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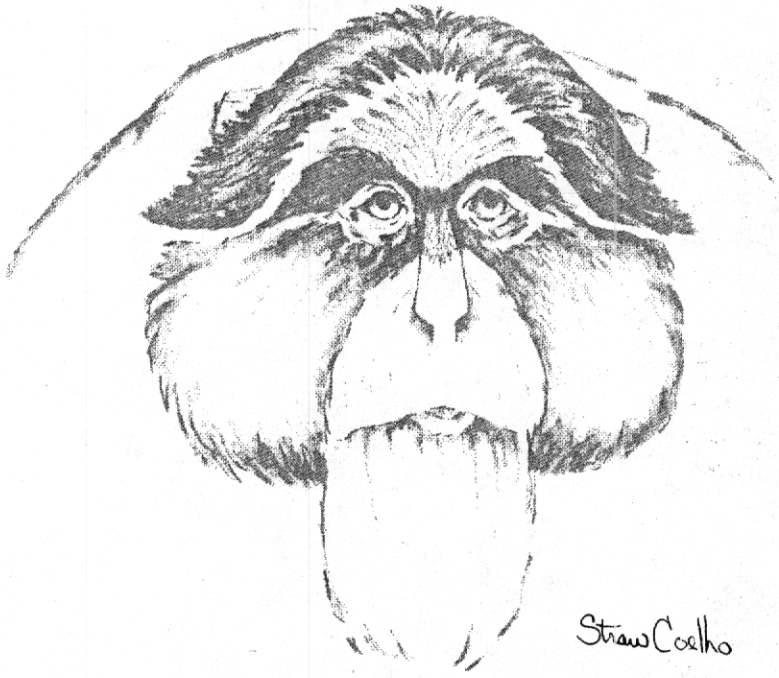

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POLICY STATEMENT

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 infomation 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 $2.00 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, notes, and announcements 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 in *Mammal Species of The World: A Taxonomic and Geographic Reference* J. H. Honacki, K. E. Kinman, & J. W. Koeppl (Eds.). Lawrence, KA: Allen Press and the Association of Systematics Collections, 1982]. 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.

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We are grateful to Linda Straw Coelho for providing the cover drawing
of a De Brazza's monkey *(Cercopithecus neglectus)*.

Managing Editor: Helen Janis Shuman

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A Simple Monkey-Proof Lock

Arnold S. Chamove

Stirling University Psychology Primate Unit

Since monkeys have been kept in cages, caretakers have probably been discussing the design of monkey-proof locks. The ideal lock is one that is simple and quick for the human to unlock (preferably with one hand), inexpensive and interchangeable, rustproof, but very difficult for the monkey to unlock. Most commonly, a gravity door is subsequently secured with a simple dog-clip and then by a padlock as an animal matures. The spring of a padlock is not rustproof, and these costly items often need replacement or maintenance. Two tactics are used to obviate the need for padlocks: (a) locating the lock behind small mesh or perspex so that the monkey cannot reach it; (b) using a lock which needs two hands to operate it. These two restrictions are not always desirable or tolerable.

Cowley (1979) reports on the use of an SS-pin as successful on the outside of rhesus monkey cages. We have tried several devices. The most promising uses the cap of the common child-resistant reclosable container (Clic-loc, U. G. Closures & Plastics Ltd.) used for medicine bottles in many countries. In its usual application, the cap couples onto the threaded neck of a bottle. The plastic cap is opened by pressing the cap and simultaneously unscrewing it. When used, for example, on a cage door, a solid metal rod is attached to the door frame. The protruding end is threaded. When the door is closed the threaded end of the bolt protrudes through a hole in the door. The cap can then be screwed onto the bolt, holding the door closed. To open the door the cap is pressed inward to engage the threads, simultaneously unscrewed, and removed from the cylinder thereby unlocking the door.

We have tested several of these devices using our colony of 40 group- and individually-housed stumptailed macaques *(Macaca arctoides)* (Chamove, 1981). Seven caps were located outside the animals' cages for 6 months where the monkeys could easily contact and manipulate them with their hands. The caps were periodically moved, colored, and smeared with honey to increase their interest, but none were ever unlocked.

When located inside the animals' cages they were immediately bitten and broken open. The manufacturer then kindly made several coverings for the caps, some metal and some of fiberglass resin; we made some too. Six of these were put inside the animals' cages for 4 months. Although the monkeys would often spin, chew, or pick at the caps, none were ever removed even after we repeatedly demonstrated the removal technique to the animals. Some SS-pin clips were removed when we put them inside our cages and when located outside but easily accessible to the monkeys.

The clip-lock cap has the following advantages over padlocks: it is interchangeable and inexpensive, costing only pennies; it is water and rustproof; it is easily and quickly removed with one hand. In addition, with the addition of a simple cover, it can even be used inside the animals' cages should that be desirable or necessary.

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Chimpanzees Can be Rehabilitated

W. C. McGrew
University of Stirling

In his article on the rehabilitation of apes, Soave (1982) comes to discouraging conclusions. He characterizes rehabilitation projects as time-consuming, expensive, and often abandoned. He asserts that island sites have involved small numbers, constant care, and necessary shelter and observation. For chimpanzees, he states that the success of rehabilitation has been questionable, and "...that other approaches to [than?] re-introduction into the wild must be considered" (p. 6). As the former Executive Director of the Interagency Primate Steering Committee, Soave's views deserve attention, but in this case they are debatable. His account of the rehabilitation of chimpanzees is inaccurate, incomplete and possibly misconceived.

Inaccuracy is evident in his account of the efforts of Brewer and Carter in far western Africa (Brewer, 1976, 1978; 1980, 1982; Carter, 1981a,b). Three places are confused in Soave's account: *Abuko Nature Reserve, The Gambia*—This small area has been used from the beginning by both Brewer and Carter as a "halfway house" and for temporary housing of chimpanzees. No apes have ever been released here. *Mt. Assirik, Parc National du Niokolo-Koba, Senegal*—Brewer sought to release 12 chimpanzees into this huge natural area, between 1972 and 1979. Most of her activity in the latter years focussed on Mt. Assirik, a low hill in the center of the park. *River Gambia National Park, The Gambia*—The chimpanzees are yet rehabilitated at Mt. Assirik were moved in 1979 by Brewer to the Baboon Islands in the Gambia river, 280 km upstream from Banjul. There they were joined by other apes under Carter's care. As of December, 1982, there were 26 chimpanzees on 3 islands.

It is difficult to know on what bases Soave regards Brewer's and Carter's efforts as unsuccessful. They have shown that chimpanzees taken from captivity back to the wild will learn to build nests, eat natural plant and animal foods, avoid predators and other hazards, produce and rear offspring, and lead normal social lives. Most of these accomplishments also apply to rehabilitated individuals born and raised in captivity, even in conditions of social deprivation. What did *not* proceed as planned at Mt. Assirik was the integration of the rehabilitants into the resident population of wild chimpanzees. After a period of uncertainty, the residents reacted violently to the newcomers. With hindsight, this is perhaps not surprising, as Mt. Assirik is a marginal habitat, on the edge of the distribution of the species (McGrew et al., 1981). Presumably the wild chimpanzees were living close to their limits, and the introduction of others might have tipped a delicate ecological balance.

The incompleteness of Soave's account is shown by his failure to mention two older projects which succeeded in rehabilitating chimpanzees elsewhere in Africa: Rubondo Island in Tanzania and Makokou in Gabon. Both involved releases of groups of chimpanzees onto inland islands in the later 1960's. Rubondo (Grzimek, 1966, 1970; Kade, 1967; Anon. 1970) was a large (over 350 $km^{2)}$ and uninhabited island in Lake Victoria. It has no carnivores and no resident population of wild chimpanzees. Frankfurt Zoo gathered together a motley group of 10 chimpanzees and released them there in 1966. Eight of the 10 were fully grown. Supplementary food was provided at first, but only for eight weeks. Human supervision was minimal, being mostly monitoring from offshore, because of possible danger from the chimpanzees. More apes were added later, and within two years, young were being born and raised. The island has since become a national park. Makokou (Hladik, 1973, 1974) is the site of an ecological field center on the River Ivindo in northeastern Gabon. A heterogenous group of chimpanzees captured nearby accumulated at the center over the 1960's. After one false start, a group of young (aged 4 to 8 years) chimpanzees was released in 1969 onto a 65 ha. island in the river. They were provided with bananas, but quickly adapted to living on wild foods; human supervision was minimal. Unlike Rubondo's rehabilitants, the chimpanzees at Makokou were the subjects of ecological research, which was the main reason for their release. Their re-adaptation to life in the wild was perhaps *too* successful, as they discovered how to escape from the island to the mainland by wading across the river when water levels were low. Eventually, most (but not all) were recaptured and returned to captivity, where they now live in a center for biomedical research at Franceville.

