LABORATORY PRIMATE NEWSLETTER

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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.

TENTATIVE IDENTIFICATION OF LABORATORY SQUIRREL MONKEYS (SAIMIRI)

W. C. Osman Hill

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In a recent issue of Science, MacLean (1964) discusses certain behavioral reactions in squirrel monkeys, pointing out constant differences observed in behavior between examples of two varieties of Saimiri. These differences he correlates with marked divergence in facial pattern, which, in the absence of other taxonomic criteria, he distinguishes as Gothic and Roman in reference to the shape of the supraorbital pattern. Beyond a suggestion that the type with the Gothic arch appears to correspond with the description which I (Hill, 1960) have given to Saimiri sciurea petrina (Thomas, 1927), MacLean makes no pretensions to precise diagnosis of his two varieties.

At a round-table conference on reproduction in Saimiri recently held at the Bowman-Gray School of Medicine, Winston-Salem, North Carolina, the problem of taxonomic identity in squirrel monkeys was discussed and living examples of both of MacLean's types were demonstrated.

From remarks made by Dr. C. C. Middleton in opening a discussion concerning sources of supply, it was affirmed that all squirrel monkeys at present in the United States derive from two sources and that the two types depicted by MacLean represent the stock available from these. The two entrepôts are Leticia, Colombia, and Iquitos, Peru, the former being the source of MacLean's Gothic type and the latter that of the Roman type.

Now, both places are merely depots where animals collected elsewhere --sometimes considerable distances away--are assembled prior to shipment to the United States. This is particularly true in the case of the Iquitos animals although I am informed that those from Leticia come from an area of approximately 28 square miles. Moreover, both places stand at or near the meeting point in the range of two or more described forms of Saimiri. Therefore, without some clue as to the original provenance, no certain diagnosis can at present be made.

A further difficulty arises from the fact that the hitherto described races of Saimiri have been based upon museum skins preserved by field collectors and generally accompanied by the skulls. However, the facial patterns are inevitably grossly distorted, so that a tie-up with MacLean's Gothic and Roman arch patterns is well nigh impossible. Nevertheless, certain features, such as the extent of the pale preauricular area, its embellishment or otherwise with a dark vertical bar, the coloration of the crown, and the presence or absence of ear-tufts, are usually well preserved in museum material.

In attempting to arrive at a tentative diagnosis of the two forms, let us consider the possible collecting sites and their relation to the distributional areas of known forms.

Firstly, Leticia is located on the north bank of the Amazon, in a salient of Colombia between Peru and Brazil. Dr. Middleton informs me that animals passing through Leticia are not collected in Colombia, but in neighboring parts of Brazil, on the opposite bank of the Amazon, the collecting area extending some miles either way, but presumably not transgressing the Javari into Peru. This would derive them from the area within the range of S. madeirae juruanus (Lönnberg, 1940), a form which extends westwards from the Rio Juruá for an unknown distance, but presumably meeting the territory of S. usta (Geoffroy, 1844) in eastern Peru.

S. madeirae is characterized by reduction of the golden tinge, especially on the head, to a minimum, whilst the orange of the forelimbs is virtually restricted to the dorsum of the hands and wrists. The western race, S. m. juruanus, is said to differ from the typical race merely in more pronounced grizzling of the body and the more pilose external ears.

A typical adult male of Letician provenance presents a facial pattern with a Gothic supraorbital arch; ears are small and adpressed. There is an extensive pure grey area over the shoulders and upper arms. Orange of the forelimbs, though not restricted to the hands, extends along the ulnar border of the forearm without reaching the elbow. The tail is relatively short and thick, especially at the base, but has a long, black apical segment and terminal tuft. There is nothing in this description indicating any wide departure from S. madeirae juruanus, and we have the new diagnostic character of the form of the supraorbital arch.

Secondly, with regard to specimens shipped out of Iquitos, it transpires that these are all collected in eastern Peru, presumably along the southward tributaries of the Amazon, though I have no positive evidence that Saimiri extends west of the Ucayali. The block of territory east of the Ucayali and south of the Amazon is believed to be the area of differentiation of the golden-backed, short-tailed or Geoffroy's squirrel monkey (S. usta), though some authors have identified specimens from elsewhere as of this form (see Hill, 1960, p. 314). Besides its bright golden upper parts, S. usta is allegedly characterized by a shorter tail and naked (i.e., untufted) ears. Geoffroy's plate recalls, in its extensive pale preauricular area, the race described by Thomas as S. sciurea petrina but the area is not as boldly white, being washed with yellow.

