LABORATORY PRIMATE NEWSLETTER

Volume 17, Number 4

October, 1978

ALLAN M. SCHRIER, EDITOR

MORRIS L. POVAR, CONSULTING EDITOR

Published Quarterly by the Primate Behavior Laboratory
Psychology Department, Brown University
Providence, Rhode Island

POLICY STATEMENT

The purpose of the *Newsletter* is to provide a central source of information about nonhuman primates and related matters, which will be of use both to the community of scientists who use these animals in their research and to those persons whose work supports such research. Accordingly, the *Newsletter* (1) provides information on care, breeding, and procurement of nonhuman primates for laboratory research, (2) disseminates general information and news about the world of primate research (such as announcements of meetings, research projects, sources of information, nomenclature changes), (3) helps meet the special research needs of individual investigators by publishing requests for research material or for information related to specific research problems, and (4) serves the cause of conservation of nonhuman primates by publishing information on that topic. As a rule, the only research articles or summaries that will be accepted for the *Newsletter* are those that have some practical implications or that provide general information likely to be of interest to investigators in a variety of areas of primate research. However, special consideration will be given to articles containing data on primates not conveniently publishable elsewhere. General descriptions of current research projects on primates will also be welcome.

The *Newsletter* appears quarterly and is intended primarily for persons doing research with nonhuman primates. Back issues may be purchased for $1.00 each. (Please make checks payable to Brown University.)

The publication lag is typically no longer than the 3 months between issues and can be as short as a few weeks. The deadline for inclusion of a note or article in any given issue of the *Newsletter* has in practice been somewhat flexible, but is technically the fifteenth of December, March, June, or September, depending on which issue is scheduled to appear next. Reprints will not be supplied under any circumstances.

PREPARATION OF ARTICLES FOR THE *NEWSLETTER*.--Articles and notes should be submitted in duplicate and all copy should be double spaced. Articles in the References section should be referred to in the text by author(s) and date of publication, as for example: Smith (1960) or (Smith & Jones, 1962). Names of journals should be spelled out completely in the References section. Technical names of monkeys should be indicated at least once in each note and article. In general, to avoid inconsistencies within the *Newsletter* (see Editor's Notes, July, 1966 issue), the scientific names used will be those of Napier and Napier [*A Handbook of Living Primates*. New York: Academic Press, 1967]. For an introduction to and review of primate nomenclature see the chapter by Maryeva Terry in A. M. Schrier (Ed.), *Behavioral Primatology: Advances in Research and Theory* (Vol. 1). Hillsdale, NJ: Lawrence Erlbaum Associates, 1977.

All correspondence concerning the *Newsletter* should be addressed to:
Allan M. Schrier, Psychology Department, Brown University,
Providence, Rhode Island 02912. (Phone: 401-863-2511)

ACKNOWLEDGMENTS

The *Newsletter* is supported by U. S. Public Health Service
Grant RR-00419 from the Animal Resources Branch,
Division of Research Resources, N.I.H.

The cover photograph of *Loris tardigradus* is from the Napier and Napier volume cited above. Reproduced with permission.

Managing Editor: Helen Janis Shuman

CONTENTS

DIRECTORY OF GRADUATE PROGRAMS IN PRIMATOLOGY AND PRIMATE RESEARCH

ARIZONA

University of Arizona, Psychology Department

Program Name and/or Description: The psychology department offers a doctoral program in Comparative Psychology. Research opportunities are available in primate learning, infant development and social behavior. A colony of squirrel and capuchin monkeys is housed in the psychology department.

Faculty & Their Specialties: Dr. James E. King (primate learning); Dr. Harry F. Harlow (comparative psychology using children and monkeys).

For further information: Dr. James E. King, Dept. of Psychology, University of Arizona, Tucson, AZ 85721.

CALIFORNIA

University of California, Davis, Department of Psychology

Program Name and/or Description: Comparative Psychology (Psycho Biology)

Faculty & Their Specialties: Jarvis Bastian (communication-language); Leo Chalupa (physiological psychology); Richard Coss (environmental awareness, human etiology); William Mason (social behavior, early experience); Gary Mitchell (social behavior, sex differences); Donald Owings (general animal behavior); Robert Sommer (personal space, zoos, captivity & behavior). Also on campus: Peter Rodman, Anthropology; William Hamilton, Env. Science; Ethel Sassenrath, Psychopharmacology.

For further information: Dr. Gary Mitchell, Graduate Advisor, Dept. of Psychology, University of California, Davis, Davis, CA 95616.

University of California, Davis, California Regional Primate Research Center, Primate Medicine Unit

Program Name and/or Description: Medical Primatology. The program provides training in clinical and preventive medicine and management of nonhuman primates. Doctoral (DVM) level training is provided to students in the School of Veterinary Medicine as part of their clinical training. Post-doctoral (DVM) training is in the form of a two-year residency program in Primate Medicine/Zoological Medicine. A summer training program is also available for veterinary students.

Faculty & Their Specialties: Dr. Roy V. Henrickson (laboratory animal medicine, medicine and management of nonhuman primates); Dr. John Anderson (medicine and surgery of nonhuman primates); Dr. Jerry Kaneko (veterinary hematology and clinical chemistry); Dr. Robert Schneider (epidemiology); Dr. Charles Holmberg (primate pathology).

For further information: Dr. Roy V. Henrickson, Unit Leader, Primate Medicine, California Primate Research Center, Davis, CA 95616.

University of California, Davis, California Regional Primate Research Center

Program Name and/or Description: Primate Research through various academic departments or graduate groups: Anthropology; Psychology. Med. School: Behavioral biology; Animal Science. Graduate group in Ecology. Graduate group in Animal Behavior. (Beginning Fall, 1979)

Faculty & Their Specialties: Dr. Wm. A. Mason (behavior); Dr. P. S. Rodman (behavior); Dr. E. N. Sassenrath (neuroendocrine); Dr. G. Moberg (neuroendocrine); Dr. B. Hamilton (behavior); Dr. G. Mitchell (behavior).

For further information: Dean of the Graduate Division, University of California, Davis, CA 95616.

University of California, Los Angeles, Dept. of Anthropology

Program Name and/or Description: M.A. and Ph.D. degrees in Anthropology. NIMH predoctoral training grant in molecular and population genetics of primates, and primate ethology.

Faculty & Their Specialties: Robert Byles (primate genetics, sociobiology); Gail Kennedy (primate evolution); Donald Lindburg (primate behavior, reproduction); Robert Russell (primate anatomy, prosimian ecology & behavior); B. J. Williams (population genetics).

For further information: Graduate Secretary, Dept. of Anthropology, University of California, Los Angeles, CA 90024.

University of California, Riverside, Dept. of Psychology

Program Name and/or Description: Laboratory, colony, & field studies of animal behavior. Squirrel monkeys for brain research on vision; stumptails for colony social and reproduction research and for laboratory studies of sensory deprivation; baboon field studies; gorilla field research.

Faculty & Their Specialties: Austin H. Riesen (sensory deprivation); Lewis Petrinovich (natural behavior of white-crowned sparrows); Martin Daly (rodents in lab and field); Paul D. Wilson (vision); Ramon J. Rhine (colony and field studies of higher primates).

For further information: Ramon J. Rhine, Psychology Dept., University of California, Riverside, Riverside, CA 92521.

San Diego State University, Departments of Anthropology & Psychology

Program Name and/or Description: The SDSU offers no graduate degree in Primatology *per se*; however, courses are available as electives for the M.A. or M.S. in psychology or anthropology that will give a relative emphasis in primatology. The university has an excellent working relationship with the San Diego Zoo and the Wild Animal Park. These facilities are used in teaching and research by members of the psychology and anthropology departments. The zoology & biology departments offer courses in genetics, evolution, animal behavior, sociobiology, etc. Courses available: Experimental Psychology: Primate Behavior (Psych 417); Nonhuman Primates (Anthropology 406); Primate Social Behavior (Anthropology 500);

Primate Anatomy (Anthropology 504); Special study in any aspect of primates (Anthropology or Psychology 499); Ethology & Comparative Psychology Seminar (Psychology 761).

Faculty & Their Specialties: Christopher E. Parker, Psychology (learning, problem solving, creativity, behavioral diversity and social behavior); Patricia A. Scollay, Psychology/Anthropology (infant development, social behavior); Evelyn F. Segal, Psychology (learning, language acquisition).

For further information: William A. Hunricks, Graduate Studies Coordinator, Psychology Dept., San Diego State University, San Diego, CA 92182.

CONNECTICUT

Yale University, Anthropology Department

Program Name and/or Description: Physical Anthropology Program

Faculty & Their Specialties: David Pilbeam (paleanthropology); Alison Richard (primatology); John Rhoads (human biology); Daniel Snyde (primatology).

For further information: Dept. of Anthropology, Yale University, New Haven, CT 06520.

DISTRICT OF COLUMBIA

Howard University College of Medicine, Division of Medical Genetics

Program Name and/or Description: Primate Biochemical Genetics. Program is focused in two areas: genetic control and evolution of carbonic anhydrase isozymes; and utilization of a nonhuman primate model for investigating regulation of fetal hemoglobin synthesis. This program is a part of the M.S. and Ph.D. training program in Genetics and Human Genetics of the Graduate School of Arts & Sciences.

Faculty & Their Specialties: Verle E. Headings, M.D., Ph.D. (human genetics, primate biochemical genetics).

For further information: Box 75, Division of Medical Genetics, Howard University College of Medicine, 520 W Street, N.W., Washington, DC 20059.

FLORIDA

Florida State University, Department of Anthropology

Program Name and/or Description: Graduate specialty in Primate Biology with emphasis on dental and anatomical variations. M.A. program with a Co-op Ph.D. program with the University of Florida, Gainesville. Courses in social/biology of the primates, locomotor systems, primate evolution, primatology, osteology, growth and development, animal behavior, ecology.

Faculty & Their Specialties: Dr. David G. Gantt (physical anthropology, primate evolution and dental anthropology, primatology); Dr. Robert C. Dailey (physical anthropology, locomotor anatomy, osteology,

forensic anthropology).
For further information: Dr. David G. Gantt, Department of Anthropology, Florida State University, Tallahassee, FL 32306 (919-644-4281).

GEORGIA

Georgia State University, Department of Psychology
Program Name and/or Description: Developmental-Comparative. Opportunities exist within this master's & doctoral study program for concentration upon primate behavior, primate learning, and language-relevant phenomena. A primate lab with squirrel monkeys & talapoins is maintained at Georgia State University. Fruitful relationships are enjoyed with the Yerkes Primate Center where research with chimpanzees in the LANA Project is in progress with department personnel in lead positions.
Faculty & Their Specialties: Duane M. Rumbaugh (ape-language research and cognition); W. Kirk Richardson (operant bases for syntax).
For further information: Duane M. Rumbaugh, Chairman, Department of Psychology, Georgia State University, University Plaza, Atlanta, GA 30303.