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Finally, Soave's ideas about what constitutes rehabilitation, especially in terms of its goals, seem to differ from those who are engaged in it. Soave emphasizes improvement and utility. This is reflected in his choice of definition: "To restore to a condition of health or useful and constructive activity." It is made explicit in his recommendations: To set up groups of 10-15 chimpanzees in 20-30 compounds near educational or research institutions. Most persons who have been or are directly involved with the rehabilitation of apes seem to have different views. I suspect that they would subscribe to another definition of the term: "[To] restore to privileges, reputation or proper condition" *(Concise Oxford Dictionary,* 1977, p. 943). This they seek to translate into action by aiming for the ultimate result: Restoration to the natural state.

There is more information available on the rehabilitation of chimpanzees than is widely realized. Projects such as Rubondo and Makokou should be thoroughly documented, especially in bringing their progress up to date. Lessons learned from successful rehabilitation of other species should be noted (Caldecott & Kavanagh, 1983). In conclusion, the rehabilitation of chimpanzees has not been tried and failed; rather, several attempts have been made which have completely or largely succeeded, in relation to specific sets of conditions. Future attempts based on knowledge from earlier projects should have an even better chance of success.

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* * *

Sociobiology: Re-versing a Theory[1,2]

James Loy and Calvin B. Peters
University of Rhode Island

Altruism is a mystery! Why risk your neck for others?
Why not play it safe, so you can live to be fathers and mothers?
The answer lies in kinship—when you run a risk for kin.
You help your genes proliferate and fitness you will win.

Chorus: Inclusive fitness, yes that's the game for me.
Protect your genes and eat your beans for your posterity.

Now the strategy for males is to be polygymous,
'Cause paternity uncertainty will be the death of us.
You can mate for life and trust your wife, that's how our culture's molded.
But be on guard, make sure that you don't go and get cuckolded!

Chorus: Inclusive fitness, yes that's the game for me.
Reproduction is the only test, ev-o-lution-ar-ily.

But what if you're a female, with just a few gametes?
You can't go 'round a'mating with everyone you meets.
You've got to play it coyly, a bit close to the vest,
Find males with high fitness and let them do the rest!

Chorus: Inclusive fitness, yes that's the game for me.
You win by being choosy in female strategy.

Taking care of children, you always pay a cost,
But if you do not do it, the game you will have lost.
And if they grow up sterile or do not reproduce,
You've lost a lot of fitness and probably cooked your goose.

Chorus: Inclusive fitness, yes that's the game for me.
My offspring cost me dearly—fitness just ain't free.

Now life's a tricky business, full of loss and gain,
But with a stable strategy, your fitness will not wane.
So go and reproduce, my friends, for therein lies success,
If you have a lot of children, your genes will pass the test.

Chorus: Inclusive fitness, yes that's the game for me.
K must exceed one over r for your posterity.[3]

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[1] Sung to the tune of "Oh Suzanna".

[2] Our apologies to Stephen Foster, Charles Darwin, and Professor E. O. Wilson.

[3] The equation $K>1/r$ refers to the conditions which must prevail for an "altruistic gene" to spread in a population. K is the ratio of genetic costs (expressed in arbitrary units of fitness) for the altruists to genetic benefits (expressed in the same fitness units) for the beneficiaries of the altruistic act. "r" refers to the average coefficient of relatedness between altruists and beneficiaries.

News Briefs

T. C. Ruch Dead

It is with great sorrow that we learned of the death of Ted Ruch, February 6, 1983, in California. He was among the last of the pioneers in the field of primate research. He was the first Director of the Regional Primate Research Center, University of Washington, Seattle, from which position he retired several years ago.

American Psychological Association Aids Taub Appeal

The Board of Directors of the American Psychological Association has approved a third grant to the Institute for Behavioral Research, where psychologist Edward Taub, who is appealing his conviction on one charge of animal cruelty, is director of the behavioral biology center. The $6,000 grant will come from the Psychology Defense Fund, as have two previous grants of $5,000 each to IBR, and will go to help pay legal expenses in the Taub case. The board's position has been that Taub's appeal raises broad constitutional and jurisdictional questions related to scientific and educational issues surrounding the care and use of animals in research and experimentation. The grants are not intended to be a statement on Taub's innocence or guilt, the board has indicated, but have been made to ensure a fair airing of the issues relevant to psychology.

The earlier grants generated controversy among some psychologists, who argued that Taub's case concerns veterinary care, not freedom of scientific inquiry.

A Maryland District Court judge found him guilty of six counts of inadequate veterinary care involving six monkeys. Appealing that conviction, he was found guilty of one charge and not guilty on the five others by a Montgomery County Cricuit Court jury. Taub's appeal of that conviction is scheduled to be heard in the Maryland State Court of Appeals in May. After the circuit court appeal, the National Institutes of Health terminated its grant to Taub. NIH inspectors had found lab conditions failed significantly to meet NIH guidelines. Taub is also appealing that grant termination. An ad hoc review board of the Public Health Service recently heard the appeal (see previous *Laboratory Primate Newsletters* for further information: Jan., 1982, p. 17; July, 1982, p. 8; October, 1982, p. 13; Jan., 1983, p. 13).

The APA board acted in January after the Psychology Defense Fund received a request for more funds from Taub. The letter said that $6,000 would be needed immediately to pay for transcribing and printing the earlier trial proceedings, as required by the Maryland State Court of Appeals. "Quite clearly, then," Taub wrote, "the hearing of my appeal will permit public discussion and adjudication of issues that are of grave importance for research with conscious animals, especially in the area of physiological psychology, my own field of work." [From *APA Monitor*, March, 1983, p. 3.]

Walgren Introduces Animal Welfare Amendments to NIH Bill

On March 22, 1983 Congressman Doug Walgren (D-PA) introduced amendments to the Health Research Extension Act of 1983 (the NIH Authorization Bill) in the Energy & Commerce Subcommittee on Health and the Environment (chaired by Henry A. Waxman (D-CA)). These amendments contain components of last year's Walgren bill (see this *Newsletter*, January, 1983, p. 13; October, 1982, p. 14; July, 1982, p. 9), and would increase NIH responsibilities in the area of laboratory animal care and treatment. The amendments also include authorization for appropriations for the development of alternative research methodologies. The Walgren amendments address four major areas: (1) the development of a plan by NIH concerning alternative methods to animal use; (2) the promulgation of standards and regulations concerning the treatment of research animals; (3) the establishment of animal care committees; and (4) provision to be included in NIH grant proposals concerning laboratory animal use and care.

The Walgren amendments still have a long way to go prior to passage. It is expected that the full committee on Energy & Commerce will mark-up the NIH bill during the second week in April. The bill then moves to the floor of the House. In addition, the Senate must then consider their version of the NIH bill, which is very different from the House's.

CERP vs. MFA

In response to the demonstrations planned by the Mobilization for Animals (MFA) group at four of the Regional Primate Research Centers on April 24, 1983 (see this *Newsletter*, July, 1982, p. 8) and the group's attacks on the primate centers through the Congressional appropriations process, the National Society for Medical Research (NSMR) has organized the Coalition for Essential Research on Primates (CERP). The Coalition's objective is to include all organizational members of the NSMR as well as professional societies, institutions, and voluntary health organizations not now members of NSMR. It is hoped that CERP will be able to speak with a single voice for the biomedical scientific community and its associated organizations in countervailing the MFA efforts. Dr. Leon Jacobs is serving as the leader of CERP. He can be reached at 202-347-9565 for questions regarding the coalition.

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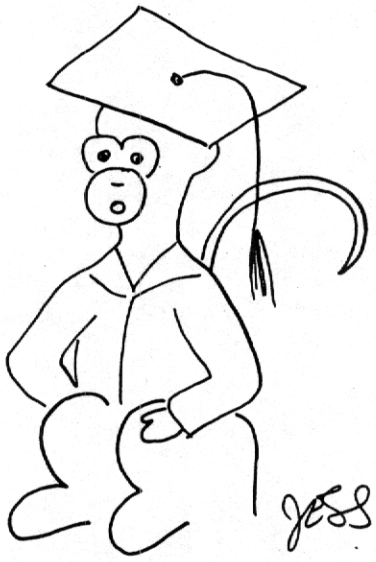

"AFTER ALL, I'VE BEEN AT THE UNIVERSITY MORE THAN FOUR YEARS..."