Iquitos material I have examined agrees in no way with the characters either of S. usta or S. s. petrina, the latter from northeastern Peru. It probably, therefore, represents some other race of S. sciurea or of S. boliviensis. Briefly, the Iquitos specimens are smaller than

those from Leticia, with broader, rounder faces, topped with a Roman supraorbital arch; ears outstanding and heavily tufted with white; a broad dark vertical preauricular bar; orange of forearms extending to elbow; tail long, slender, and only the tip black-haired. An additional feature is the darkening of the crown, which, I am informed by those who maintain colonies of this race, occurs solely in females during their maturation. I do not accept this as I have examined cadavers of undoubted males in which a blackish crown was present. This varies in intensity in relation to the length of the terminal black annuli of individual hairs, permitting a variable amount of the greyer bases to be seen. It is said to deepen with age. Is this an approach towards the condition in S. boliviensis? In the latter both sexes are normally black-capped and a very dark preauricular band is the rule. Two races of S. boliviensis in which the crown is incompletely black have been described, viz. S. b. nigriceps (Thomas, 1902) and S. b. jaburuensis (Lönnberg, 1940). These differ only in the proportionate length of the feet. S. boliviensis nigriceps occurs along the right bank of the Ucayali and its affluents; the type specimen, which I have examined, is a male with completely black crown (see comments, Hill, 1960, p. 318). It also presents a pronounced preauricular black streak. This agrees more closely than any other with the Iquitos material and its geographical locus is confirmative. Nevertheless, the Iquitos material may eventually prove intermediate in character between S. boliviensis and S. sciurea, though the only race of the latter which positively ranges south of the Amazon (here called Maranon) is S. s. petrina, which occurs in San Martin Province, Peru, and is a very distinct form with conspicuous white areas on the head and no black markings.

In conclusion, the two forms at present available in the United States may tentatively be defined as:

Leticia material: Saimiri madeirae juruanus

Iquitos material: S. boliviensis nigriceps

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Hill, W. C. O. Primates, comparative anatomy and taxonomy. IV. Cebidae. Part A. New York: Interscience, 1960.

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Thomas, O. New forms of Saimiri, Oryzomys, Phyllotis, Coendou, and Cyclopes. The Annals and Magazine of Natural History 1902, 10, (7), 246-250.

Thomas, O. The Godman-Thomas expedition to Peru. V. On mammals collected by Mr. R. W. Hendee in the Province of San Martin, N. Peru, mostly at Yurac Yacu. The Annals and Magazine of Natural History 1927, 19, (9), 361-375.

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LUNG MITES (PNEUMONYSSUS SIMICOLA) IN THE FECES OF MACACA MULATTA

Two out of 10 newly arrived rhesus monkeys, approximately 3 years old, showed larvae of Pneumonyssus simicola (lung mites) in their feces. Routine fecal examinations for intestinal parasites performed by the zinc sulfate centrifugal flotation method (Bauer, Toro, & Ackermann, 1962) revealed the presence of lung mite larvae, characterized by three pairs of legs (Hammerton, 1932).

The mode of infestation by lung mites is not certain, nor has mention been made of their presence in feces (Ruch, 1959). It is possible that the larval mites found in the stools were ingested along with food, or else that the animals coughed the larvae from the lungs into the pharynx and swallowed them. In either case, the mites would somehow have to evade digestion to appear intact in the stool.

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Hammerton, A. E. Report of deaths occurring in the Society garden during the year, 1931. Proceedings of the Zoological Society of London, 1932, 2, 613-638.

Ruch, T. C. Diseases of laboratory primates. Philadelphia: Saunders, 1959.

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THE INTERNATIONAL PRIMATOLOGICAL SOCIETY

The International Primatological Society was founded at the meetings held in Covington, Louisiana, in November, 1964, in connection with the opening of the Delta Regional Primate Research Center.

The Society is dedicated to the advancement and coordination of all aspects of primatological research. Special emphasis is placed on the intensification of exchanges of views.