University of Georgia, Athens, Psychology Department
Program Name and/or Description: Biopsychology Program. Primatology as recognized as one of the four specialty areas within this program.
Faculty & Their Specialties: Joseph Allen (operant conditioning, motivation, physiological); Irwin Bernstein (comparative, developmental, social aspects of primatology); Bradford Bunnell (physiological, species specific behavior, neuropsychology-motivation); Daniel Estep (animal behavior-ethology, copulatory patterns); Walter Isaac (reticular formation, arousal, primate behavior, post-operative retention); Chester Karwoski (sensory, vision, physiological); Edward Mulligan (sensory, audition, physiological); William Pavlik (animal learning, experimental design); Lelon Peacock (physiological, instrumentation, history); Roger Thomas (neuropsychology, primate learning); William Wilbanks (sensory, audition, history).
For further information: Irwin Bernstein, Department of Psychology, University of Georgia, Athens, GA 30602.

Emory University, School of Medicine
Program Name and/or Description: Hormones, The Brain & Primate Behavior.
Faculty & Their Specialties: Richard P. Michael, M.D., D.Sc., Ph.D. (neuroendocrinology); Doris Zumpe, Ph.D. (primate ethology); R. W. Bonsall, Ph.D. (biochemistry-endocrinology); Jerry Schaefer, Ph.D. (neuropharmacology); Mark Rowinski, Ph.D. (neurophysiology); Howard Rees, Ph.D. (physiological psychology).
For further information: Richard P. Michael, M.D., Department of Psychiatry, Emory University School of Medicine, Atlanta, GA 30322.

Georgia Institute of Technology, Department of Psychology

Program Name and/or Description: Experimental Psychology. Georgia Tech offers research specialization in primate behavior and environmental psychology. Students have access to the Yerkes Regional Primate Research Center, Atlanta Zoological Park, and Lion Country Safari Park where primates are maintained. The Tech program is broad in scope, requiring special competence in statistics and research design, but in-depth specialization is encouraged at all levels of the students' development. Field work is also possible.

Faculty & Their Specialties: Dr. Terry L. Maple (primate social behavior & social development, comparative animal behavior, environmental psychology, human ethology); Dr. J. N. Bohannon (ethological approach to language acquisition, child development, psycholinguistics, innate vocal recognition).

For further information: Dr. Terry Maple, Department of Psychology, Georgia Institute of Technology, Atlanta, GA 30332.

ILLINOIS

Southern Illinois University, Carbondale, Department of Zoology

Program Name and/or Description: Animal Behavior-Ethology M.A., M.S., Ph.D.

Faculty & Their Specialties: Terence R. Anthoney (evolution of vertebrate motor patterns). Other faculty in other departments also work with primates: E. G. David Bliss, Psychology; William S. Hunter, Physiology; Dean Falk, Anthropology.

For further information: Department of Zoology, Southern Illinois University, Carbondale, IL 62901.

University of Illinois, Chicago Circle, Psychology Department

Program Name and/or Description: Behavioral studies of *Cebus apella*.

Faculty & Their Specialties: Gershon Berkson.

For further information: Gershon Berkson, Department of Psychology, Box 4348, University of Illinois-Chicago Circle, Chicago, IL 60680.

LOUISIANA

Tulane University, Department of Anthropology

Program Name and/or Description: The Department of Anthropology at Tulane does not have an established program in primate studies but does accept a small number of graduate students who want to pursue the study of biology & behavior of primates within a program of general anthropology leading to the Ph.D. degree in Anthropology. Each student's program is worked out on an individual basis, depending on his/her interests. Training is available through the departments of Anthropology, Psychology and Biology in conjunction with the Tulane Medical School and the Delta Regional Regional Primate Research Center.

Faculty & Their Specialties: Elizabeth S. Watts, Ph.D. (physical anthropologist, primate biology, especially growth & development

and skeletal anatomy).

For further information: Elizabeth S. Watts, Department of Anthropology, Tulane University, New Orleans, LA 70118.

MARYLAND

Johns Hopkins University, School of Medicine, Division of Comparative Medicine

Program Name and/or Description: A broad, flexible and informal set of opportunities which: 1) allow a student to specialize in primate behavior, ecology, morphology or evolution; or 2) allow students from other fields to sample courses and research in or related to primatology.

Faculty & Their Specialties: James B. Brayton, D.V.M., M.D., M.P.H., Division of Comparative Medicine (primate medicine); Bernadette Marriott, Ph.D., Division of Comparative Medicine (comparative psychology of *Saimiri* and *Macaca*, reproductive behavior of *M. mulatta*, ecological studies of *M. mulatta* in Nepal and Afghanistan); Franklin M. Loew, D.V.M., Ph.D., Division of Comparative Medicine (nutrition of primates, and use of primates as animal models); Robert J. Adams, D.V.M., Division of Comparative Medicine (primate medicine); Michael Stoskopf, D.V.M., Division of Comparative Medicine and the Baltimore Zoological Society (primate medicine); John D. Strandberg, D.V.M., Division of Comparative Medicine (comparative pathology of primates); Miguel Schon, Ph.D., Department of Cell Biology and Anatomy (evolutionary and functional morphology of primates); Paul McHugh, M.D., Department of Psychiatry and Behavioral Sciences (self-regulation of nutrient intake in *M. mulatta*); Joseph Brady, Ph.D. and DiAnne Bradford, Ph.D., Department of Psychiatry and Behavioral Sciences (experimental analysis of *Papio* behavior in relation to psychosomatic medicine and psychiatry); Larry Ewing, Ph.D., Department of Population Dynamics (reproductive biology of *M. mulatta*).

For further information: Paul G. Heltne, Division of Comparative Medicine, Johns Hopkins University, School of Medicine, 720 Rutland Ave., Baltimore, MD 21205.

Johns Hopkins University, Department of Pathobiology, School of Hygiene and Public Health.

Program Name and/or Description: Primate Ecology & Behavior

Faculty & Their Specialties: Charles H. Southwick (primate field studies, especially population ecology of rhesus monkeys in India); Paul Heltne (primate behavior and ecology of New World monkeys, field and laboratory studies of *Aotus*).

For further information: Dr. Southwick, Department of Pathobiology, 615 North Wolfe St., Baltimore, MD 21205. Dr. Heltne, Department of Comparative Medicine, Traylor Bldg., School of Medicine, Johns Hopkins University, Baltimore, MD 21205.

MICHIGAN

Michigan State University, Endocrine Research Unit, Department of Physiology

Program Name and/or Description: Reproductive biology of nonhuman primates. Studies oriented to ovulation, capacitation, fertilization and early embryonic development in *Saimiri* & macaques. Programs leading to a Ph.D. degree in Physiology.

Faculty & Their Specialties: W. Richard Dukelow, Ph.D. (reproductive physiology); P. T. McGovern, D.V.M., Ph.D. (anatomy, early embryonic development); G. D. Riegle, Ph.D. (stress, aging and reproduction).

For further information: Dr. W. Richard Dukelow, Endocrine Research Unit, Michigan State University, East Lansing, MI 48824.

NEVADA

University of Nevada, Reno, Department of Psychology

Program Name and/or Description: Psychobiology of Two-Way Communication: a research program on teaching American Sign Language to young chimpanzees. In addition to records of sign language acquisition, the program provides records of the general intellectual development of home-reared chimpanzees, to add to the few that are now available. The chimpanzees are reared under conditions similar to those of a human child because we assume that intellectual, social and linguistic development are intimately related. While these rearing conditions are required to compare the linguistic development of child and chimpanzee, they enable us to compare many other aspects of development also in this laboratory, employing the chimpanzees and age-matched child controls.

Faculty & Their Specialties: R. Allen Gardner (learning, problem-solving); Beatrice T. Gardner (ethology, communication).

For further information: Dr. R. Allen Gardner, Psychology Department, University of Nevada, Reno, NV 89557.

NEW YORK

City University of New York (CUNY), Department of Anthropology

Program Name and/or Description: Anthropology, Ph.D. program. As part of the regular Ph.D. program in anthropology, the CUNY physical anthropologists cover a broad range of topics but concentrate on what may be termed evolutionary primatology. Students usually have an anthropology background in undergraduate or masters-level work, but those with training in other natural sciences, such as geology or biology, are encouraged to apply. A total of 60 credits (usually 20 3-credit term courses) is required, with some distribution among the 4 fields of anthropology, as well as broad biological background for the primatologists. CUNY has an excellent computer facility, and the American Museum of Natural History's magnificent library and collections of modern and fossil primates may be available to advanced students. There is also a CUNY

biopsychology program and paleontology at Columbia.

Faculty & Their Specialties: Eric Delson (paleoanthropology, catarrhine evolutionary history); Lester Firschein (human genetics, primate chromosomes); Warren Kinzey (primate anatomy and behavior, South American field studies); John Oates (primate behavior and ecology); Frederick S. Szally (primate evolution, functional morphology).

For further information: Dr. Eric Delson, Anthropology Ph.D. Program, CUNY Graduate Center, 33 West 42 St., New York, NY 10036.

City University of New York, Department of Psychology, Queens College

Program Name and/or Description: Doctoral level Conditioning Program: studies of behavioral and cardiovascular effects of aversive conditioning schedules. Laboratory located at VA Health Care Facility, Montrose, NY.

Faculty & Their Specialties: The research program in the laboratory, including doctoral thesis research, is under the supervision of Dr. William N. Schoenfeld and Dr. Ronald M. Kadden

For further information: Dr. William N. Schoenfeld, Department of Psychology, Queens College, Flushing, NY 11367 or Dr. Ronald M. Kadden, Psychology Research Laboratory, Bldg. 7 Room 19, FDR VA Health Care Facility, Montrose, NY 10548.

Cornell University, Anthropology/Neurobiology & Behavior/Human Ecology

Program Name and/or Description: Human Biology Program. Administered by the Department of Anthropology, the Human Biology Program trains students in a broad variety of subjects within the areas of human biology & primate evolution. Primatology and primate research is one aspect of the program. Emphasis is placed upon the study of primate locomotor evolution & facilities exist for the dissection of monkeys under the supervision of a trained physical anthropologist. The program is represented to undergraduates as a concentration of study and to graduate students as an area of investigation within the major of anthropology with particular emphasis/specialization in physical anthropology.

Faculty & Their Specialties: Dr. Kenneth A. R. Kennedy, Associate Professor of Anthropology and Division of Biological Sciences (specialty in human paleontology and primate evolution); Ruth Buskirk, Assistant Professor of Neurobiology and Behavior (specialty in animal behavior with particular attention to baboons); Dr. Theodore I. Grand, Visiting Research Scholar, Oregon Regional Primate Research Center, Beaverton, OR (on campus in spring semester).

For further information: Human Biology Program, Department of Anthropology, Cornell University, Ithaca, NY 14853.

Hunter College, Biopsychology Program, Department of Psychology, also Physical Anthropology Program, Department of Anthropology

Program Name and/or Description: The Ph.D. program in biopsychology is based at Hunter College and administered by the Graduate School

and University Center of CUNY. The program provides training for research and teaching in animal behavior and those aspects of human behavior to which it is relevant.

Faculty & Their Specialties: George Gourevitch (behavioral & neurophysiological studies of auditory function in monkeys); Robert L. Thompson (experimental analysis of mirror-image self-recognition in monkeys & apes. At present this is a minor project with promise of growing considerably); I. Lester Firschein, Department of Anthropology (primate ecology & evolution); Frederick S. Szalay, Department of Anthropology (primate ecology & evolution).

For further information: Prof. Robert L. Thompson, Program Head for Biopsychology, Department of Psychology, Hunter College, New York, NY 10021. For Anthropology, write: Prof. F. S. Szalay, Department of Anthropology, Hunter College, 695 Park Av., New York, NY 10021.