Workshop on AIDS in Nonhuman Primates Held

A workshop on acquired immunodeficiency syndrome (AIDS) in nonhuman primates, organized by the Animal Resources Program, Division of Research Resources, NIH, was held March 2, 1983.

The following presentations were made:

Session I. Comparative Medical Aspects of AIDS,
Chairman, John L. Sever (NINCDS, NIH).

Acquired immune deficiency syndrome in man: An overview, H. Clifford Lane (NIAID, NIH); AIDS in the nonhuman primate: Clinical, pathological, and immunological aspects, New England Regional Primate Research Center—A clinicopathologic study of macaques with an acquired immunodeficiency syndrome (AIDS), Norman L. Letvin, Ronald C. Desrosiers, & Norval W. King, Jr.

AIDS in the nonhuman primate: Clinical, pathological, and immunological aspects, California Regional Primate Research Center—Epizootics of acquired immunodeficiency syndrome in rhesus macaques at the California Primate Research Center, Roy V. Henrickson, Donald H. Maul, & Murray B. Gardner; Clinical summary of acquired immunodeficiency syndrome in rhesus macaques at the California Primate Research Center, Donald H. Maul, Roy V. Henrickson, & Murray B. Gardner; Cellular and humoral immunity of monkeys with simian acquired immunodeficiency syndrome (SAIDS), David L. Madden, (NINCDS, NIH); The pathology of an epizootic of acquired immunodeficiency syndrome in rhesus macaques at the California Primate Research Center, Murray B. Gardner, Donald H. Maul, Roy V. Henrickson, Kent G. Osborn, Srinivasa Prahalada, & Linda J. Lowenstine.

Summary of comparative medical aspects, Sheldon Wolff, Tufts University.

Session II. Differential Diagnosis, Epidemiology, and Biosafety Aspects, Chairman, William I. Gay (DRR, NIH).

Identification of AIDS and related diseases in the nonhuman primate: California Regional Primate Research Center—Epidemiological aspects of an outbreak of acquired immunodeficiency syndrome in rhesus macaques at the California Primate Research Center, Roy V. Henrickson; Unique mortality pattern associated with acquired immunodeficiency syndrome in rhesus macaques at the California Primate Research Center, Donald H. Maul.

Identification of AIDS and related diseases in the nonhuman primate: New England Regional Primate Research Center—A transmissible lymphoma in macaques: Is it related to macaque AIDS, Ronald D. Hunt, Edward P. Gelman, & Norman L. Letvin.

Panel. Epidemiology and Biosafety. Chairman, Kenneth Sell (NIAID, NIH). Probable transmission of AIDS and potential risk to laboratory personnel, Donald P. Francis (Centers for Disease Control); Epidemiology and biosafety: Panel, Donald Francis (Centers for Disease Control), Roy V. Henrickson & Donald H. Maul (California Regional Primate Research Center), Norman L. Letvin & Norval W. King (New England Regional Primate Research Center).

Summary of differential diagnosis, Epidemiology and biosafety aspects, John L. Sever, (NINCDS, NIH).

Abstracts of most of the presentations can be obtained from Animal Resources Program, Division of Research Resources, National Institutes of Health, Bldg. 31, Rm. 5B59, Bethesdaz, MD 20205.

The workshop deliberations were recently described in the Medical News section of the April 1, issue of the *Journal of the American Medical Association* (pp. 1696-1697).

Note on Literature Needs of Brazilian Primate Centers

The Brazilian Society of Primatology recently held their first annual scientific meeting in Belo Horizonte, Brazil. There are currently many active researchers in primatology with major centers emerging at the Primate Center of Rio de Janeiro, the Ernando Chagas Institute at Belem, the University of Brasilia and the University of Minas Gerais. It is extremely difficult for Brazilian scientists to obtain access to literature published in North America and Europe. We encourage scientists who have duplicate reprints, materials no longer of immediate interest to their own research, and reprints of their own publications to consider donating them to these centers in Brazil. We will serve as a clearinghouse for collecting and shipping materials. Please send any materials you wish to donate to: Alfred Rosenberger, Dept. of Anthropology, Univ. of Illinois-Chicago, Chicago, IL 60680; or to Charles Snowdon, Dept. of Psychology, Univ. of Wisconsin, Madison, WI 53706.

* * *

Barbados Green Monkeys For Sale

As a result of a recent decrease in the demand for monkeys used in polio vaccine production, the Barbados Primate Research Center is offering for sale 200-300 healthy green monkeys *(Cercopithecus aethiops sabaeus)*. Animals are wild-caught and of all age/sex categories. Price negotiable. Exchange with other species welcome. Contact: Mr. Jean Baulu, Program Leader, Barbados Primate Research Ctr., "Hillcrest" Bathsheba, St. Joseph, Barbados, W. I. (Phone: 809-423-2696).

* * *

Rare Book on Madagascan Lemurs Available

Available: Several copies of: Grandidier, A. and A. Milne-Edwards 1865. *Histoire Physique, Naturelle et Politique*, vols 6, 9 and 10. These three volumes of Grandidier's classic work on Madagascar are all that ever appeared on the mammals. Vol. 6 is the text for the family Indriidae and vol. 9 includes the plates of the Indriidae (123 in all, including 12 in color). Vol. 10 includes the plates for a number of other lemur species, but the text to this volume apparently was never published. Vol. 9 is complete, but vol. 10 is missing 25 of 157 plates. According to the description on the back of vol. 6, only 150 copies of vols. 6 and 10 and 250 of vol. 9 were ever published. Unbound. Vols. 6, 9 and 10 together can be obtained for $450.00. Vol. 9 alone is $200.00. Contact: R. A. Mittermeier, 19 William Penn Dr., Stony Brook, NY 11790.

* * *

Specimens for Dissection Needed

I am a graduate student working with Dr. Peter Waser in the Department of Biological Sciences at Purdue University. For my doctoral dissertation, I plan to conduct a comparative anatomical study on the larynges of Old World monkey species with and without "loud calls" (low pitch, high intensity vocalizations) in their vocal repertoirs. I wish to obtain access to appropriate preserved specimens that may be available for dissection. I am particularly interested in male and female specimens of *Cercocebus albigena*, *C. galeritus*, *Cercopithecus diana*, *C. mitis*, *C. mona*, *C. nictitans*, *C. pogonias*, *Colobus basius*, *C. guereza*, and *C. polykomos*. Because individuals of these species are relatively rare in U. S. collections. I would like to know of any Old World monkey specimens housed in your institution. Contact: Leslie Helene Wissinger, Purdue University, Dept. of Biological Sciences, Lilly Hall of Life Sciences, West Lafayette, IN 47907.

Colony-bred Baboons Available

A national baboon breeding program, funded by a grant from NIH, is in its fourth year of operation at the Southwest Foundation for Research and Education, San Antonio, Texas. Three species of juvenile baboons 6-36 months old are available for sale. The three species are *Papio cynocephalus cynocephalus, P. c. anubis* and *P. c. hamadryas*. A limited number of culled breeders are also available.

Preference will be given to requests from investigators with NIH grant and contract support. Researchers from other institutions are also eligible to purchase these primates. All requests are reviewed by the Colony Review Committee following the NIH approved guidelines.

Investigators wishing to obtain baboons for use in biomedical and behavioral research are invited to submit requests. The letter of request should indicate the source of support including title, number, and principal investigator of the grant or contract. Information regarding species, age, sex, number and special characteristics should be included.

The price of the juvenile baboons are 6-12 months—$500; 12-24 months—$650; 24-36 months—$800. The price of the adult baboons is negotiable.

All requests should be addressed to: Dr., William J. Goodwin, Director, Department of Laboratory Animal Medicine, Southwest Foundation for Research and Education, PO Box 28147, San Antonio, TX 78284. Tel.: (512) 674-1410.