Officers elected at the initial meeting are:

President: Dr. L. Carmichael, Washington, D. C., U.S.A.
Vice President: Prof. Dr. D. Starck, Frankfurt a.M., Germany
Vice President: Prof. Dr. Vandebroeck, Leuven, Belgium
Secretary General: Prof. Dr. H. Hofer, Frankfurt a.M., Germany
Secretary for Western Hemisphere: Dr. C. R. Carpenter, Chapel Hill, North Carolina, U.S.A.
Secretary for Eastern Asia: Dr. K. Imanishi, Kyoto, Japan
Secretary for Europe: Dr. H. Preuschoft, Tübingen, Germany
Treasurer: Dr. H. Sprankel, Frankfurt a.M., Germany

The Society is located at Frankfurt a.M., Germany, where the next meeting is to be held at the end of July, 1966.

As long as no periodical is published, membership dues are $2.00 per year, payable to the order of Dr. Sprankel, treasurer.

Inquiries regarding membership should be directed to Dr. H. Sprankel, Max-Planck-Institut für Hirnforschung, Deutschordenstrasse 43, Frankfurt a.M., Germany.

SECOND INTERNATIONAL SYMPOSIUM ON THE BABOON

AND ITS USE AS AN EXPERIMENTAL ANIMAL*

November 2-5, 1965

Southwest Foundation for Research and Education

San Antonio, Texas

TAXONOMY

W. C. Osman Hill (Yerkes Regional Primate Research Center), et al.: Report of Committee on Taxonomy.
Clifford Jolly (University College, London): Paleontology of the baboon.
William R. Maples (University of Texas and Southwest Foundation): A preliminary report on classification of the Kenya baboon.

COLONY MANAGEMENT

Robt. L. Hummer (Southwest Foundation): Preventive medicine in colony management.

ANATOMY

Embryology

Andrew G. Hendrickx (Southwest Foundation): The development of the thyroid and parathyroid glands in the baboon fetus.

Microanatomy

Allan A. Katzberg (Southwest Foundation): The developing ovum in the baboon. The histology of the vagina and uterus of the baboon.

Gross Anatomy

Robert S. Benton (University of Kentucky): The epaxial muscle of the baboon--some relations of form and function. The lumbar region and pelvic and the relations between morphology and function.
E. A. Boyden (Minneapolis General Hospital Research Foundation), C. R. Hitchcock, R. C. Anderson: Morphology of the sphincter of Oddi and the papilla of Vater in the baboon.
O. M. Reed (Southwest Foundation): Cephalometric studies of the growth and development and eruption patterns.

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*Papers accepted by the Program Committee as of June 25, 1965. Arrangements are being completed for presentations by a number of European scientists.

Clyde C. Snow (Civil Aeromedical Research Institute, Oklahoma City): Post-natal growth and development of the savannah baboon (Papio doguera).

Daris R. Swindler (Michigan State University): The vascular pattern (the carotid artery and its distribution) in the neck of the baboon. The comparative odontology of the baboon.

Thomas E. Vice (Southwest Foundation), Clyde C. Snow: Organ weight, body weight relationship of the savannah baboon (Papio doguera).

PATHOLOGY

C. R. Hitchcock (Minneapolis General Hospital Research Foundation), K. A. Porter, D. R. Baker, R. C. Anderson: Histologic changes in baboon kidneys four years following controlled ischemia and extracorporeal storage with autografting.

S. S. Kalter (Southwest Foundation), et al.: Viral tumors in the baboon.

Fred Maurer (Texas A & M University): Histopathological findings in mycobacterium infections in the baboon.

O. M. Reed (Southwest Foundation): Induction of dental caries in the baboon.

PHYSIOLOGY

Orn Arnar (Minneapolis General Hospital Research Foundation), J. J. Haglin: Function of the baboon lung following extended, controlled ischemia and autografting.

W. C. Banks (Texas A & M University): Radiographic technique for the baboon.

Howard Britton (Southwest Foundation): Hematological observations in the baboon.

Armando de la Pena (Southwest Foundation): Clinical laboratory values in the normal baboon.

Anna L. Ellington (Minneapolis General Hospital Research Foundation), J. J. Haglin, G. D. Nelson, M. Ettinger, C. R. Hitchcock: Evaluation of tolerance of the baboon brain to controlled cerebral ischemia under normal and hyperbaric conditions.

Joseph W. Goldzieher (Southwest Foundation): Preliminary endocrine studies in the normal baboon.

J. J. Haglin (Minneapolis General Hospital Research Foundation), Orn Arnar: Four-year follow-up of pulmonary function in the baboon with lung autografts and contralateral pneumonectomy.