New York University, Institute of Environmental Medicine

Program Name and/or Description: Environmental Health Sciences

Faculty & Their Specialties: Hugh L. Evans (behavioral toxicology and pharmacology).

For further information: Dr. Bernard Altshuler, Graduate Coordinator, Institute of Environmental Medicine, New York University Medical Center, 550 First Av., New York, NY 10016.

State University of New York, College at New Paltz, Biology Department

Program Name and/or Description: M.A. degree program with a concentration in Primate Behavior. Students take a concentration of course work in primatology plus do original behavioral research studying a captive group of 25 stumptail monkeys (*Macaca arctoides*).

Faculty & Their Specialties: Dr. David Krieg (animal behavior); Dr. Phyllis Freeman (comparative animal learning).

For further information: Dr. David Krieg, Primate Laboratory, State University of New York, College at New Paltz, New Paltz, NY 12562.

State University of New York at Stony Brook, Department of Anatomical Sciences

Program Name and/or Description: Doctoral Program in Anatomical Sciences, Section of Functional and Evolutionary Morphology. Each student is expected to gain a fundamental knowledge of human anatomy followed by training emphasizing preparation for a career in research. Particular strength lies in the application of advanced research methodology to problems in primate phylogeny, functional anatomy, taxonomy, locomotor behavior and paleontology.

Faculty & Their Specialties: Norman Creel (statistical and stereometric methods in primate systematics); John Fleagle (paleontology, structure/behavior relationship, cineradiography, *in vivo* bone strain); Gabor Inke (craniofacial anatomy); William Jungers (musculoskeletal biomechanics, prosimian biology, electromyography); Russell Mittermeier (ecology, behavior & conservation); Jack Stern (biomechanics, human locomotion, electromyography); Randall Susman (locomotor anatomy of apes & humans, hominid paleontology &

electromyography.

For further information: Jack T. Stern, Department of Anatomical Sciences, Health Sciences Center, State University of New York at Stony Brook, Stony Brook, NY 11794.

University of Rochester, Center for Brain Research

Program Name and/or Description: Anatomy & Physiology of Central Visual System. Anatomy & Physiology of forebrain commisures. Differential role of forebrain commisures in interhemispheric mnemonic processing. All on macaques but comparative studies are feasible.

Faculty & Their Specialties: R. W. Doty (neurophysiology & neuropsychology); J. R. Bartlett (neurophysiology & electrical engineering.

For further information: Robert W. Doty, Center for Brain Research, University of Rochester, Strong Memorial Hospital, 260 Crittenden Blvd., Rochester, NY 14642.

OHIO

Bowling Green State University, Department of Biology

Program Name and/or Description: No formal program exists, rather a concentration in ecology and behavior. Field research only with long-term studies at the Caribbean Primate Research Center, Puerto Rico.

Faculty & Their Specialties: Stephen H. Vessey (ecology & social behavior).

For further information: Stephen H. Vessey, Dept. of Biology, Bowling Green State University, Bowling Green, OH 43403.

Kent State University, Department of Psychology

Program Name and/or Description: Experimental Psychology; Primate Learning & Physiological Psychology.

Faculty & Their Specialties: F. Robert Treichler (measurement of retention, recovery from brain damage).

For further information: Department of Psychology, Kent State University, Kent, OH 44242.

The Ohio State University, Department of Anthropology

Program Name and/or Description: The program in primatology is part of the larger program of physical anthropology. Specialization begins post-M.S. when the student and advisor agree upon a program of studies. Studies in primatology include courses in anthropology, psychology and zoology, as well as courses in other areas.

Faculty & Their Specialties: Dr. Frank E. Poirier (primate socialization, hominid evolution, primate ethology, primate structure & evolution); Dr. Paul Sciulli (paleocene/eocene primate evolution, dental anthropology). Psychology: there are a number of faculty in psychology who regularly teach courses in primatology and/or

sit on Ph.D. examining & dissertation committees. The specialties include laboratory behavior, neuroanatomy & communication. Zoology: currently there are 2 mammalogists/ethologists who teach courses and/or sit on Ph.D. examining and dissertation committees.

For further information: Dr. Frank E. Poirier, Dept. of Anthropology, The Ohio State University, Columbus, OH 43210.

OKLAHOMA

University of Oklahoma, Norman, Departments of Anthropology, Psychology & Zoology

Program Name and/or Description: Students may apply for admission to the graduate programs in the above mentioned departments in order to study primate behavior. These students will be supervised by a major professor in an area of interest related to their professors. Research is done at the Institute for Primate Studies. This is made up of 30 chimpanzees, 4 gibbons & 1 siamang.

Faculty & Their Specialties: Roger S. Fouts, PhD., Associate Professor of Psychology and Zoology (primate communication and language acquisition); Jane Lancaster, Ph.D., Assistant Professor of Anthropology (social development and parenting, primate social behavior and human ethology); William B. Lemmon, Ph.D., Professor of Psychology and Director of the Institute of Primate Studies (maternal, sexual and social behavior in chimpanzees).

For further information: Dr. Roger S. Fouts, Department of Psychology, University of Oklahoma, Norman, OK 73019; Dr. Jane Lancaster, Department of Anthropology, University of Oklahoma, Norman, OK 73019.

PENNSYLVANIA

Bucknell University, Department of Psychology

Program Name and/or Description: Animal behavior program offers M.A. degrees. Two outdoor enclosures for *P. hamadryas* and *M. fuscata* groups, which are available for study.

Faculty & Their Specialties: Douglas Candland (experimental psychology); Owen Floody (physiological psychology); Alan Leshner (behavioral endocrinology).

For further information: Department of Psychology, Bucknell University, Lewisburg, PA 17837.

Carnegie-Mellon University, Department of Psychology

Program Name and/or Description: Physiological psychology

Faculty & Their Specialties: Klaus A. Miczek, Ph.D. (psycho-pharmacology, ethology, aggression); Joseph F. Debold, Ph.D., (neuropsycho-endocrinology, hormones & behavior); Kenneth E. Moyer, Ph.D. (physiological psychology, aggression).

For further information: K. A. Miczek, Department of Psychology, Carnegie-Mellon University, Pittsburgh, PA 15213.

The Pennsylvania State University, Department of Anthropology

Program Name and/or Description: Primatology; with specializations in I. Primate sociobiology and behavioral ecology; research on the behavior and ecology of living nonhuman primates, primarily in their natural habitats. Emphasis is placed on testing models of the evolution of behavior. Dr. Jeffrey A. Kurland, in charge. II. Evolutionary biology of primates: research on the variability and genetics of nonhuman primates in an evolutionary framework. Dr. Robert B. Eckhardt, in charge.

Faculty & Their Specialties in other related fields: Dr. H. B. Graves, Dept. of Poultry Science (behavioral ecology & evolution of behavior in birds and mammals); Dr. David L. Pearson, Dept. of Biology (behavioral ecology and evolution of birds and insects); Dr. John M. Warren Jr., Dept. of Psychology (behavioral and neurological evolution of mammals); & other members of the departments of Biology, Ecology, Anthropology, Psychology, Human Development, and Genetics.

For further information: Dept. of Anthropology, The Pennsylvania State University, 409 Carpenter Bldg., University Park, PA 16802.

University of Pittsburgh, Department of Anthropology

Program Name and/or Description: Physical anthropology, M.A. & Ph.D.

Faculty & Their Specialties: Dr. M. I. Siegel (functional primate anatomy growth & development, experimental surgery); Dr. J. H. Schwartz (primate paleontology & evolutionary systematics); Dr. S. J. C. Gaulin (primate ecology & behavior).

For further information: Drs. Siegel, Schwartz or Gaulin, Department of Anthropology, University of Pittsburgh, Pittsburgh, PA 15260.

University of Pittsburgh, Department of Physiology, School of Medicine

Program Name and/or Description: Center for Research in Primate Reproduction

Faculty & Their Specialties: E. Knobil, J. Hotchkiss, G. R. Fritz, & Associates (the neuroendocrine control of gonadotropin secretion in the female rhesus monkey); T. M. Plant (the neuroendocrine control of reproduction in the male rhesus monkey); B. J. Attardi (cellular basis of control of gonadotropin secretion by gonadal steroids); A. J. Zeleznik (control of folliculogenesis in the rhesus monkey); W. D. Peckham (the properties of rhesus pituitary glycoprotein hormones).

For further information: Dr. E. Knobil, Department of Physiology, University of Pittsburgh, School of Medicine, Pittsburgh, PA 15261.

RHODE ISLAND

Brown University, Department of Psychology

Program Name and/or Description: The Psychology Department offers a Ph.D. program in experimental psychology with the option of specializing in research with nonhuman primates, especially research on complex learning and visual information processing

or on neural substrates of visual and motor behavior. There are related courses in the Linguistics and Anthropology Departments and the Division of Biology and Medicine.

Faculty & Their Specialties: Psychology Dept., Allan M. Schrier, Ph.D. (complex discrimination learning and visual information processing; comparative behavior); Mitchell Glickstein, Ph.D. (brain behavior relations; anatomy of the visual system). Division of Biology and Medicine: George Erikson, Ph.D. (anatomy and brachiation) and several members of the Neurosciences Section.

For further information: For a brochure describing the graduate program in experimental psychology write to: Mrs. Lillian Corey, Psychology Department, Brown University, Providence, RI 02912. For application forms write to the Graduate School, Brown University, Providence, RI 02912. For additional information about research programs write to the individual faculty members.

TEXAS

University of Texas, Department of Anthropology

Program Name and/or Description: The program maintains a primate colony of about 50 *Cercopithecus* monkeys at the Balcones Research Center (10 miles from campus) in seminaturalistic conditions, an anatomy laboratory equipped for histology, a surgical facility in the Animal Resources Center on campus. We have intimate research relationships with the Southwest Foundation for Research & Education in San Antonio (mostly baboons) and with the Laredo Arashiyama West troop of free ranging Japanese macaques. Computer facilities are available in the department. Strong ties are maintained with the Physical Education Department for work in exercise physiology and biomechanics. At present we are able to provide support for all of our graduate students.

Faculty & Their Specialties: Claud A. Bramblett, Associate Professor (primate behavior, methodology of behavior studies); Philip G. Grant, Assistant Professor (primate anatomy, primate evolution); Robert M. Malina, Professor (growth & development). Anthropologists in other departments: Anthony M. Coelho, Director, Ethology Laboratory, Southwest Foundation for Research & Education, San Antonio, TX.

For further information: Claud A. Bramblett or Philip G. Grant, Department of Anthropology, University of Texas, Austin, TX 78712.

University of Texas, Med. Branch, Galveston, Department of Psychiatry & Behavioral Sciences

Program Name and/or Description: Neurophysiology graduate program. Facility located in the Behavioral Science Laboratory in the Department of Psychiatry & Behavioral Sciences.

Faculty & Their Specialties: Perrie M. Adams, Ph.D. (neuropharmacology and physiological psychology); Ernest S. Barratt, Ph.D. (psychophysiology & neurophysiology).

For further information: Dr. Perrie M. Adams, Behavioral Science

Laboratory, University of Texas Medical Branch, Galveston, TX 77550.