* * *

NIH Plans Site Visits

Since 1963, the NIH has required of its awardees as a condition of awards that they submit a written statement of assurance related to the welfare of laboratory animals. In general, these assurances indicate the awardee institution will fulfill the spirit of the *NIH Guide for the Care and Use of Laboratory Animals* and otherwise will comply with all applicable statutes of state, federal and local levels. As a matter of policy, the NIH traditionally has negotiated the assurance statement but, without specific cause, has made no effort to assess compliance. However, NIH is now planning a series of site visits to awardee institutions to assess the effectiveness of the current Institutional Assurance process for promoting proper care in the use of animals in biomedical research. Further information on those planned site visits is forthcoming.

* * *

Upcoming Primate Meetings

ASP

Fifth annual meeting of the American Society of Primatologists, East Lansing, Michigan, August 7-10, 1983. Program information is available from the Program Chairman: Dr. David M. Taub, c/o Yemassee Primate Center, 414 New St., Beaufort, SC 29902.

IPS

Xth Congress of the International Primatological Society, July 22-27, 1984, Nairobi, Kenya. The first notice of the meeting is reproduced on the next page.

Xth Congress of the International Primatological Society: First Notice

As hosts for the Xth Congress of the International Primatological Society, the Institute of Primate Research, National Museums of Kenya, would like to announce that the Xth Congress will be held in Nairobi, Kenya, from 22 to 27 July, 1984. Please note the change in dates from earlier announcements.

Congress activities will include a plenary session at the Kenyatta International Conference Centre followed by symposia, workshops, paper sessions and poster sessions at the National Museums, Nairobi. The Programme Committee will also plan social functions and field trips that highlight the unique opportunities for study and travel that Kenya offers to visitors. Those interested in organizing a symposium and have not so informed us, please send details immediately.

Nairobi is served by daily flights from all over the world. Hotel rates currently range from $25 to $75 per day for a double room; additional information on hotels and dormitory accommodation will be available shortly.

For further information about the Congress contact: IPS Congress Office, Institute of Primate Research, PO Box 34505, Nairobi, Kenya.

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International Symposium on Laboratory Animal Science

The International Council for Laboratory Animal Science (ICLAS) will hold its 8th International Symposium and General Assembly in Vancouver, B.C., Canada, on July 31 - August 6, 1983, in conjunction with the 22nd annual convention of the Canadian Association for Laboratory Animal Science (CALAS). This meeting also has the support of the 8th District of the American Association for Laboratory Animal Science (AALAS). The Symposium theme is "The contribution of laboratory animal science to the welfare of man and animals: past, present, and future." There will be poster presentations on general or related topics. Posters will be on display during the entire meeting. Topics will include: 1. A geographic overview of laboratory animal science. The state of the art and science in ICLAS membership countries around the world. 2. The animal model in gerontological studies. 3. The development, status and future of international quality standards in laboratory animals. 4. New trends and future of biotechnology. General enquiries and mailing list: Mr. D. Jol, ICLAS/CALAS 1983, Box 286, 810 West Broadway, Vancouver, British Columbia, Canada V5Z 1J8. Telephone: (604) 291-4737 or 936-9885.

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Addendum to Directory of Graduate Programs in Primatology and Primate Research

ARIZONA

University of Arizona, Department of Psychology

PROGRAM NAME AND/OR DESCRIPTION: The Department of Psychology offers a Ph.D. program in biopsychology with a possible specialization in comparative psychology and primate behavior.

FACULTY AND THEIR SPECIALTIES: Sigmund Hsiao (brain behavior relationships, consummatory behavior, primate aging); James E. King (complex learning and retention, primate social behavior, primate aging).

FOR FURTHER INFORMATION: Department of Psychology, University of Arizona, Tucson, Arizona 85721 (for general description of doctoral program and application forms). Dr. James E. King (for specific information about the primate behavior program).

CALIFORNIA

University of California, Berkeley, Department of Anthropology

PROGRAM NAME AND/OR DESCRIPTION: Primate Studies Program. A comprehensive program in primate studies emphasizing anatomy, behavior, and ecology and focused on primate species as integrated systems.

FACULTY AND THEIR SPECIALTIES: Phyllis Dolhinow (development and behavior of human and nonhuman primates); Katherine Milton (energetics, feeding ecology and digestive anatomy of human and nonhuman primates).

FOR FURTHER INFORMATION: P. Dolhinow, Dept. of Anthropology, University of California, Berkeley, CA 94720.

GEORGIA

University of Georgia, Department of Psychology

PROGRAM NAME AND/OR DESCRIPTION: Biopsychology, specialty area in primatology

FACULTY AND THEIR SPECIALTIES: Irwin S.. Bernstein (primate social organization); Bradford N. Bunnell (social stress & performance); Lelon J. Peacock (motivation & learning); Daniel Q. Estep (primate sexual behavior); Roger K. Thomas (cognitive processes and complex learning); B. E. Mulligan (animal communication); Walter Isaac (CNS function & behavior); J. D. Allen (learning and biomotivation).

FOR FURTHER INFORMATION: Irwin S. Bernstein or B. N. Bunnell, Dept. of Psychology, University of Georgia, Athens, GA 30602.

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Directory of Postdoctoral and Other Training Programs in Primatology and Primate Research (1983)

CALIFORNIA

University of California, Davis, Laboratory Animal Medicine

PROGRAM NAME AND/OR DESCRIPTION: The objectives of the Residency in Primate Medicine are as follows: (1) to provide postgraduate veterinary training in primate medicine and husbandry; (2) to provide training in laboratory animal medicine leading to eligibility to take the Boards in Laboratory Animal Medicine; (3) to provide training in clinical research as it applies to specific medical problems of nonhuman primates; and (4) to provide experience in clinical teaching, and to a lesser degree, classroom instruction to veterinary students.

During the first year, the resident participates in daily clinical rounds and is responsible for hospitalized cases. The resident is also involved in the research service activities of the Primate Medicine Unit which include experimental surgery, experimental radiology, and procedures requiring veterinary expertise. The resident attends classes and participates in clinic conferences and seminars in Zoological Medicine. Clinical instruction is provided to veterinary students rotating through the Primate Center as part of their clinical training. During the second year, the resident will continue the responsibilities and duties of the first year, but will function with less direct supervision. Training will be expanded to include management of a colony of animals for biomedical research. The resident will be responsible for designing and carrying out a clinical investigation utilizing nonhuman primates. The data will be presented at a national meeting. The resident will visit other facilities housing nonhuman primates which include primate centers, vivaria, and zoos.

The California Primate Research Center colony comprises approximately 2000 nonhuman primates including 12 different species. The average number of hospitalized animals is 12 with the number of new cases being 5 per day. Because of the program in clinical research and the importance of nonhuman primate diseases as models for diseases of man, animals receive intensive clinical workups. To provide additional clinical expertise, specialists are routinely consulted in the Schools of Veterinary Medicine and Medicine. Thus, the emphasis is on detailed quality medicine to elucidate and define the spontaneous diseases of nonhuman primates.

FACULTY AND THEIR SPECIALTIES: Dr. Roy V. Henrickson (senior veterinarian).

FOR FURTHER INFORMATION: Coordinator of House Programs, VMTH, University of California, Davis, Davis, CA 95616. Roy V. Henrickson, Senior Veterinarian, California Primate Research Center, Davis, CA 95616.

GEORGIA

Emory University, Yerkes Primate Res. Ctr. & affiliated depts.

PROGRAM NAME OR/AND DESCRIPTION: Behavioral Biology of Primates.

The Training Program: Interdisciplinary training is provided in the sciences that contribute to our understanding of the mechanisms that determine behavior, with emphasis on primate models. Emphasis is on the special position which non-human primates occupy in their evolutionary relation to humans. Postdoctoral training is offered by faculty in several academic disciplines including: animal behavior, social behavior and communication; neuroendocrinology; neuro- and psycho-pharmacology, neurophysiology, biochemistry, neuroanatomy, taxonomy and genetics. A training program providing interactions with faculty representing a wider range of interests than can be attained by a single department, is achieved through cooperation among the Departments of Anatomy, Anthropology, Biology, Pharmacology, Psychiatry, Psychology and the Yerkes Regional Primate Research Center of Emory University. Postdoctoral fellows receive research training in two laboratories of the participating faculty, and participate in a seminar series which will stress the application of behavioral biology and neuroscience to mental health problems. This seminar series integrates trainee and faculty presentations with those of visiting scientists. Journal clubs and other university and institute seminars and colloquia are open to trainees.