George R. Herrmann (University of Texas): Physiological studies of fibrillation and defibrillation thresholds and relative refractory period in the heart of the baboon.

Vital Signs

M. E. Groover (University of Oklahoma), Clarke Stout: Electrocardiographic patterns of the baboon in the supine, prone, and vertical positions.

Robert L. Van Citters (University of Washington): Telemetry of blood flow and pressure from ambulatory baboons.

BIOCHEMISTRY

L. R. Axelrod (Southwest Foundation): The biosynthesis of steroids by the baboon testes.

Nigel A. Barnicot (University College, London): Biochemical variations in the blood of baboons.

M. E. Groover (University of Oklahoma): Electrophoretic patterns of baboons. The presence of L. M. factor and electrophoretic mobility of beta lipoprotein as influenced by emotional tension in the baboon.

James Hampton (University of Oklahoma): Blood clotting factors in the baboon.

MICROBIOLOGY

J. J. Haglin (Minneapolis General Hospital Research Foundation), Orn Arnar, F. L. Shapiro: Tolerance of the Kenya baboon to immunosuppressive therapy with azathioprene.

Mary E. Pinkerton, Yousef Al-Doory, Robert E. Kuntz, Betty J. Meyer, S. S. Kalter (Southwest Foundation): Microbiological parameters of the baboon--bacteriology, mycology, parasitology, and virology.

F. L. Shapiro (Minneapolis General Hospital Research Foundation), R. C. Anderson, J. J. Haglin, C. R. Hitchcock: Spleen as an antigen loading factor in homotransplantation in the baboon; a preliminary report.

EXPERIMENTAL MEDICINE

Psychology

W. Lynn Brown (University of Texas): Learning set formation by African baboons, stump-tailed macaques, and rhesus monkeys.

Vernon Smith (University of Oklahoma): The influence of the presence of adult males on the menstrual cycle of the baboon.

Clarke Stout (University of Oklahoma): Changes in the color preference of baboons in illness.

Surgery

Larry D. Claborn (Southwest Foundation), Andrew G. Hendrickx: A proven technique for the delivery of early stage baboon embryos.

Irving A. Ratner (Southwest Foundation): Thymectomies in prenatal and newborn baboons.

Thomas E. Starzl (Veterans Administration Hospital, Denver): Homotransplantation of baboon organs from simian to simian rather than in human application.

Medicine

Clarke Stout (University of Oklahoma Medical Center): Effect of radiation on the baboon.

LETTERS TO THE EDITOR

Citation of Newsletter Articles

I have been somewhat surprised to receive a number of reprint requests for the note Ken Anderson and I had in the April, 1965, issue of the Newsletter. It seems to me that a somewhat more explicit statement even than the one you now print [see Policy Statement, January, 1965, issue] limiting citation of articles and pointing out that reprints cannot be supplied would be a good idea. My own view of the usefulness of the Newsletter is that it should not be part of the regular literature and that articles in it should never be cited. When data of a scientific nature is extensive enough to warrant permanent incorporation in the literature it should be published in the regular manner.

David Symmes
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Death of Founder of Asiatic Animal Imports

It is with deepest regret that I have to inform you of the death of my husband, Mr. Stanford Gluck, founder and President of Asiatic Animal Imports, Incorporated, who passed away on April 15, 1965.

In keeping with his wishes, "Asiatic" will carry on as it has in the past, continuing to furnish quality research animals and biologicals to the medical profession and research investigators.

I, as co-founder with my husband and active in the operations of the company since its inception, will assume the office of President. Assisting me will be Mr. Robert E. Ewing, Executive Vice President, and Mr. Samuel J. H. Fox, Vice President, both long-time officers of the corporation. All other officers and personnel will remain unchanged.

Iona G. Gluck
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TUBERCULOSIS INCREASES IN DOGS AND CATS IN FRANCE*

According to an article in the February 5, 1965, issue of Medical World News, tuberculosis, both the human and bovine types, is appearing with increasing frequency among dogs and cats in France and other European countries. Professor Pierre Goret of the Veterinary School at Maisons-Alfort declared that the incidence of tuberculosis among household dogs rose from virtually zero in the late 1950s to an estimated 2 per cent today. Canine tuberculosis is reappearing in many new forms. He reports that it often occurs in young dogs as an acute episode that is not seriously considered or treated, and that it leaves the animal in a generally good condition but capable of transmitting the disease. Autopsies of such dogs often reveal acute miliary tuberculosis.