WASHINGTON

Eastern Washington University, Primate Research Program

Program Name and/or Description: The Primate Research program at Eastern Washington University is affiliated with the Regional Primate Research Center at the University of Washington, and Research Affiliates with RPRC use the facilities of the Medical Lake Field Station for their research. The Primate Research program is essentially designed to promote and partially support research by the Eastern Washington University faculty who have appointments as Research Affiliates with RPRC at the University of Washington. Students are usually enrolled in specified graduate programs and do their research at the field station with faculty.

Faculty & Their Specialties: Robert H. Elton, Ph.D., Director Primate Research Program, Dept. of Psychology (research interests in longitudinal study of etiology of alcoholism, primate model of alcoholism, and Fetal Alcohol Syndrome. Preston Ritter, Ph.D., Dept. of Chemistry (current interest in 2,3 diphosphoglyceric acid levels with animals in hypoxic states associated with respiratory disease); Ronald J. White, Ph.D., Dept. of Biology (correlation of sex skin volume with linear measurements of sex skin swelling utilizing hormone replacement techniques).

For further information: Robert H. Elton, Ph.D., Director Primate Research Program, Eastern Washington University, Cheney, WA 99004.

Washington State University, Primate Research Center

Program Name and/or Description: Primate Behavior; Ph.D. in Psychology with an emphasis on Primate Behavior including sensory (all aspects), learning and memory, social behavior, comparative and physiological characteristics, drug aspects, sexual behavior, handling and care of primates. Courses & research opportunities in these areas.

Faculty & Their Specialties: A. Lawrence Branen, Ph.D. (nutrition and drug aspects); Roger T. Davis, Ph.D. (learning, memory, social and aging); George A. Leary, F.S.M.C. (vision); Francis A. Young, Ph.D. (vision, audition, sexual behavior, breeding and care, aging sensory changes, drug effects).

For further information: Francis A. Young, Ph.D., Director, Primate Research Center, Washington State University, Pullman, WA 99164.

Washington State University & University of Washington Primate Center, Department of Veterinary Microbiology/Pathology

Program Name and/or Description: A residency program for graduate veterinarians with emphasis in nonhuman primate pathology is offered jointly by the College of Veterinary Medicine at WSU, and the Washington Regional Primate Research Center at Seattle.

Opportunities exist for training in preparation for certification by the ACVP, and for formal graduate degree work.

Faculty & Their Specialties: Principal faculty are C. W. Leathers, D.V.M., Ph.D. at WSU, and W. E. Giddens, Jr., D.V.M., Ph.D. at the University of Washington. Both are interested in diagnostic and research pathology of nonhuman primates.

For further information: Dr. C. W. Leathers, Department of Veterinary Microbiology/ Pathology, College of Veterinary Medicine, Washington State University, Pullman, WA 99164.

WEST VIRGINIA

West Virginia University School of Medicine, Department of Anatomy

Program Name and/or Description: Ph.D. program involving comparative studies of pathways in the central nervous system with a special emphasis on ascending and descending spinal pathways and connections of the cerebellum. These experimental studies are done primarily on the lesser bushbaby (*Galago senegalensis*) and the tree shrew (*Tupaia glis*) although some work has also been done on the greater bushbaby and the slow loris. Both retrograde and anterograde tracing methods are used. We are also interested in neurological specializations within the nervous system which may be correlated with the advent of upright locomotion in primates. This program has no specific designation and is currently funded from extramural sources.

Faculty & Their Specialties: Dr. D. E. Haines, Neurobiologist.

For further information: Dr. D. E. Haines, Department of Anatomy, West Virginia University School of Medicine, Morgantown, West Virginia 26506.

WISCONSIN

University of Wisconsin, Wisconsin Regional Primate Research Center

Program Name and/or Description: Although the Wisconsin Primate Center offers no formal graduate program, students may perform research at the Center by enrolling in an appropriate academic department at the University of Wisconsin-Madison and by choosing a faculty advisor with Center affiliation. Appropriate departments for graduate students hoping to do research at the Center include Psychology, Zoology, Anthropology, Physiology, Pathology, Genetics, Veterinary Science, and Meat & Animal Science as well as such inter-disciplinary programs as endocrinology-reproductive physiology and the neurosciences training program. For information about these departments and programs, potential students should write to The Graduate School, Bascom Hall, UW-Madison, WI 53706.

Faculty & Their Specialties: Ph.D. level staff; not all have joint faculty appointments at UW-Madison. James Allen (experimental pathology); William Bridson (gonadotropic physiology); Philippa Claude (neural ultrastructure); Gary Davis (neurochemistry);

Donald Dierschke (reproductive physiology); J. Stephen Gartlan (primate ecology); David Goldfoot (behavioral endocrinology); Jerry Robinson (behavioral endocrinology); Samuel Sholl (reproductive endocrinology); Gordon Stephenson (primate group behavior); Ei Terasawa (neurophysiology); Pertti Toivola (neurophysiology); Etsuro Uemura (experimental pathology); Richard Wolf (reproductive physiology); Robert Goy (behavioral endocrinology).

For further information: R. W. Goy, Director, Wisconsin Primate Center, 1223 Capitol Court, Madison, WI 53706.

* * *

COMMENT ON THE DIRECTORY OF GRADUATE PROGRAMS

The preceding "Directory of Graduate Programs in Primatology and Primate Research" is based on the questionnaires, mailed with the April, 1978 issue, that were returned to us in the intervening time. The purpose of the questionnaires was described in a note in that issue. Obviously, we cannot claim that the Directory is comprehensive in its coverage. We hope that those who have not responded will do so. Any additional responses will be included in an addendum to the Directory which will be published in a future issue. It is not necessary to supply the necessary information on a questionnaire, but please do not send us a general brochure from which we are supposed to glean the essential information. Also, please keep in mind that the Directory is not meant for programs that are exclusively postdoctoral.

We have prepared extra copies of the Directory which will be mailed free of charge as a separate to interested undergraduates. Multiple copies can be supplied at a cost of 25¢ each.

* * *

ALLOMATERNAL REARING OF INFANT SQUIRREL MONKEYS BY NURSING MOTHERS

Matt J. Kessler and Hector S. Martinez

Caribbean Primate Research Center

Recent articles in the scientific literature have discussed baby-sitting behavior (Hunt, Gamache & Lockard, 1978), kidnapping (Scollay, 1978), enforced adoption (Taub, Lehner & Adams, 1977), and fostering (Eveleigh & Hudson, 1973) in the squirrel monkey, *Saimiri sciureus*. None of these articles have mentioned a peculiar behavioral trait observed in three adult female Guyanan squirrel monkeys at this Center. We have termed this pattern of behavior "allomaternal rearing of infants by nursing mothers." This phrase is used specifically to identify the rare occurrence of lactating squirrel monkey mothers who simultaneously rear to weaning age their own offspring and one which they have kidnapped or spontaneously adopted. Scollay (1978) recently commented that she did not feel that the mothering of 2 infants simultaneously was feasible in the squirrel monkey due to the relatively large size of the babies compared to the adult females. Based on numerous observations here and elsewhere, this would seem to be a correct assumption. This report briefly summarizes our observations on three exceptional cases in which mothers successfully reared two infants each to post-weaning age.

Method

A large group of 44 adult female, 1 adult male, and 1 juvenile male Guyanan squirrel monkeys comprised the observation group. The monkeys were housed in a 25-ft (8.21 m) square outdoor corral with 6-ft (1.97 m) ceilings. Feed consisted of a high protein monkey chow (Purina) available *ad libitum* from a centralized hog feeder. The diet was supplemented weekly with fresh fruit. Abdominal palpations made during late May, 1977 indicated that 30 (68%) of the females were in the last trimester of pregnancy. The birth season for this group began June 20 and continued through July 29, 1977. There were 26 live births during this period. Individual infant body weights were obtained weekly until thirteen weeks of age, and then at ages 25, 37, and 60 weeks.

Results

Case 1.--On June 27, 1977, females 232A and 336A gave birth to infants 673A male and 674A female, respectively. By July 4, infant 674A was noted riding the back of mother 232A along the side of infant 673A. Female 336A was never seen attempting to retrieve her infant, nor would she accept the baby from caretaker personnel or pick it up from

---

Authors' address: Caribbean Primate Research Center, P.O. Box 297, Sabana Seca, Puerto Rico 00749.

Supported by Contract #NO1-RR-5-2133, Division of Research Resources, National Institutes of Health.

the floor when it was placed directly in front of her. Both infants continued to be carried on, and nurse from, mother 232A until both became self-sufficient.

Case 2.--During the week of July 10, 1977, female 299A gave birth to male 676A, and female 311A gave birth to female 675A. Within the week, both babies were seen riding the back of 299A. This condition persisted until both offspring were weaned. Monkey 675A died at the age of 52 weeks. At no time was the natural mother of 675A noted attempting to regain possession of her infant.

Case 3.--Babies 671A male and 672A male were born of mothers 328A and 332A respectively during the early morning hours of July 22, 1977. During the week that followed, both infants were observed continuously on the back of 332A. The infants remained with 332A until they were weaned at approximately six months of age.

Discussion

In all 3 cases of permanent allomaternal behavior described above, there were no obvious physical reasons for its occurrence. The 6 natural mothers involved appeared clinically healthy, were active, and were lactating. Frequent daily observations of this group of monkeys revealed that, at least initially, the 3 stepmothers were serving as "aunts" for the infants which they eventually permanently adopted or kidnapped. Due to this aunting behavior, it was difficult to conclude whether or not these infants were abandoned by their natural mothers or were actually kidnapped by their stepmothers. When forced adoptions back to their natural mothers were attempted, however, the natural mothers refused to accept the infants. This would lead one to conclude that the natural mothers had, indeed, abandoned their offspring.

Mean body weight data for infants on "doubled" and normal mothers are presented in Table 1. Although at the end of 60 weeks of age all the babies were within 10 percent of each other in weight, during the first 13-week period the infants on "doubled" mothers gained weight at a slower rate than those on normal mothers. For instance, from birth to thirteen weeks the average weekly weight gain in the male infants on "doubled" mothers was 13 g per week compared to 19 g per week for male infants on normal mothers. In the female group, the weekly weight gain during the same thirteen week period was 8.8 g per week for the "doubled" and 17.6 g per week for the normal group. These data tended to substantiate our clinical observation that infants on "doubled" mothers were not growing as quickly as infants on normal mothers. The sample sizes involved are too small to draw any statistically significant conclusions.

Of the six original infants reared in this peculiar manner, five have lived beyond the age of 60 weeks. Infant female 675A developed pneumonia and died after exposure to a severe rainstorm at the age of

Table 1. Mean Body Weight in Grams (± 1 S.D.) by Sex of Doubled- and Normally-Mothered Squirrel Monkey Infants as a Function of Weeks of Age

Age	Males		Females	
	"Doubled"	Normal	"Doubled"	Normal
birth	100 ± 0 (1)	125 ± 17 (4)	155 ± 0 (1)	116 ± 8 (5)
1	125 ± 7 (2)	158 ± 4 (2)		136 ± 8 (4)
4	163 ± 8 (3)	211 ± 13 (7)	175 ± 0 (1)	197 ± 13 (14)
7	199 ± 26 (4)	266 ± 23 (7)	195 ± 0 (2)	252 ± 22 (13)
10	232 ± 14 (4)	318 ± 50 (6)	228 ± 11 (2)	294 ± 26 (13)
13	269 ± 49 (4)	372 ± 66 (4)	270 ± 0 (2)	345 ± 45 (5)
25	405 ± 48 (4)	507 ± 74 (3)	425 ± 35 (2)	450 ± 26 (6)
37	460 ± 58 (4)	543 ± 40 (3)	485 ± 7 (2)	497 ± 28 (5)
60	575 ± 64 (4)	635 ± 21 (2)	590 ± 0 (1)	577 ± 22 (7)

Note--numbers in parentheses indicate number of monkeys.