Training Facilities: Training is conducted in the facilities of Emory University, including the departments of the School of Medicine and the University in general, as well as the Georgia Mental Health Institute and the Yerkes Regional Primate Research Center, the Yerkes Field Station, and the Yerkes Language Research Center. With the exception of the Field Station,which is situated 30 miles from the University. and the Language Research Center at Panthersville, all facilities are either on campus or within a 5-minute drive. The facilities for research training in the behavior of primates at Yerkes and Emory are exceptional and unique.

Trainees: Trainees are chosen from applicants who have completed requirements for the doctoral degree in biological, behavioral or medical sciences. Criteria includes excellence in academic research performance, publications, and faculty recommendations. Trainees from the program may be uniquely qualified to establish primate models of behavioral pathology and medicine and investigate their biological and social bases.

FOR FURTHER INFORMATION: Training Program Director, Yerkes Regional Primate Research Center, Emory University, Atlanta, GA 30322.

MARYLAND

Goucher College, Department of Psychology

PROGRAM NAME AND/OR DESCRIPTION: At Goucher there is no graduate program in primate behavior, but as part of the Psychology Department, there is a large semi-naturalistic habitat which houses a small social group of squirrel monkeys (16) consisting of adults, juveniles, and infants. The animals can be viewed through one-way glass panels and there is extensive computer-based data collection and analysis support available. Graduate students in other universities are welcome to contact Dr. Bernadette Marriott if they are interested in conducting research with the Primate Facility at Goucher College. There are accommodations available on campus for visiting students/faculty. Funds are often available for research support. This colony is maintained strictly for the study of social behavior. Proposals for studies which involve invasive techniques will not be considered.

FACULTY AND THEIR SPECIALTIES: Bernadette M. Marriott (feeding behavior, foraging strategies, social spacing, visual perceptual aspects of feeding, nutrition, in nonhuman primates).

FOR FURTHER INFORMATION: Bernadette M. Marriott, Ph.D., Dept. of Psychology, Goucher College, Towson, MD 21204.

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

PROGRAM NAME AND/OR DESCRIPTION: Two postdoctoral training programs in Laboratory Animal Medicine and Comparative Pathology are offered. These are non-degree residencies which are offered to graduate veterinarians and physicians. The three-year programs consist of formal course work, clinical and diagnostic pathology experience, and supervised research training in the field of comparative medicine and pathology. Non-human primates form a significant portion of the program; studies include both spontaneous diseases of non-human primates and experimental models of human disease.

FACULTY AND THEIR SPECIALTIES: Robert J. Adams (Laboratory Animal Medicine: diseases of primates); M. M. Swindle (Laboratory Animal Medicine: surgery); John D. Strandberg, (Comparative Pathology: infectious disease); Linda C. Cork (Comparative Pathology: neuropathology); Robert A. Squire (Comparative Pathology: experimental carcinogenesis); Steven L. Vonderfecht (Comparative Pathology: gastrointestinal pathology); Opendra Narayan (neurovirology).

FOR FURTHER INFORMATION: John D. Strandberg, Acting Director, The Johns Hopkins University, Division of Comparative Medicine, 720 Rutland Ave., Baltimore, MD 21205.

OHIO

Cleveland Metroparks Zoo, Animal Department

PROGRAM NAME AND/OR DESCRIPTION: Pair Bonding in the Geoffroy's Tamarin. Captive Propagation for Relocation of Geoffroy's Tamarin. Zoological Park specimens are available for approved non-invasive research on site. These include primates, cats, waterfowl, along with a select group of hoofed stock asnd marsupials (Red Kangaroo and Bennett's wallaby.

FOR FURTHER INFORMATION: Michael Vitantonio, Zoo Director; Donald Kuenzer, General Curator; or Richard Nemeth, Curator of Education, Cleveland Metroparks Zoo, Brookside Park, Cleveland, OH 44109.

OREGON

Oregon Regional Primate Research Center

PROGRAM NAME AND/OR DESCRIPTION: We do not have a formal program in primatology, but we do train predoctoral students. The Oregon Regional Primate Research Center is one of seven federally funded centers designed to advance knowledge about human health problems through research with nonhuman primates. The ORPRC encourages scientists and students from the Northwest and other regions to make use of its unique research opportunities in several disciplines, including reproductive physiology; perinatal physiology; reproductive behavior; and cardiovascular, metabolic, and immunologic diseases. The Oregon Health Sciences University in Portland is the host institution of the Center. It provides academic support, and many ORPRC scientists have faculty appointments at the OHSU School of Medicine. The Center staff includes about 35 scientists with Ph.D., M.D., or D.V.M. degrees, as well as 130 technical, support, and service employees. Among the services provided are veterinary care, surgery, pathology, electron microscopy, radioimmunoassays,

data processing, bibliographic and other library searches, medical illustration, photography, and science editing.

FACULTY AND THEIR SPECIALTIES: The Center employs four full-time veterinarians who are involved in the daily care for 2,500 nonhuman primates, and for many small laboratory animals. There are on-going programs in reproductive biology, perinatal physiology, diabetes research, studies on lipoprotein metabolism and gallstone formation, and behavioral research.

FOR FURTHER INFORMATION: Oregon Regional Primate Research Center, 505 N.W. 185th Ave., Beaverton, OR 97006. (503) 645-1141.

SOUTH CAROLINA

Riverbanks Zoological Park, Dept. of Zoology

PROGRAM NAME AND/OR DESCRIPTION: None regularly scheduled but visiting scientists quite welcome. Behavior research opportunities for a number of rarely seen, studied or bred primates, especially from the New World.

SPECIALTIES: The specialty of Riverbanks is the propagation of rare or difficult to breed primates. Breeding groups include *Lemur catta, Varecia v. variegatus, Alouatta caraya, Pithecia pithecia, Callicebus moloch donacophilus, Saguinus oedipus, Leontopithecus r. rosalia, Papio hamadryas, P. sphinx, Cercopithecus neglectus, Macaca silensus, Hylobates, Symphalangus syndactylus.*

FOR FURTHER INFORMATION: Alan H. Shoemaker, Riverbanks Zoological Park, 500 Wildlife Parkway, Columbia, SC 29210.

TENNESSEE

University of Tennessee, College of Veterinary Medicine, Environmental Practice Department

PROGRAM NAME AND/OR DESCRIPTION: Residency-Lab Animal & Zoo Animal Medicine. This program is approximately 60% laboratory animal medicine related to the medical care of 450 marmosets (common, cotton-top, white-lipped). 25% of the responsibilities involve work at the Knoxville Zoo. 15% of this position involves teaching and outpatient duties at the University of Tennessee.

FACULTY AND THEIR SPECIALTIES: Ed Schroeder (laboratory animal medicine); Jim Jensen (zoo animal medicine); John New (epidemiology).

FOR FURTHER INFORMATION: Dept. of Environmental Practice, College of Vet. Med., University of Tennessee, P.O. Box 1071, Knoxville, TN 37901.

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Recent Books and Articles

(Addresses are those of first authors)

Books

Reproduction in New World Primates: New Models in Medical Science. J. P. Hearn (Ed.). Boston, U.S.A. and Lancaster, U.K.: MTP Press Ltd., 1983. 223 pp. [Price: $55.]

The purpose of this book is to present current knowledge of reproductive physiology of a range of New World monkeys, concentrating on those that are deemed of importance to biomedical research. Contents: Distribution and conservation of New World primate species used in biomedical research, by R. A. Mittermeier & A. F. Coimbra-Filho. 2. The cebus monkey *(Cebus apella)*, by C. A. Nagle & J. H. Denari. 3. The owl monkey *(Aotus trivirgatus)*, by A. F. Dixson. 4. The saddle back tamarin and other tamarins, by G. Epple & Y. Katz. 5. The squirrel monkey *(Saimiri sciureus)*, by W. R. Dukelow. 6. The common marmoset *(Callithrix jacchus)*, by J. P. Hearn.

Nonhuman Primate Models for Human Diseases. W. Richard Dukelow (Ed.). Boca Raton, FL: CRC Press, 1983. 201 pp. [Price: In U.S.A. $65.50; Outside U.S.A. $75.]

Contents: 1. Diabetes and carbohydrate impairment in nonhuman primates, by C. F. Howard, Jr. 2. Movement disorders, by D. A. Jewett. 3. Nonhuman primates as models for human viral disease, by M. D. Daniel, N. W. King, & R. D. Hunt. 4. The nonhuman primates as a reproductive model for man, by W. R. Dukelow. 5. Research in a breeding colony, by I. S. Bernstein. 6. Teratology and birth defects, by A. G. Hendrickx & P. E. Binkerd. 7.Learning acquisition in primates, by D. M. Rumbaugh & H. K. Massel.