Professor Goret states, "Canine tuberculosis can be said to be a zoonosis in reverse, for it is most frequently transmitted from man to animals." However, it is possible for man to become infected following contact with a diseased animal.

In preantibiotic days, when the only known treatment for human tuberculosis was a stay in a mountain sanatorium, the percentage of infection among dogs was much higher than now. During the period 1910-1913, the incidence of canine tuberculosis seen at Maisons-Alfort was 13 per cent. By 1926, increasing isolation of human patients helped to cut the incidence in dogs to 8 per cent. Effective chemotherapy then reduced the incidence to virtually zero. However, today, Professor Goret reports that out of every 90 to 140 dogs seen at each of three weekly clinics at Maisons-Alfort, four or five have the disease. The rise coincides with an increase in the number of people with antibiotic-resistant bacilli.

The "overconfidence" in the treatment of human tuberculosis has favored the emergence of resistant organisms, and consequently a substantial rise in the incidence of animal disease of the human type.

Professor Goret reports that the Veterinary School of Lyons finds tuberculosis in about 12 per cent of cats in that city; in Toulouse, the rate is about 9 per cent. The cat appears to be more susceptible to bovine tuberculosis than to the human variety. However, the habits of the cat make it less dangerous to its human owners.

The dog, in contrast, is a closer companion to man; he is also a sniffer of excrement. The most frequent pathway of contamination is the nose. Canine tuberculosis can be arrested if treated rationally and consistently for a long period of time. However, Professor Goret believes

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*From CDC Veterinary Public Health Notes, March, 1965. (Prepared by Veterinary Public Health Section, Epidemiology Branch, Communicable Disease Center, U.S.P.H.S., Atlanta, Georgia.)

that attempting to treat tuberculous dogs is inadvisable. There is a risk that treatment will become lax and will be abandoned after clinical improvement. The dog may then carry resistant microorganisms and can contaminate other animals. But worse, they can contaminate children and adults with resistant bacilli. He recommends that animals with tuberculosis be killed rather than treated.

Professor Goret feels that cat and dog tuberculosis should be added to the list of reportable diseases. The fight against tuberculosis is a fight against infection in all species.

PHYSIOLOGIC OBSERVATIONS DURING INDUCED ANEMIA IN UTERO IN THE RHESUS MONKEY

Cardiac failure due to severe anemia is thought to play an important role in the etiology of hydrops fetalis. It has been possible to produce anemia in utero over several days by intermittent withdrawal of blood from the fetus through a catheter introduced into the carotid artery. The technique, which allows prolonged survival of the fetus after it is removed from the uterine cavity and replaced, will be described and illustrated in detail.

Observations were made on six fetal monkeys 80-120 days of age. ECG, arterial blood pressure and intrauterine pressure were recorded continuously. Blood samples were analyzed for RBC concentration, PO_2, Pco_2, pH, plasma electrolytes, protein concentration and osmolality. Reduction in RBC concentration up to 50 per cent was not associated with changes in BP, heart rate, or acid-base state; the pH gradient between the mother and the fetus remained small (< 0.04) and the PO_2 in the descending aorta seldom declined below 35 mmHg. Only when RBC concentration was reduced to 6 to 8 per cent did BP fall, acidosis develop, and electrocardiographic abnormalities appear. Tachycardia, however, was not observed. At delivery by cesarean section, edema was present in two severely anemic fetuses.

Karlis Adamsons, Jr., Oregon Regional Primate Research Center
L. Stanley James, Coll. of Physicians and Surgeons, Columbia Univer.
Molly E. Towell, Oregon Regional Primate Research Center
Jerold F. Lucey, University of Vermont, Burlington, Vt.

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NEW PRODUCTS AND SERVICES

Wisconsin General Test Apparatus in kit form, ready to be assembled. Wisconsin Instrument Co., Inc., 817 Stewart St., Madison, Wisconsin 53713.

"High Protein Primate Diet" in biscuit form. Also special diets baked to order. Old Mother Hubbard Dog Food Co., Inc., 44 Prospect St., Gloucester, Mass.

Cages equipped with moveable "squeeze" backs for large primates. Ratchet locking mechanism prevents animal from moving back until release latch is operated. Lab-Care Division, Research Equipment Co., Inc., 810 South Main, Bryan, Texas.