52 weeks.

Conclusions

It is possible for squirrel monkey mothers to rear to post-weaning age more than one infant simultaneously, either through kidnapping or adopting an additional infant. However, such an arrangement appears to physically stress the capacity of adult females due to the combined weight of two infants. Infants on "doubled" mothers appear to grow at a slower rate than their peers on normal mothers during the early weeks of development.

References

Eveleigh, J. R., & Hudson, C. E. Successful fostering of a newly born squirrel monkey (*Saimiri sciureus*). *Laboratory Primate Newsletter*, 1973, *12* [2], 13-14.

Hunt, S. M., Gamache, K. M., & Lockard, J. S. Babysitting behavior by age/sex classification in squirrel monkeys (*Saimiri scieureus*). *Primates*, 1978, *19*, 179-186.

Scollay, P. A. The kidnapping of a neonate squirrel monkey *Saimiri sciureus* (Peruvian). *Laboratory Primate Newsletter*, 1978, *17* [3], 11-13.

Taub, N. D. M., Lehner, N. M., & Adams, M. R. Enforced adoption and successful raising of a neonate squirrel monkey *Saimiri sciureus* (Brazilian). *Laboratory Primate Newsletter*, 1977, *16* [3], 8-10.

* * *

PRIMATE RESOURCES DATA BANK

As part of its Primate Supply Information Clearinghouse operation (*Laboratory Primate Newsletter*, 1978, *17* [1], 17-18) the Primate Information Center of the Regional Primate Research Center at the University of Washington is developing a data bank to record the location of colonies of primates and other research resources in the United States. The Primate Resources Data Bank is expected to open more channels to the possibility of sharing limited primate resources. If you either hold or use primates and have not received a questionnaire, contact: Primate Supply Information Clearinghouse, Primate Information Center, SJ-50, University of Washington, Seattle, WA 98195.

* * *

PRIMATOLOGICAL SOCIETY OF INDIA FORMED

The Primatological Society of India has been formally constituted and officially registered as of May, 1978. The principle objective of this Society is to advance researches in the study of primate biology, both academic and applied in all its branches and activities conducive thereto. Membership is open to all primatologists. For further details please contact: Dr. T. C. Anand Kumar, General Secretary, Primatological Society of India, Neuroendocrine Research Laboratory, Department of Anatomy, All-India Institute of Medical Sciences, New Delhi - 110 016, India.

* * *

NEW YERKES DIRECTOR

Dr. Frederick A. King, chairman of the Department of Neuroscience in the College of Medicine at the University of Florida, has been named as the director of the Yerkes Regional Primate Research Center, it was announced by Dr. Thomas G. Bowery, director of NIH's Division of Research Resources.

Yerkes is one of the seven major primate research centers in the United States administered by the Division of Research Resources of the National Institutes of Health. The Center houses one of the largest collections of great apes in the world. Its current major research activities are in neural and behavioral studies and experimental pathology with emphasis on neoplastic and degenerative diseases. In addition, the Center conducts an extensive study program in reproductive physiology.

A native of Glen Rock, New Jersey, Dr. King received his Ph.D. and master's degrees from Johns Hopkins University in physiological psychology, and his B.A. degree in psychology and the biological sciences at Stanford University. His academic experience includes faculty posts at Johns Hopkins and Ohio State Universities before joining the University of Florida in 1959 as an assistant research professor. In 1961 and 1962 he took a leave of absence to work as a Visiting Scientist at the Institute of Physiology, Faculty of Medicine at the University of Pisa in Italy. Dr. King has also been co-director of the Center for Neurobiology Sciences and professor of psychology at the University of Florida.

The author or co-author of over 40 published scientific papers, Dr. King's chief research efforts have been focused on (1) neurological basis of emotional behavior; (2) behavioral and neurological analyses of the cerebral cortex in monkeys; and (3) neural basis of states of consciousness and seizures. He is the editor of *Physiological and Animal Psychology*, a journal supplement abstract of the American Psychological Association, and also general editor of the *Handbook of Behavioral Neurobiology*.

On September 1, 1978, Dr. King succeeded Dr. Geoffrey H. Bourne, who had been the Yerkes director for the past 16 years. Dr. Bourne plans to serve as vice chancellor at St. George's University School of Medicine in Grenada, the West Indies.

* * *

USDA REVISES ANIMAL TRANSPORTATION REGULATIONS

The U.S. Department of Agriculture (USDA) has revised (*Federal Register, 43* [95], Tuesday, May 16, 1978.) federal animal welfare regulations to clarify provisions for shipping "acclimated" animals during cold weather and certifying acceptable shipping cages. The amended regulations also clarify rules for animal holding areas in cargo shipping terminals. The changes were needed because the present regulations were causing problems for animal shippers, handlers, and commercial carriers. The amended regulations were proposed in October, 1977 and are effective immediately.

Under the new regulations, U.S. government agencies, handlers, exhibitors, laboratories, and institutions which are licensed or registered under the Animal Welfare Act are authorized to use certificates, signed by veterinarians, certifying that the animals being shipped are acclimated to temperatures below the permitted limit of 45°F (7.2°C) within the cage or container. It is also now recognized that some animals can withstand temperatures above the presently prescribed limit of 95°F (35°C) for short periods of time. USDA licensees and registrants and U.S. government agencies are also authorized to use certificates signed by the shipper to assure commercial carriers that cages or shipping containers meet standards of size, strength, ventilation, sanitation, and safety prescribed by the Animal Welfare Act.

Commercial carriers or intermediate handlers are no longer required to designate a single separate animal holding area within cargo terminals. This permits carriers to handle "inbound" and "outbound" animal shipments separately. However, carriers are still prohibited from mingling animal shipments and other cargo. The amended rules also eliminate the terms "ambient" and "atmospheric" in reference to the temperatures in animal holding areas. Temperature requirements will now be specified as "air temperature." Conditions under which air conditioning and other artificial ventilation might be used are also clarified. (Based in part on a note in *ILAR News,* 1978, *21* [3], 19.)

* * *

LABORATORY PRIMATE NEWSLETTER QUARTERLY SURVEY TO BE EXPANDED

We are planning to expand the representation of facilities included in our quarterly surveys, on the basis of which we report census and mortality and morbidity data [see July, 1978 issue for the last survey report]. Those facilities with over 250 prosimians and monkeys and those with over 50 apes are invited to request regular mailing of the survey forms.

* * *

LABORATORY PRIMATE NEWSLETTER QUARTERLY SURVEY: FOURTH QUARTER 1977

The present report is one of a series summarizing data from the quarterly surveys being conducted by the *Laboratory Primate Newsletter*. The data in Tables 1 and 2 are based on reports from the following facilities: California, Delta, New England, Washington (including the Field Station), Wisconsin, and Yerkes Regional Primate Research Centers, Laboratory for Experimental Medicine and Surgery in Primates (LEMSIP), National Institutes of Health (includes both the Primate Quarantine Unit and the Primate Research Units), and the Southwest Foundation for Research and Education. (See the July, 1978 issue for the previous survey report.)

TABLE 1. MORTALITY SUMMARY BY SYSTEM: OCT. 1-DEC. 31, 1977

SPECIES	Generalized	Integumentary	Musculoskeletal	Respiratory	Cardiovascular	Digestive	Urogenital	Nervous	Endocrine	Neoplasia	Trauma	Unspecified
Pan Troglodytes	1							2				2
Macaca arctoides				1		9					1	
M. cyclopis	1											
M. fascicularis	1			1	1							4
M. mulatta	9			43[a]	1	32	5	2		1	8	23
M. nemestrina	5			12		20	2				7	1
M. radiata	1							1	1		2	1
Cercopithecus aethiops												1
Papio cynocephalus				1		1						
P. papio	1					2						1
P. spp.	1			8		2						2
Saimiri sciureus	9			2	1	7	4				4	7
Cebus spp.											1	
Aotus trivirgatus	1						1					3
Saguinus fuscicolis	1					1						
S. mystax	3			6		14					2	6
S. oedipus	1			2		5					2	3
S. spp.		2		10		3	1				2	
TOTALS	35	2	0	86	3	96	13	5	1	1	29	54

[a] Includes 29 tuberculosis cases

TABLE 2. CENSUS, NUMBER OF BIRTHS, AND MORBIDITY SUMMARY BY SYSTEM
OCT. 1-DEC. 31, 1977

SPECIES	Census	Births	Generalized	Integumentary	Musculoskeletal	Respiratory	Cardiovascular	Digestive	Urogenital	Nervous	Endocrine	Neoplasia	Trauma	Unspecified
Gorilla gorilla								4						
Pan troglodytes	393	10	6			7	1	30	2	2			6	
Pongo pygmaeus	34	1	1			3	1	5	1					
Macaca arctoides	255	8	3	3	2	2		17	2	1			7	3
M. assanensis									1					
M. cyclopis	83		1								2		2	
M. fascicularis	359	25			2	5		12		2			22	2
M. mulatta	5525	48	26	117	47	132[b]	2	361[c]	24	15	1		163	15
M. nemestrina	1089	203	13	4		13	1	85	8	4			40	2
M. nigra[a]		2												
M. radiata	290	4	3	8	7	5	1	69	4	3	2		6	11
M. hybrids	28													
Erythrocebus patas	55													
Cercocebus atys	49	2			1								1	
Cercopithecus aethiops	45	5	1										2	
Rhesus-Baboon hybrid		1												
Papio anubis						1								
P. cynocephalus	129	13	1			1	1	2		1			6	
P. papio	47	1	1	2	1	1		9	1	1			2	1
P. spp.	1582	74	33					38					78	3
Hamadryas spp.	106													
Theropithecus gelada								1						
Saimiri sciureus	820	9	11	4	2	1		14	1	3			8	1
Cebus spp.	67													
Aotus trivirgatus	153	1					1							
Callithrix jacchus	26	5												
Saguinus mystax	155	15												
S. oedipus	116	5				2		1						
S. spp.	97													
TOTALS	11,503	432	100	138	62	173	8	648	44	31	5	0	343	38

[a] also referred to as *Cynopithecus niger*
[b] Includes 29 Tuberculin Reactors
[c] Includes 5 rectal prolapses and 8 ascarid positive cases.