Hormones, Drugs & Social Behavior in Primates. Horst D. Steklis & Arthur S. Kling (Eds.). Jamaica, NY: Spectrum Publications, Inc., SP Medical & Scientific Books, 1983. 359 pp. [Price: $45.]

Based in part on papers presented at a satellite symposium held in Pisa in 1980 in connection with the VIIIth Congress of the International Primatological Society, Florence, July, 1980. Additional papers were solicited in order to broaden the scope of the volume. Contents. Introduction, by H. D. Steklis & A. S. Kling. 1. Varying influence of social status on hormone levels in male squirrel monkeys, by C. L. Coe, E. R. Smith, S. P. Mendoza, & S. Levine. 2. Plasma testosterone, sexual and aggressive behavior in social groups of talapoin monkeys, by E. B. Keverne, J. A. Eberhart, & R. E. Meller. 3. Studies in adaptability: Experiential, environmental, and pharmacological influences, by E. N. Sassenrath. 4. Social status related differences in the behavioral effects of drugs in vervet monkeys *(Cercopithecus aethiops sabaeus)*, by M. J. Raleigh, G. L. Brammer, M. T. McGuire, A. Yuwiler, E. Geller, & C. K. Johnson. 5. Progesterone and socio-sexual behavior in stumptailed macaques *(Macaca arctoides)*: Hormonal and socio-environmental interactions, by H. D. Steklis, G. S. Linn, S. M. Howard, A. Kling, & L. Tiger. Addendum to 5. A comment on cross-specific comparison of the effects of progesterone treatment on social behavior, by L. Tiger. 6. Social and sexual behaviors during the menstrual cycle in a colony of stumptail macaques *(Macaca arctoides)*, by N. C. Harvey. 7. Effects of cyproyterone acetate on social and sexual behavior in adult male laboratory housed stumptailed macaques (*Macaca arctoides)*, by A. K. Slob, P. E. Schenck, & H. Nieuwenhuijsen. 8. Effects of methaqualone on social-sexual behavior in *Macaca mulatta*, by G. Claus & A. Kling. 9. Influence of amphetamine and neuroleptics on the social behavior of vervet monkeys, by I. Munkvad & A. Randrup. 10. Effects of drugs on the response to social separation in rhesus monkeys, by W. T. McKinney, Jr., E. C. Moran, & G. W. Kraemer. 11. Social effects of alterations in brain noradrenergic function on untreated group members, by D. E. Redmond, Jr. 12. Strategic psychopharmacotherapy: The therapeutic use of medication in family systems, by L. Engel & T. G. Bidder. 13. A model for studying drug use, and effects in dyadic interactions, by M. T. McGuire.

In many cases, the original source of reference 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 exellent 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.

The Lesser Bushbaby (Galago) *as an Animal Model: Selected Topics*. Duane E. Haines (Ed.). Boca Raton, FL: CRC Press, Inc., 1982. 346 pp. [Price: In U.S.A. $85; Outside U.S.A. $95.]

In most chapters, both new information and reviews of pertinent literature are presented. Each author also addresses the question of the potential usefulness of *Galago* either for studying a particular organ system or for answering questions of broader biological significance. Contents: GENERAL TOPICS. 1. Development of a husbandry technique for long-term maintenance of the lesser bushbaby *(Galago senegalensis)*. by D. E. Haines. 2. The dentition of the lorisidae, by K. E. Byrd & D. R. Swindler. 3. Use of *Galago senegalensis* in transplantation research, by F. T. Thomas, J. M. Thomas, & D. E. Haines. 4. The epinephrine and norepinephrine contents of the adrenal gland of the lesser bushbaby *(Galago senegalensis)*, by R. L. Robinson. EYE, VISUAL, AND SOMATOSENSORY SYSTEMS. 5. Structure of the pars plicata and zonule of the ciliary apparatus in *Galago senegalensis*, by R. G. Frederickson. 6. The retinochoriodal junction in the lesser bushbaby *(Galago senegalensis)*: An electron microscope study, by R. G. Frederickson. 7. The organization of the visual system in *Galago*: Comparisons with Monkeys, by R. E. Weller & J. H. Kaas. 8. The *Galago* visual system: Aspects of normal organization and developmental plasticity, by V. A. Casagrande & E. J. DeBruyn. 9. The somatosensory cortex and thalamus in *Galago*, by J. H. Kaas. HISTOLOGY, HISTOCHEMMISTRY, AND ULTRASTRUCTURE 10. The placenta and fetal membranes of the strepsirhini and haplorhini, by H. Butler. 11. Histology and mucosubstance histochemistry of the major salivary glands in *Galago senegalensis*, by W. B. Wilcox & C. A. Pinkstaff. 12. Histology and mucosubstance histochemistry of the lingual salivery glands of *Galago senegalensis*, by R. D. Smith & C. A. Pinkstaff. 13. Hepatic morphology of the lesser bushbaby *(Galago)*: A light and electron microscopic study, by D. E. Hinton, M. M. Lipsky, J. E. Klaunig, & G. J. Kolaja. 14. Fine structure of germinal nests in the adult ovary of the lesser bushbaby *(Galago senegalensis)*, by R. S. Pope. 15. Ultrastructure of the adrenal medulla of *Galago senegalensis* and *Tupaia glis*., M. Benson & S. W. Carmichael. PATHOLOGY. 16. Disease of the prosimii: A review, by D. F. Kohn & D. E. Haines. 17. Primate dander allergy of the lesser bushbaby *(Galago)*: A case report, by R. V. Lynch & R.Burrell. EPILOGUE. 18. A perspective on the question of *Galago* as an animal model, by D. E. Haines.

Primate Behavior. James L. Fobes & James E. King (Eds.). New York: Academic Press, 1982. 416 pp. [Price: $27.50.]

This is the first comprehensive book on scientific studies of primate behavior written for the advanced undergraduate and graduate student. It promises to fill a glaring gap in textbooks available at this level for this type of information. Contents: AN INTRODUCTION TO THE PRIMATE ORDER. An introductory survey of the primates, by S. I. Rosen; Field studies: The evolution of behavior and its socioecology. SOCIAL BEHAVIOUR. The evolution of primate societies, reproduction, and parenting, by J. J. McKenna; Studying the ontogeny of primate behavior, by G. P. Sackett, V. Gunderson & D. Balwin; Abnormal behavior and primate models of psychopathology, by S. J. Suomi. ENVIRONMENTAL INTERFACES. Vision: The dominant primate modality, by J. L. Fobes & J. E. King; Auditory and chemoreceptive sensitivity in primates, J. L. Fobes & J. E. King; Primate perceptual processes, by A. H. Riesen. COGNITIVE PROCESSES. Measuring primate learning abilities, by J. L. Fobes & J. E. King; Complex learning by primates, by J. E. King & J. L. Fobes; The relationship between language in apes and human beings, by D. M. Rumbaugh, E. S. Savage-Rumbaugh & J. L. Scanlon.

The Gibbons of Siberut. Tony Whitten. London: J. M. Dent and Sons, Ltd., 1982. (Can be ordered from the publishers at 33 Welbeck St., London.) [Price: 9 L, 30p, plus, if ordering from the USA 84p for surface mail or 4 L, 30p for airmail.]

A popular account of gibbon life on the island of Siberut, which is off the coast of Sumatra. The beelow gibbon is a small black gibbon found only on this island. The book also describes the island's people and its wildlife in general and the problems raised for both the wildlife and the people by the progressive destruction of the island's forests. One also gets to learn something of the problems encountered doing field work in the tropics.

Bibliographies

Behavioral observations of feral and free-ranging chimpanzees (Pan): A bibliography. Jean Balch Williams. Seattle: Primate Information Center, 1983. [Price: $5.00. Send orders to: Primate Information Center, Regional Primate Research Center SJ-50, University of Washington, Seattle, WA 98195]

Behavioral observations of feral prosimians: A bibliography. Jean Balch Williams. Seattle: Primate Information Center, 1983. 189 Citations with Primate Index. [Price: $6.00. Ordering information same as in previous reference.]

Histochemistry of fetal and infant nonhuman primates: A bibliography (Second Edition). Benella Caminiti. Seattle: Primate Information Center, 1983. 153 Citations with Primate Index. [Price: $6.00. Ordering information same as in previous reference.]

