tissue structure, reflecting various types of inflammatory and degenerative lesions. The attention of investigators utilizing the squirrel monkey as an experimental animal is directed to the possible existence of acute and chronic lesions in apparently normal animals. Subtle alterations in function or structure of this primate must be meticulously interpreted and evaluated. Careful histopathological evaluation of major organ systems is an essential requirement for the proper interpretation of a cause-effect relationship.

General

Laboratory animals. Part II: Animals for research (5th ed.). Washington, D. C.: National Academy of Sciences, National Research Council, 1964. (Copies may be purchased for $2.00 each from the Printing and Publishing Office, National Academy of Sciences, National Research Council, 2101 Constitution Ave., N.W., Washington, D. C. 20418)

This directory, a total revision of the 1963 edition, compiled by the staff of the Institute of Laboratory Animal Resources, is a guide to sources of experimental animals and animal colony equipment and materials. Included are: (1) 930 listings, giving addresses and telephone numbers, for suppliers of the common domestic research species (chickens, turkeys, rabbits, mice, rats, hamsters, guinea pigs, dogs, and cats); sources are listed for axenic and pathogen-free mice and rats. (2) 1896 listings, giving addresses and telephone numbers, for suppliers of 954 species of animals obtained from nature, arranged in phylogenetic order; (3) 201 listings, giving addresses and telephone numbers, of manufacturers of feed, cages, washing machines, germ-free equipment, and ancillary laboratory equipment. Two indexes to the contents are provided, listing animals both by vernacular and scientific name.

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