RECENT BOOKS AND ARTICLES
(Addresses are those of first authors)

Books

The Biology and Conservation of the Callitrichidae. Devra G. Kleiman (Ed.). Washington, DC: Smithsonian Institution Press, 1978. 354 pp. [Price: Soft cover, $8.95. Hard cover, $15.00]

This volume stems from a symposium on the topic held at the Conservation Research Center, National Zoological Park, Smithsonian Institution, August 18-20, 1975. Contents: Joint resolution by participants in conference on the "Biology and Conservation of the Callitrichidae," August 20, 1975. Section I: THE EVOLUTION AND ECOLOGY OF THE CALLITRICHIDAE. Introduction. Comparative ecology and reproduction of New World monkeys, by J. F. Eisenberg; Composition and stability of social groups of the tamarin, *Saguinus oedipus geoffroyi*, in Panama: Ecological and behavioral implications, by G. A. Dawson; Aspects of the ecology and social organization of free-ranging cotton-top tamarins (*Saguinus oedipus*) and the conservation status of the species, by P. F. Neyman; Field studies on *Saguinus mystax* and other Callitrichids in Amazonian Peru, by R. Castro & P. Soini; Natural shelters of *Leontopithecus rosalia* and some ecological implications (Callitrichidae: Primates), by A. F. Coimbra-Filho; Feeding ecology of the pygmy marmoset, *Cebuella pygmaea*, in northeastern Peru, by M. F. Ramirez, C. H. Freese & J. Revilla C.; Tree-gouging, exudate-eating, and the "Short-tusked" condition in *Callithrix* and *Cebuella*, by A. F. Coimbra-Filho & R. A. Mittermeier. Section II. THE STATUS AND CONSERVATION OF CALLITRICHIDS. Introduction. The status of Callitrichids in Peru, by C. H. Freese, M. A. Freese, N. Castro R.; Progress in the development of Poço Das Antas Biological Reserve for *Leontopithecus rosalia rosalia* in Brazil, by A. Magnanini; Conservation status of the Callitrichidae in Brazilian Amazonia, Surinam, and French Guiana, by R. A. Mittermeier, R. C. Bailey, & A. F. Coimbra-Filho; Panel discussion, August 18, 1975; Conservation of the Callitrichidae, Panelists, R. W. Thorington (chairperson), R. Castro, A. Coimbra, R. Cooper, M. Freese, R. Mittermeier, P. Neyman, P. Soini. Section III. REPRODUCTION AND PROPAGATION OF THE CALLITRICHIDAE. Introduction. The endocrinology of reproduction in the common marmoset *Callithrix jacchus*, by J. P. Hearn; Detection of reproductive cycles and pregnancy in tamarins (*Saguinus* spp.), by S. H. Hampton & J. K. Hampton, Jr.; Characteristics of reproduction

---

In many cases, the original source of references in this section has been the Current Primate References prepared by The Primate Information Center, Regional Primate Research Center SJ-50, University of Washington, Seattle, WA 98195. Because of this excellent source of references, the present section is devoted primarily to presentation of abstracts of articles of practical or of general interest. In most cases, abstracts are those of the authors. Any author wishing to have a published paper abstracted in this section may do so by sending the Editor a copy of the reprint with a summary or abstract and indicating his desire on the reprint.

and sociosexual interactions in pairs of lion tamarins (*Leontopithecus rosalia*) during the reproductive cycle, by D. G. Kleiman; Gestation and reproduction in golden lion tamarins, by C. G. Wilson; Parturition and related behavior in *Callithrix jacchus* (Ceboidea, Callitrichidae), by H. Rothe; Breeding of tamarins (*Saguinus* spp.) in the laboratory, by N. Gengozian, J. S. Batson & T. A. Smith; The current status of *Leontopithecus rosalia* in captivity with comments on breeding success at the National Zoological Park, by D. G. Kleiman & M. Jones; Panel discussion, August 20, 1975: Reproduction of small colonies of endangered callitrichids, Panelists, W. Thomas (chairperson), D. Kleiman, R. Lorenz, J. Mallinson, C. Wilson. Section IV. SOCIAL BEHAVIOR OF CALLITRICHIDS. Introduction. Notes on the establishment and maintenance of the pair bond in *Saguinus fuscicollis*, by G. Epple; Social interactions in family groups of captive marmosets (*Callithrix jacchus*) by H. O. Box; The vocal repertoire and an analysis of the contexts of vocalizations in *Leontopithecus rosalia*, by E. B. McLanahan & K. M. Green; A comparative study of the use of contact calls in *Saguinus fuscicollis* and *Callithrix jacchus*, by A. G. Pook; Parent-infant interactions in the common marmoset (*Callithrix jacchus*), by J. C. Ingram; Parental care in *Leontopithecus rosalia rosalia*: Sex and age differences in carrying behavior and the role of prior experience, by R. J. Hoage. Section V. THE MANAGEMENT OF CALLITRICHID COLONIES. Introduction. The cost of developing and managing a marmoset colony, by W. R. Kingston; Planning captive breeding programs in South America, by J. A. Porter; Maintenance of marmosets and tamarins at Jersey Zoological Park with special reference to the design of the new marmoset complex, by J. J. C. Mallinson; Medical problems encountered in a callitrichid colony, by J. L. Cicmanec; Panel discussion, August 19, 1975: Problems of management of large marmoset colonies, Panelists, K. Hobbs (chairperson), J. Cicmanec, N. Gengozian, S. Hampton, W. R. Kingston, & J. Porter.

Contributions to Primatology. Vol. 16. *Ecological and Sociological Studies of Gelada Baboons*. Masao Kawai (Vol. Ed.). Basel: Karger, 1978. Soft cover. 344 pp. [Price: $96.50]

This work presents an analysis of the population dynamics, social relations and structure, activities, and feeding ecology of the gelada baboons (*Theropithecus gelada*) in Ethiopia. The findings are based on an 8-month study of the geladas by 4 researchers in the Ethiopian highland. Contents: Part I. POPULATION. The local gelada population and environment of the Gich area, by H. Ohsawa. 1.1 Gelada distribution in the Gich area; 1.2 Composition of the gelada society; 1.3 Characteristics of the herd and the unit composition; 1.4 Factors affecting population size; 1.5 Speculation on the population composition. Herd dynamics, by H. Ohsawa. 2.1 General observations; 2.2 Characteristics of linking among herds; 2.3 Combination and separation of units; 2.4 Relationships between moving ranges; 2.5 Discussion and conclusion. Part II. SOCIOLOGY. Inter-unit relationships, by U. Mori. 3.1 Spatial relationships among units; 3.2 Inter-leader relationships; 3.3 Relationships among females of different units. Individual relationships within

a unit, by U. Mori. 4.1 Relationships among females; 4.2 Relationships between leader and females; 4.3 Second male and third male; 4.4 Grooming relationships. Development of sociability and social status, by U. Mori. 5.1 Infants and junior groups; 5.2 Males; 5.3 Females. Unit formation and the emergence of a new leader, by U. Mori. 6.1 Taking over the unit; 6.2 Disappearance of the leader male and fusion of units; 6.3 Experiment for analysis of leader change and unit cohesion; 6.4 Speculation on new leader emergence and unit formation. Reproductive behaviour, by U. Mori. 7.1 Copulatory behaviour; 7.2 Reproductive cycle. Spacing within units and unit integrity, by M. Kawai & U. Mori. 8.1 Unit cohesion; 8.2 Distribution of individual distances; 8.3 Comparison of individual distances within units; 8.4 Comparative spatial distributions of the unit members when the unit is within the herd or solitary; 8.5 Discussion of the spacing structure. Auditory communication and social relations, by M. Kawai. 9.1 Auditory communication for maintenance of unit integrity; 9.2 Quantitative study of auditory communication and social relations; 9.3 Short distance communication in gelada baboons. Social structure of gelada baboons, by U. Mori. 10.1 Social structure of the one-male unit; 10.2 Herd structure. Part III. ECOLOGY. Nomadism and activities, by M. Kawai & T. Iwamoto. 11.1 Outline of nomadism; 11.2 Daily activity pattern; 11.3 Herd activity; 11.4 Characteristics of the activities of gelada baboons. Feeding ecology, by T. Iwamoto. 12.1 Vegetation; 12.2 Food plants and estimation of the daily food intake; 12.3 Estimation of the individual daily energy requirement; 12.4 General conclusions; 12.5 Speculative discussion.

Applied Behavioral Research at the Woodland Park Zoological Gardens. Carolyn Crockett & Michael Hutchin (Eds.). Seattle, WA: Pika Press, 1977. Soft cover. 407 pp. [Order from Pika Press, 2647 Perkins Lane W., Seattle, WA 98199. Price: $8.00, plus $1.00 shipping charge.]

Intended as a practical guide to conducting research in a zoo setting. This volume describes the development of a cooperative research program involving Seattle's Zoo and the University of Washington. Focusing on methods of observational research, it includes 6 scene-setting chapters followed by 14 examples of student projects. Contents include: Social biology, bioclimatic zones, and the comprehensive master plan for the Woodland Park Zoological Gardens. Research policy and procedure of the Woodland Park Zoo. Behavioral studies of zoo animals: Undergraduate research and education. The use of closed circuit television for research, education, and animal management in a zoo setting. Methods of observational research in the zoo setting. The behavior of three lorisoid primate species before and after the public opening of the nocturnal house. Activity rhythms of ten species of nocturnal animals as a function of light intensity. Territorial behavior of *Galago crassicaudatus* in a simulated natural environment. Cage utilization by the white-handed gibbon (*Hylobates lar*). A preliminary study of enclosure utilization in black and white ruffed lemurs (*Varecia variegatus editorum*) and mongoose lemurs (*Lemur mongoz mongoz*). Artificial stimulation of reproduction in lion-tailed macaques.

Reports

REP: Annual report 1977. Rijswijk, The Netherlands: Organization for Health Research TNO, 1978.

This is the annual report of the REP, which stands for the Radiobiological Institute TNO, Institute for Experimental Gerontology TNO, and Primate Center TNO, Rijswijk Z. H., The Netherlands. Of the many short notes describing the accomplishments of the organization, the following are concerned with primates: IMMUNOLOGY. Patterns of *in vitro* cytotoxicity of lymphocytes from vaccinia virus infected rhesus monkeys, by L. W. Stitz, R. M. Zinkernagel, M. C. van den Ende, W. van Vreeswijk, & H. Balner. TRANSPLANTATION AND IMMUNOGENETICS. The influence of matching for RhLA-la_1 antigens and of mixed lymphocyte reactivity on kidney allograft survival in unrelated rhesus monkeys, by A. A. van Es, R. L. Marquet, G. A. Heystek, & H. Balner; The influence of blood transfusions on kidney allograft survival in unrelated rhesus monkeys, by A. A. van Es, R. L. Marquet, G. A. Heystek, & H. Balner; Attempts to induce specific immunosuppression for kidney allografts in rhesus monkeys by use of soluble donor-type antigen and antigen-antibody complexes, by R. L. Marquet, G. A. Heystek, A. A. van Es, & H. Balner; Allogeneic resistance in rhesus monkeys, by H. M. Vriesendorp & G. Wagemaker; The ChLA system of chimpanzees; new serologically defined antigens and similarities with human HLA(SD) and DR(la) antigens, by H. Balner, W. van Vreeswijk, J. D'Amoro, J. H. Roger, & leke Schreuder; Multilocus control of mixed leukocyte culture reactions in rhesus monkeys, by H. Balner, M. B. Widmer, & A. A. van Es; Current knowledge of the D-locus of rhesus monkeys: Selection of typing cells and predictive value of la_1 matching for non-reactivity in mixed lymphocyte cultures (MLC), by A. A. van Es & H. Balner; B-cell of la antigens of rhesus monkeys: Current state of serology and genetics, by W. van Vreeswijk, M. C. Noort, J. A. K. Baumeister, J. H. Roger, & H. Balner. MICROBIOLOGY AND GNOTOBIOLOGY. Collection and antibiotic assay of faeces and serum samples of rhesus monkeys, by J. M. Davies & C. P. J. Timmermans. ETHOLOGY. How much do mother and infant contribute to their mutual interactions? A survey of methods, by H. Dienske & J. A. J. Metz; Control of the changes in body contact with age in rhesus mothers and infants, by G. de Jonge, H. Dienske, & L. G. Ribbens. TECHNIQUES AND ANIMALS. Membranous dysmenorrhea in the chimpanzee (*Pan troglodytes*), by H. A. Solleveld & M. J. van Zwieten.