Behavior of the group, mother and infant during the perinatal period: A bibliography of studies related to parturition in nonhuman primates (Third Edition). Jean Balch Williams. 175 Citations with Primate Index. [Price: $6.00. Ordering information same as in previous reference.]

Infanticide in nonhuman primates: A bibliography. Jean Balch Williams. Seattle: Primate Information Center, 1982. 93 Citations with Primate Index. [Price: $5.00. Ordering information same as in previous reference.]

A bibliography on atherosclerosis in nonhuman primates: Etiology, pathology and therapy (1977-1982). Benella Caminiti. Seattle: Primate Information Center, 1982. 336 Citations with Primate Index. [Price: $7.00. Ordering information same as in previous reference.]

Studies of ascorbic acid (vitamin C) in nonhuman primates: A bibliography. Benella Caminiti. Seattle: Primate Information Center, 1982. 132 Citations with Primate Index. [Price: $6.00. Ordering information same as in previous reference.]

Disease

Anemia, steatitis, and muscle necrosis in marmosets *(Saguinus labiatus)*. Baskin, G. B., Wolf, R. H., Worth, C. L., Soike, K., Gibson, S. V., & Bieri, J. G. (Dept. of Pathology, Delta Regional Primate Res. Ctr., Tulane Univ., Covington, LA 70433). *Laboratory Animal Science*, 1983, *33*, 74-80.

A syndrome characterized by weight loss, hemolytic anemia, steatis, muscle necrosis, and high mortality developed in a colony of *Saguinus labiatus* and was associated with low serum vitamin E levels. Therapy with vitamin E and selenium was partially successful in reversing or preventing the process.

Hematologic characterization of naturally ocurring malaria *(Plasmodium inui)* in cynomolgus monkeys *(Macaca fascicularis)*. Donovan, J. C., Stokes, W. S., Montrey, R. D., & Rozmiarek, H. (Animal Resources Div., United States Army Med. Res. Inst. of Inf. Dis., Fort Detrick, Frederick, MD 21701) *Laboratory Animal Science*, 1983, *33*, 86-89.

20 of 47 recently imported cynomolgus monkeys were found to have malarial infections. The agent identified was *Plasmodium inui*. All infections were subclinical in nature. Parasitemias ranged from 10 to 900 parasites/mm^3 of whole blood. Pre- and post-treatment hematologic values were evaluated following treatment with chloroquine. Treatment was effective in clearing parasitemias from 13 of 14 infected monkeys. Pre-treatment values of hematocrit, hemoglobin, and mean corpuscular volume were significantly different in infected animals compared to noninfected animals. While post-treatment hemoglobin and hematocrit values returned to noninfected control levels, mean corpuscular volume values of infected animals remained significantly lower in the post-treatment period.

Lactose intolerance in captive nocturnal prosimians *(Perodicticus potto)*: A twenty-one year record. Cowgill, U. M., & States, S. J. (2614 Abbott Rd., Midland, MI 48640) *Primates*, 1982, *23*, 598-604.

A colony of pottos was captured in December 1959 and brought to the United States. At that time, part of their diet consisted of a high protein porridge made with whole milk. In addition, their drinking water contained an antibiotic to protect them from possible infection resulting from the change in habitat. No intestinal incontinence resulted from this treatment. Antibiotic addition to the diet ceased in 1961. In 1971 the remaining pair of animals developed a calcium deficiency. This was alleviated by adding 5 g calcium lactate to the drinking water and serving whole milk every other day. In 1977 the male developed acute lactose intolerance. His feces became bacteriologically sterile. His mate, who died on January 9, 1979, produced feces containing enteric organisms throughout her life. A large number of dairy products were served the animals in the attempt to alleviate this problem. Acidophilus milk or tinned 2% milkfat containing milk with 100% of the lactose hydrolzed, produced no intestinal incontinence in the animal. It is suggested that sterile stools resulted from a fungal infection that killed the *Escherichia coli*. In addition

it is proposed that nonpathogenic bacteria brought about an alteration of the brush border of the columnar epithelial cells of the villi which synthesize the enzyme lactase, such that lactase production was seriously reduced.

Transmission of hepatitis A virus among recently captured Panamanian owl monkeys. Lemon, S. M., LeDuc, J. W., Binn, L. N., Escajadillo, A., & Ishak, K. G. (Dept. of Virus Diseases, Div. of Communicable Diseases & Immunology, Walter Reed Army Inst. of Research, Washington, DC 20012) *Journal of Medical Virology*, 1982, *10*, 25-36.

The presence of antibody to hepatitis A virus (anti-HAV) in 60% of procured owl monkeys *(Aotus trivirgatus)* held within the United States prompted a study of recently captured *A. trivirgatus* in Panama. Only 2 of 145 newly captured monkeys, but all of 35 *A. trivirgatus* held within a colony for over 100 days, were found to have anti-HAV. Of 41 sero-negative, newly captured monkeys followed prospectively, 25 became infected with hepatitis A virus (HAV) as evidenced by seroconversion or demonstration of virus in the liver at death. Only one monkey that survived over 60 days within the colony was not infected. HAV was identified in the feces of most infected monkeys prior to the development of antibody and was antigenically indistinguishable from human HAV in cross-blocking radioimmunoassays. This colony-centered epizootic provides strong evidence that *A. trivirgatus* is susceptible to HAV and should be investigated further as a potential model of human hepatitis A.

Acute disseminated fatal toxoplasmosis in a squirrel monkey. Anderson, D. C., & McClure, H. M. (Div. Pathobiol. & Immunol., Yerkes Reg. Prim. Res. Ctr., Emory Univ., Atlanta, GA 30322) *Journal of the American Veterinary Medical Association*, 1982, *181*, *1363-1366*.

Acute disseminated toxoplasmosis was diagnosed in an adult male squirrel monkey *(Saimiri sciureus)*. The disease was characterized by severe pulmonary edema, diffuse interstitial pneumonia, and multifocal areas of necrosis along with *Toxoplasma* organisms in the lungs, liver, spleen, lymph nodes, adrenal glands, and heart. Small numbers of organisms were found in bone marrow, renal glomeruli, and renal tubular epithelial and interstitial cells. Small numbers of organisms also were associated with foci of hemorrhage in the brain. The source of the infection was not determined.

Physiology and Behavior

Training a capuchin *(Cebus apella)* to perform as an aide for a quadriplegic. Willard, M. J., Dana, K., Stark, L., Owen, J., Zazula, J., & Corcoran, P. (Animal Inst., Albert Einstein Coll. of Med., 1300 Morris Park Ave., Bronx, NY 10461) *Primates*, 1982, *23*, 520-532.

Initial results of a small pilot project indicate that *Cebus* monkeys have the potential to serve as animal aides for quadriplegics. During the course of the pilot project the investigators developed a set of procedures for teaching a *Cebus* monkey a variety of helping skills. Given a description of those procedures, a college student with no prior animal training experience was able to teach a naive *Cebus apella* nine different complex behaviors in 25.5 hr of training over a period of two months.

Observer bias in selection of study group in baboon field studies. Sharman, M., & Dunbar, R. I. M. (Sub-Dept. of Animal Behaviour, Univ. of Cambridge, Madingly, Cambridge CB3 8AA, England) *Primates* 1982, *23*, 567-573.

Analysis of data from field studies of baboons (genus *Papio)* show that observers tend to select the largest groups available to them in their study populations up to a limiting group size of about 80-100 animals. This is likely to introduce significant biases into eco-correlate analyses whenever group size is an important independent variable.

Longitudinal somatometrical study on the growth patterns of newborn Japanese monkeys. Hamada, Y. (Primate Res. Inst., Kyoto Univ., Inuyama, Aichi, 484 Japan) *Primates*, 1982, *23*, 542-557.

Growth of Japanese macaques during their first year was analyzed longitudinally, using body measurements. Measurements of 44 somatometrical characters were taken on 7 animals. Work with the newborn data produced a formula which fits well. At first, growth was analyzed, character by character, using birth sizes and incremental increases. The results show a major growth pattern for many characters: increments vary inversely with birth size. Application of the growth formula produced two further insights: (1) growth pattern is not so simple as imagined from the birth size-increment pattern; and (2) the characters which deviate from the birth size-increment pattern have large growth only at the earliest period (in a few months), in spite of their small size. Sex differences were clear within the first year, especially for characters which differ greatly between adults.