RECENT BOOKS AND ARTICLES

Books

Primate behavior: Field studies of monkeys and apes. DeVore, I. (Ed.) New York: Holt, Rinehart, & Winston, 1965.
Contains chapters on virtually all the species of monkeys and apes that have been studied in their native habitats, written by the people who studied them.

The baboon in medical research. Vagtborg, H. (Ed.) Austin, Texas: Univer. Texas Press, 1965.
The proceedings of the First International Symposium on the Baboon in Medical Research sponsored by the Southwest Foundation for Research and Education, San Antonio, Texas. Papers cover such topics as taxonomy, maintenance in captivity, physiology, and pathology.

Disease

An outbreak of fulminating infectious disease in the squirrel monkey, Saimiri sciureus. Greenstein, E. T., Doty, R. W., & Lowy, K. (Center for Brain Research, Univer. Rochester, Rochester, N. Y.) Laboratory Animal Care, 1965, 15, 74-80.

A bacteriological study of experimental dental caries in monkeys. Bowen, W. H. (Royal Coll. Surgeons of England, Lincoln's Inn Fields, London, W.C.2) International Dental Journal, 1965, 15 (No. 1), 12-53.

Physiology and Behavior

Some radiological and other factors for assessing age in the rhesus monkey using animals of known age. Haigh, Mary V., & Scott, A. (Christie Hosp. and Holt Radium Inst., Wilmslow Rd., Withington, Manchester 20, England) Laboratory Animal Care, 1965, 15, 57-73.

The seasonal spermatogenic cycle in free ranging rhesus monkeys. Conaway, C. H., & Sade, D. S. (Zoology Dept., Univer. Missouri, Columbia, Mo. and Dept. Anthropology, Univer. California, Berkeley) Folia Primatologica, 1965, 3, 1-12.

Cardiovascular function in adult baboons as indicated by standard diagnostic tests. Cittars, R. L. van, & Lasry, J. E. (Reg. Primate Res. Center, Univer. Washington, Seattle, and Scripps Clinic Res. Found., La Jolla, California) Folia Primatologica, 1965, 3, 13-21.

Breeding response in tamarins. Shadle, A. R., Mirand, E. A., & Grace, J. T., Jr. Laboratory Animal Care, 1965, 15, 1-10.

Behavior of patas monkeys, Erythrocebus patas, in captivity, with notes on the natural habitat. Hall, K. R. L., Boelkins, R. C., & Goswell, M. J. (Dept. Psychology, Univer. Bristol, Bristol, 8, England, Wisconsin Reg. Primate Res. Cen., Madison, and Univer. Bristol) Folia Primatologica, 1965, 3, 22-49.

Studies on the behavior of captive tree shrews (Tupaia glis). Kaufmann, J. H. (Dept. Zoology, Univer. Florida, Gainesville) Folia Primatologica, 1965, 3, 50-74.

General

Primate research and systematics. Hershkovitz, P. (Chicago Natural History Museum) Science, 1965, 147, 1156-1157.

Primate research and systematics. MacLean, P. D. (Laboratory of Neurophysiol., Nat. Inst. Mental Health, Bethesda, Md.) Science, 1965, 147, 1157. [Reply to Hershkovitz, 1965]

The primate centers and taxonomy. Moor-Jankowski, J. (Yerkes Regional Primate Res. Cen., Emory Univer., Atlanta, Georgia) Science, 1965, 148, 734. (Letter) [Comment on Hershkovitz, 1965]

Long-abandoned views. Simpson, G. G. (Museum of Comp. Zoology, Harvard Univer.) Science, 1965, 147, 1397. (Letter)

The stumptail macaque as a laboratory subject. Bernstein, I. S., & Guilloud, N. B. (Yerkes Laboratories of Primate Biology, Inc., Orange Park, Fla.) Science, 1965, 147, 824. (Letter)

Simian temperament. Orbach, J., & Kling, A. (PPL, Michael Reese Hospital, Chicago, Ill.) Science, 1965, 148, 1173. (Letter) [Reply to Bernstein & Guilloud, 1965]

Simian temperament. Stone, L. J. (Dept. of Child Study, Vassar Coll., Poughkeepsie, N. Y.) Science, 1965, 148, 1173-1174. (Letter) [Comment on Bernstein & Guilloud, 1965]

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