Bibliographies

Behavior of the Group, Mother & Infant During the Perinatal Period. A Bibliography of Studies Related to Parturition in Nonhuman Primates. Jean Balch Williams. Seattle: Primate Information Center, 1978. 129 Citations with Primate Index. [Price: $4.00. Send orders to: Primate Information Center, Regional Primate Research Center (SJ-50). University of Washington, Seattle, WA 98195]

Chair Restraint of Nonhuman Primates: A Bibliography on Biological Factors. Benella Caminiti. Seattle: Primate Information Center, 1978. 68 Citations with Primate Index. [Price: $2.00. Order information same as in previous reference.]

Disease

Suspected ascorbic acid deficiency in a colony of squirrel monkeys (*Saimiri sciureus*). Demaray, S. Y., Altman, N. H., & Ferrell, T. L. (Papanicolaou Cancer Res. Inst., Perrine Primate Center, 1155 NW 14th St., Miami, FL 33136) *Laboratory Animal Science*, 1978, *28*, 457-460.

Subperiosteal cranial hematomas were observed in five female squirrel monkeys. The absence of trauma in the clinical history, the characteristic clinical changes, and the pathological lesions suggested that the animals were scorbutic. Analysis of feed which was soaked in water, or left on the ground for varying time periods at different temperatures, indicated that there was loss of ascorbic acid. During the manufacture of monkey feed, ascorbic acid is dusted on as a final process. The practice of soaking feed resulted in the "washing off" or the destruction of ascorbic acid. This disease outbreak emphasized the importance of management practices in a primate colony.

The effect of dietary crude fiber levels on rhesus monkeys during quarantine. Morin, M. L., Renquist, D. M., Knapka, J., & Judge, F. J. (National Institutes of Health, Division of Res. Serv., Vet. Resources Branch, Bethesda, MD 20014) *Laboratory Animal Science*, 1978, *28*, 405-411.

A study was conducted to determine the effect of dietary crude fiber level on intestinal disorders in the feral rhesus monkey during the first 60 days of the quarantine period. Three experimental baked diets containing 2.4%, 7.0%, and 9.8% crude fiber and a commercially extruded diet containing 2.2% crude fiber were fed during the study. The morbidity rate of intestinal disorders of the 7% crude fiber level was 1.4%, which was significantly less ($p < 0.05$) than the 11.1%, 12.5%, and 20.8% morbidity for the monkeys fed the diets containing 2.4%, 9.8%, and 2.2% crude fiber, respectively. Monkeys fed the 7% crude fiber diet had a mean number of treatment days for intestinal disorders per monkey of 0.014, which was significantly lower ($p < 0.05$) than the 0.9, 0.5, and 1.4 days for those fed the 2.4%, 9.8%, and 2.2% fiber diets, respectively.

Prevalence of metazoan parasite infections in five species of Asian macaques. Wong, M. M. & Conrad, H. D. (Dept. of Vet. Microbiol., Sch. of Vet. Med., Univ. Calif., Davis, CA 95616) *Laboratory Animal Science*, 1978, *28*, 412-416.

Necropsy examination was performed on a total of 697 wild-caught macaques: *Macaca mulatta* (from India and Pakistan), *M. fascicularis* (from Malaysia and the Philippines), *M. radiata* (from India), *M. nemestrina* (from Malaysia and India), and *M. arctoides* (from the Malay Penninsula). Helminthic parasites were found to be prevalent among these macaques, with species of Strongyloides, Oesophagostomum,

Anatrichosoma, Trichostrongylus, and Gongylonema being the most common patent infections. Some of the larval stages of nematodes (ascarids, spirurids), cestodes (hydatid, Sparganum), and pentastomids grew into adults in appropriate definitive hosts upon experimental feeding, enabling species identification.

Membranous dysmenorrhea in the chimpanzee (*Pan troglodytes*): A report of four cases. Solleveld, H. A. & van Zwieten, M. J. (Institute for Experimental Gerontology TNO, 151 Lange Kleiweg, Rijswijk, ZH (The Netherlands)) *Journal of Medical Primatology*, 1978, *7*, 19-25.

A macroscopic and histologic description of membranous dysmenorrhea in chimpanzees is given. The similarity of these cases to those in women make the chimpanzee an interesting model for studies on the presently unknown etiology of membranous dysmenorrhea.

Behavior

A behavior repertoire for the Indian langur monkey (*Presbytis entellus*). Dolhinow, P. (Dept. of Anthropology, Univ. of Calif., Berkeley, Berkeley, CA 94720) *Primates*, 1978, *19*, 449-472.

This behavior repertoire for the Indian langur monkey is based on observations of free-ranging langurs in north and central India and on an ongoing study of social behavior in colony-living langur monkeys. The purposes of this repertoire are: (1) to allow the investigator to record all social behavior observed, (2) to allow comparison with the results of other observations, and (3) to draw a baseline picture of behavior against which the effects of experimental manipulations may be measured. The behavior units of this repertoire are organized into the categories of general behaviors, infant caretaking, sexual, play, vocalization, agonistic, and grooming. Each unit is defined and examples are given of the contexts in which behaviors are most often used. The repertoire, as designed, is appropriate for use with a focal animal sampling method.

Facilities, Care, and Breeding

Sexual behavior of laboratory- and wild-born male rhesus monkeys. Phoenix, C. H. (Oregon Reg. Prim. Res. Ctr., 505 Northwest 185th Av., Beaverton, OR 97005) *Hormones and Behavior*, 1978, *10*, 178-192.

Rearing method has an important influence on the sexual performance of adult male rhesus monkeys. Testosterone levels and sexual behavior of laboratory-born and -reared adult males were compared with those of males born in the wild and brought to the laboratory as adults. The mean sexual performance level of colony-reared animals was significantly below that of males born in the wild but testosterone levels in the two groups did not differ significantly. Not all laboratory-reared males were sexually inadequate but less than 30% ejaculated in tests of sexual behavior. The sexual behavior and testosterone levels of adult males treated prenatally with testosterone propionate were found not to differ from those of untreated males reared in the same way.

Conclusions about sexual adequacy based on 10-min tests of sexual behavior differed very little from those based on 1-hr tests.

Pregnancy diagnosis in squirrel monkeys: Hemagglutination test, radioimmunoassay, and bioassay of chorionic gonadotropin. Hodgen, G. D., Stolzenberg, S. J., Jones, D. C. L., Hildebrand, D. F., & Turner, C. K. (Section on Endocrinology, Bldg. 18, Endocrinology & Reproduction Res. Br., NICHD, National Inst. of Hlth., Bethesda, MD 20014) *Journal of Medical Primatology*, 1978, *7*, 59-64.

The Nonhuman Primate Pregnancy Test may be useful for diagnosis of pregnancy in squirrel monkeys between 40 and 60 days in pregnancy. However, single determinations have an inherent 10% risk of false negative responses caused by low chorionic gonadotropin levels; thus, initial negative test responses should be followed within one week by an independent confirmatory test. Preliminary results, with this hemagglutination inhibition test compare favorably with bioassay and may be useful, in conjunction with conventional uterine palpation, for diagnosis of pregnancy in squirrel monkeys.

Planung, Bau und Betrieb einer Zuchtanlage für Primaten. [Planning, Construction, and Management of a Primate Breeding Facility.] Korte, Rainhart (AZM Affensucht, Dr. Korte GmbH & Co., Münster, Kesselfeld 29, 4400 Münster, W. Germany). Published in 1978 by the author.

This 57-page booklet includes a forward by Dr. Hans Balner of the Primate Center TNO in the Netherlands. It describes in detail the first commercial primate breeding unit in Europe. Costs of construction and production of the animals are included.

Reproduction of the greater bushbaby (*Galago crassicaudatus panganiensis*) under laboratory conditions. Hendrickx, A. G. & Newman, L. M. (Calif. Prim. Res. Ctr., Univ. of Calif., Davis, CA 95616) *Journal of Medical Primatology*, 1978, *7*, 26-43.

A breeding colony of *Galago crassicaudatus panganiensis* was maintained under laboratory conditions for four years. August, 1971 to July, 1975. The estrous cycle and the gestation period averaged 39 and 132 days in length, respectively. Twinning occurred in 14.5% of the pregnancies. No postpartum estrus was observed, although 1.2 conceptions per female per year were recorded. Breeding occurred throughout the year. Puberty occurred between ten and 18 months of age, the first conception occurred between 15 and 18 months of age, and reproductive capability decreased rapidly between ten and 12 years of age.

Social and reproductive behaviors in surrogate-reared squirrel monkeys (*Saimiri sciureus*). Roy, M. A., Wolf, R. H., Martin, L. N., Rangan, S. R. S., & Allen, W. P. (Delta Reg. Prim. Res. Ctr., Covington, LA 70433) *Laboratory Animal Science*, 1978, *28*, 417-421.

A colony of 16 surrogate-reared squirrel monkeys was observed for the adequacy of social and reproductive behaviors at maturity. Aside from some self-directed abnormalities centering around nonnutritive orality, this group was behaviorally normal in spite of

having no contacts with mother-reared, older conspecifics. Half (N=5) of the females gave birth, with four infants viable. One infant has remained with the colony and is thriving. The other three remained with the group for as long as 42 days before death or removal. Maternal care appeared adequate. Mean estimated conception age for females was 35 months, and the mean impregnation age for males was estimated to be 42 months.

Primate infant's effect on mother's future reproduction. Altmann, J., Altmann, S. A., & Hausfater, G. (Univ. of Chicago, Allee Lab. of Animal Behavior, Chicago, IL 60637) *Science*, 1978, *201*, 1028-1029.

Female savanna baboons (*Papio cynocephalus*) in the wild had a longer post-partum amenorrhea and thereafter cycled longer before conceiving if their previous infant survived than if that infant died. Among mothers of surviving infants, differences in maternal care produced differences in age of weaning and age of independence but did not result in differences in interbirth intervals.

Notes on the development of a mother-reared orang-utan: The first six months. Maple, T., Wilson, M. E., Zucker, E. L., & Wilson, S. F. (Dept. of Psychology, Emory University, Atlanta, GA 30322) *Primates*, 1978, *19*, 593-602.

Reproductive behavior is a topic of extreme importance in the literature of primate behavior. This report concerns the mother-infant interaction system in a captive-born, mother-reared infant orang-utan during the first six months of its life. Of particular interest are the sexual behaviors directed by the mother toward the infant, and the regular stimulation of the infant's genitals. The behaviors described herein are compared to other mother-infant pairs of this and other anthropoid species.

The resocialization of single-caged chimpanzees and the establishment of an island colony. Pfeiffer, A. J. & Koebner, L. J. (Dept. of Psychiatry, Rutgers Med. Sch.-CMDNJ, University Heights, Piscataway, NJ 08854) *Journal of Medical Primatology*, 1978, *7*, 70-81.

Single-caged chimpanzees used in medical experimentation were resocialized in the laboratory setting and subsequently established as a socially integrated island colony. The study shows that wild-born, young chimpanzees are likely to socialize and to learn behaviors characteristic of free-ranging chimpanzees most easily. Animals showing multiple nonsocial and social pathologies may remain deficient despite social experience and, in any case, will not serve as adequate role models for subsequent generations of chimpanzees. Behavioral health among captive chimpanzees is rapidly becoming as critical an aspect of laboratory animal science as physical health.

Ecology and Field Studies

Population survey of the spider monkey *Ateles geoffroyi* at Tikal, Guatemala. Cant, J. G. H. (Dept. of Anthropology, Univ. of Calif.,

Davis, CA 95616) *Primates*, 1978, *19*, 525-535.

Intensive strip census methods were used to estimate population density and age-sex composition of a natural population of the spider monkey *Ateles geoffroyi*, in seasonally dry forest at Tikal, Guatemala. An objective procedure for determining effective strip width is discussed, and various census methods, including direct count and strip census, are evaluated as to merits and disadvantages.

Primate censusing in northern Colombia: A comparison of two techniques. Green, K. M. (Office of Zoological Res., National Zoological Pk., Washington, DC 20008) *Primates*, 1978, *19*, 537-550.

Five primate species were observed in an 83 hectare study site in northern Colombia. They were *Alouatta seniculus*, *Aotus trivirgatus*, *Ateles belzebuth hybridus*, *Cebus albifrons*, and *Saguinus leucopus*. Average group size for the four diurnal species ranged from 5.3 individuals per sighting for *Cebus* to 3.3 for *Alouatta* and *Ateles*. Because *Cebus* utilized regenerating forest, mature stands as well as cultivated sectors, they were able to use 30% more of the study site than the larger cebids. Monkey sightings along transects peaked at 0600-0800 and 1500-1800 and were lowest between 0900-1300 for the four diurnal cebids. The hourly rate of sighting the large cebids was 2-3 times greater for the point method than the transect method, but was less for *Cebus* and *Saguinus*. However, consistently higher crude density estimates were obtained by the transect method than by the point method. As expected, there was less discrepancy between census methods for the large cebids which regularly utilized the upper canopy. The point method was barely 20% as effective as the transect method for estimating crude densities of *Cebus* and *Saguinus*. Factors influencing the effectiveness of the two census techniques as monkey detection and visibility, climatic conditions, and length of study are discussed. Recommendations for improving censusing effectiveness are listed.

Gorillas--A Survey. Cousins, D. (No address given) *Oryx*, 1978, *14*, 254-258.

This is the first part of a survey of the status of the three gorilla races made in 1974. This part covers the western lowland race, in Nigeria, Cameroon, Gabon, Equatorial Guinea, Cabinda Congo (Brazzaville), and the Central African Republic. (Part Two, to be published in the next *Oryx*, will discuss eastern lowland and volcano gorillas.)

The Barbary macaque in North Africa. Taub, D. M. (Dept. of Comparative Medicine, Bowman Gray Sch. of Med. of Wake Forest Univ., Winston-Salem, NC 27103) *Oryx*, 1978, *14*, 245-253.

Destruction of the native forests is the chief reason for the decline of the Barbary macaque *Macaca sylvanus* in Morocco and Algeria, its last wild refuges. (This is the monkey that occurs in a semi-wild state on Gibraltar.) The wild populations now are mostly small and widely separated, and the few that are in protected areas are unfortunately not the most viable.

Conservation

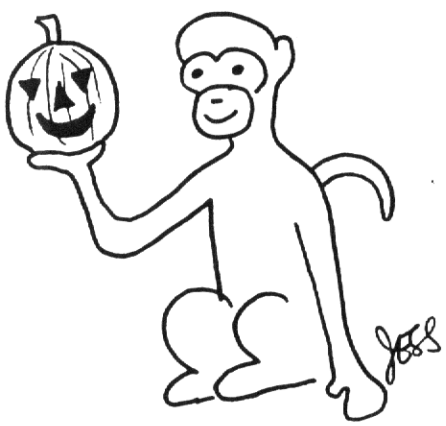
Teaching chimps to be chimps. Brambell, M. (Curator of Mammals, London Zoo, London, England) *Oryx*, 1978, *14*, 259-260.

The author tells of the part he had to play in some aspects of the events recounted in Stella Brewer's book "The Forest Dwellers" and supports projects to train chimpanzees for reintroduction to the wild.

His name was Digit. Fossey, D. *International Primate Protection League Newsletter*, 1978, *5* [2], 1-7.

Recounts part of the life and the death at the hands of poachers of one of the mountain gorillas studied by the author. The animal appeared in the National Geographic Special television film about the author's field work with these animals.

* * *



"WHEN I GO TRICK-
OR-TREAT THIS YEAR,
I THINK I'LL WEAR
A KING KONG DISGUISE!"

ADDRESS CHANGES

W. Ross Adey
Jerry L. Pettis Memorial
V.A. Memorial Hospital
11201 Benton St.
Loma Linda, CA 92357

Raymond T. Bartus
CNS Biology Dept., Med. Res. Div.
American Cyanamid Co.
Pearl River, NY 10965

Ronald A. Chez
Dept. Obstetrics-Gynecology
Milton S. Hershey Med. Ctr.
Hershey, PA 17033

Glenn Conroy
Sect. of Morphology
Div. of Biology & Medicine
Brown University
Providence, RI 02912

Orlando Correa
741 Nicolls Rd.
Deer Park, NY 11729

G. E. Cosgrove
Zoological Society of San Diego
PO Box 551
San Diego, CA 92112

Stephen H. Cramlet
5629 Faust Av.
Woodland Hills, CA 91367

Richard Deni
Psychology Dept., Rider College
Box 6400
Lawrenceville, NJ 08648

J. Erwin
PO Box 132
Petrolia, CA 95558

Susan Essock-Vitale
Department of Psychiatry-NPI
Univ. Calif., Los Angeles
Los Angeles, CA 90024

William J. Goodwin
Southwest Found. for Res. & Ed.
PO Box 28147
San Antonio, TX 78284

Charles E. Graham
International Ctr. for Env. Safety
Albany Med. College, Box 1027
Halloman AFB, NM 88330

Michael Kavanagh
Faculty of Vet. Med. & Animal Sci.
Universiti Pertanian Malaysia
Serdang, Selangor, Malaysia

Arthur S. Hall
Yemassee Primate Ctr., Box 557
Yemassee, SC 29945

R. M. Letscher
Med. Ctr. Kessler-SGER
Keesler AFB, MS 39534

C. J. Marinkelle
AA 1313
Cartagena, Colombia

Terry L. Maple
Psychology Department
Georgia Institute of Technology
Atlanta, GA 30332

Albert R. Petkus
Animal Care Unit
Wayne County Gen. Hosp.
Eloise, MI 48132

Eugene Rosa
Dept. of Sociology
Washington State University
Pullman, WA 99164

Kenneth W. Samonds
Dept. of Food Sci. & Nutrition
University of Massachusetts
Amherst, MA 01003

Henry V. Soper
Univ. Ill. Coll. of Med.
Dept. of Anatomy, PO Box 6998
Chicago, IL 60680

George M. Strain
Vet. Physiol., Pharm. & Toxicology
LSU Sch. of Vet. Med.
Baton Rouge, LA 70803

N. Herbert Spector
Fundamental Neurosci. NINCDS NIH
Fed. Bldg. Rm 120
7550 Wisconsin Av.
Bethesda, MD 20014

J. A. Turton
Sch. of Path., Middlesex Hosp. Med. Sch.
Riding House St.
London, W1P 7LD England

Linda K. Ziemer
Dept. of Anatomy
Uniformed Services
University of the Health Sciences
Bethesda, MD 20014

* * *

NEW JOURNAL ANNOUNCED: *INTERNATIONAL JOURNAL OF PRIMATOLOGY*

The *International Journal of Primatology* will be published quarterly by Plenum Press, beginning March, 1979. Pending final signatures on the agreements, the journal will be the official journal of the International Primatological Society with special rates for its members.

The following is the interim publication policy of the journal, pending a meeting of the Joint Editorial Committee, which will occur at the VIIth Congress of the International Primatological Society in Bangalore.

Articles of three kinds will be considered for publication: (a) Articles of conventional length which would take their place in the queue and for which there would be a reasonable publication lag; (b) Short articles of three pages at the most which, because of their importance, would be guaranteed publication in the next issue; (c) Solicited review articles to give well-known research workers the opportunity to review their areas of research and which would be aimed at the research worker as well as the student community. Such review articles could be prescribed for courses and sold as separata.

Only articles of a high standard devoted to basic or fundamental primatology will be accepted. With rare exceptions articles devoted to applied primatology, i.e., where the primate features as a model, and for which there exist a number of suitable publication outlets, will not be accepted.

All articles offered for publication will be refereed by at least two experts in the field. Articles returned to contributors as unsuitable will be accompanied either by recommendations for revision or fully

documented reasons for rejection.

Instructions to Contributors

1. Manuscripts should be sent to one of the Joint Managing Editors: Field and Laboratory Behavior to: Prof. G. A. Doyle, Primate Behaviour Research Group, University of the Witwatersrand, 1 Jan Smuts Ave., Johannesburg, 2001, South Africa. All other manuscripts to: Dr. Matt Cartmill, Department of Anatomy, Duke University Medical Center, Durham, North Carolina 27710 USA.

2. Type double-spaced, and submit the original and three copies (including, where possible, copies of all illustrations and tables). Academic affiliations of all authors and the full mailing address of the one author who will review the proof should be included.

3. A 250-word abstract is to be provided, except in the case of short articles of 3 pages or less. In the case of review articles a table of contents listing 1st and 2nd order headings is required.

4. Except in the case of review articles, a list of 4-5 key words is to be provided directly below the abstract. Key words should express the precise content of the manuscript, as they are used for indexing purposes, both internal and external.

5. Illustrations (photographs, drawings, diagrams, and charts) are to be numbered in one consecutive series of Arabic numerals. Photographs should be large, glossy, continuous-tone prints, showing high contrast. Photographs of half-tone prints give unacceptable results when reproduced for publication. Drawings should be prepared with india ink. Either the original drawings or good-quality glossy photographic prints are acceptable. Identify figures on the back with author's name and number of the illustration. Each figure should have an accompanying caption. The list of captions for illustrations should be typed on a separate sheet of paper.

6. Tables should be numbered and referred to by number in the text. Each table should be typed on a separate sheet of paper. Each table should have an accompanying title.

7. List references alphabetically at the end of the paper and refer to them in the text by author's name and year of publication in parentheses. Where there are three or more authors, only the first author's name is given in the text, followed by *et al.* References should include titles of papers. Abbreviations for journal titles should conform to those in *World List of Periodicals*. In the list of references, the year of publication, in parentheses, should follow immediately after the author's names.

8. Footnotes, where necessary, should be numbered and typed on a separate sheet of paper indicating clearly where each belongs in the text.

Acknowledgements should be typed on a separate sheet of paper.

9. The journal makes no page charges. Reprints are available to authors for purchase and order forms are sent with proofs.

* * *