Social and physical maturation in captive lion tamarins, *Leontopithecus rosalia rosalia* (Primates: Callitrichidae). Hoage, R. J. (Education Bldg., National Zool. Park, Smithsonian Inst., Wash., DC 20008) *Smithsonian Contributions to Zoology*, 1982, *354*, 1-56.

From Feb., 1974 to Jan., 1976, quantitative data were collected on the maturation of 7 litters of lion tamarins *(Leontopithecus rosalia rosalia)* born at the National Zoological Park. Although a total of 22 tamarins were involved in the observations, the study focused on the ontogeny of 8 males and 6 females in the first year of life. 5 maturational phases were distinguished, and the data were examined for the first appearance of these behaviors and for the influence of 3 variables on maturing young: (1) parental reproduction, (2) the presence of older and younger siblings in the family group, and (3) the existence of same and opposite sex biases in social interactions within the family unit. Infants were carried to 14 weeks after birth. Mothers were the principal carriers in the first three weeks, after which fathers dominated carrying; older siblings were involved to a limited extent. Both food sharing and stealing were observed between individuals of both sexes and of various ages. Mothers in late pregnancy and immediately postpartum received food from older young as did both parents when carrying newborn infants. Older young and parents provided food for new infants, especially during weaning. Same sex preferences occurred regularly in social interactions between young and other family members. Some opposite sex biases became evident in weeks 41-52, the Young Subadult Phase, when physical size and scent marking rates began to approach adult levels. Several 41 to 52-week-old males attempted to mount their mothers and one subadult female was repeatedly mounted by her father. However, intromission was never observed except between parental pairs. Noninjurious agonistic encounters between (1) young subadults and same sex parents and (2) between subadults and siblings were seen to increase towards the end of the first year, yet older offspring are known to remain in relative harmony within the family unit up to 20 months of age.

Breeding

Plasma progesterone levels throughout the ovarian cycle of the common marmoset *(Callithrix jacchus)*. Harding, R. D., Hullme, M. J., Lunn, S. F., Henderson, C., & Aitken, R. J. (R. D. Harding, MRC Reproductive Biol. Unit, Ctr. for Reproductive Biol., 37 Chalmers St., Edinburgh EH3 9EW, Scotland) *Journal of Medical Primatology*, 1982, *11*, 43-51.

Radioimmunoassay of progesterone in marmoset plasma has been used to determine ovarian cycle length. Mean total cycle length was 30.1 days. The pre-ovulatory (follicular) phase, during which progesterone levels were below 10 ng/ml, lasted for a mean of 8.8 days. The post-ovulatory (luteal) phase, during which progesterone levels were greater than 10 ng/ml, lasted for a mean of 21.5 days. Total cycle length was almost twice that recorded in an earlier study. The reasons for this difference are discussed.

Observation of delivery behavior in the rhesus monkey. Adachi, M., Saito, R., & Tanioka, Y. (Shonai Meat Hygienic Inspection Ctr. of Yamagata Prefecture, 558-1, Tateno, Daihoji, Tsuruoka, Yamagata, 997 Japan) *Primates*, 1982, *23*, 583-586.

7 deliveries of rhesus monkeys maintained in the laboratory were recorded by a video recorder system to determine the signs of impending labor. The characteristic postures; i.e., standing, squatting and crouching, were demonstrated in all cases with cyclic regularity (about 2-4 min) 35-210 min prior to the actual parturition, although prediction of the delivery date several days beforehand failed. The 4 stages of the delivery process are also presented in this report.

Monitoring temperatures of pigtailed macaques *(Macaca nemestrine)* during pregnancy and parturition. Ruppenthal, G. C., & Goodlin, B. L. (Regional Primate Res. Ctr. SJ-50, Univ. of Washington, Seattle, WA 98195) *American Journal of Obstetrics and Gynecology*, 1982, *143*, 971-973.

Rectal temperatures of newborn pigtailed macaques *(Macaca nemestrina)* were recorded within 4 to 15 minutes after vaginal delivery, and all monkeys proved to be hypothermic (32.5° to 35.8°C) 3 females were used to test the hypothesis that the low temperatures observed so soon after birth could be explained in part by declines in maternal temperature during labor. Precipitate temperature declines from the normal diurnal ranges were observed in all 3 female monkeys beginning about 1 to 1 1/2 hrs before delivery. Individual patterns differed somewhat, with the nadir recorded just before delivery in 2 animals and after delivery in the third. Explanations for declines in body temperature in these parturient monkeys remain unclear.

Sexual behavior in old male rhesus monkeys: Influence of familiarity and age of female partners. Chambers, K. C., & Phoenix, C. H. (Behavior Unit, Oregon Reg. Prim. Res. Ctr., 505 Northwest 185th Ave., Beaverton, OR 97006) *Archives of Sexual Behavior*, 1982, *11*(4), 299-308.

Old male rhesus monkeys *(Macaca mulatta)* whose sexual behavior had declined over a 10-yr period were studied. The same ovariectomized females, comparable in age to the males (about 20 yrs old), served as sexual partners during the 10 yrs. In the first experiment the old males were paired with unfamiliar females to determine whether changing sexual partners would reverse the decline in performance that had been observed. The unfamiliar females, also about the same age as the males, were ovariectomized and treated with estradiol before pairing, as were the familiar females. Although the males contacted the unfamiliar females more often than they contacted the familiar females, there were no other differences in sexual activity. The two groups of females did not differ in their behavior toward the males. In a second experiment, the old males were paired with 2 different groups of unfamiliar, intact, cycling females. One group was young (about 4 yrs old), the other old (about 20 yrs). The sexual responses of the males to both young and old females were the same. The two groups of females did not differ in their behavior toward the males.

Ecology and Field Studies

A survey of population and habitat of the Barbary macaque *Macaca sylvanus* L. in North Morocco. Fa, J. E. (Animal Ecology Res. Group, Dept. of Zool., Univ. of Oxford, South Parks Rd., Oxford OX1 3PS, United Kingdom) *Biological Conservation*, 1982, *24*, 45-66.

A 3-mo survey, including systematic censusing of Barbary macaque populations in the Djebala region of North West Morocco, was conducted in 1980. Data were collected on group size, composition and stability of monkey groups within 4 habitat types (coniferous forests, mixed oak forests, low and high matorral) in 5 main localities where the monkey was known to exist. Estimated monkey densities and population sizes varied between areas and habitats from 0.37 to 3.38 animals km^{-2} and from 12 to 254 monkeys respectively. The highest figures were obtained for the fir forest surrounding Djebel Lakraa. A total maximum population of 383 was estimated for the entire study area. This figure indicates that the species is more abundant than had been suspected before. However, the monkey populations in the Djebala are very depressd when compared with those on the Middle Atlas and Algeria. Unless conservation measures are implemented immediately both to protect and to manage the most suuitable habitats, the Barbary macaque in the Rif risks extinction in the near future. 2 areas of forest, on Djebel Bouhassim (cork and Portuguese oak) and on Djebel Lakraa (fir) are recommended as Nature Reserves.

Propithecus verreauxi population and ranging at Berenty, Madagascar, 1975 and 1980. Jolly, A., Gustafson, H., Oliver, W. L. R., & O'Connor, S. M. (Rockefeller University, 1230 York Ave., New York, NY 10021). *Folia Primatologica*, 1982, *39*, 124-144.

Propithecus verreauxi have been repeatedly censused in parts of the 200-ha reserve at Berenty between 1963 and 1975. Troop rearrangements in 1963 and 1975 showed that both males and females can change troops outside the breeding season. Group sex ratio varies from 0.3 female/male to 5.0 female/male. Usually, at Berenty, groups defend highly exclusive territories, in contrast to ranging patterns elsewhere. In 1980 troops were censused during 2 weeks in November at a different season from earlier studies. They had larger troop feeding dispersion than before, and pairs and triplets of males who travelled apart from bisexual troops. This may be a season of mass male migration, as in *Lemur catta*, or else a long-term population change. This small reserve should be carefully monitored as its lemurs have so far maintained relative population stability.

Population and troop ranges of *Lemur catta* and *Lemur fulvus* at Berenty, Madagascar: 1980 census. Jolly, A., Oliver, W. L. R., & O'Connor, S. M. (Rockefeller Univ., 1230 York Ave., New York, NY 10021) *Folia Primatologica*, 1982,39, *115-123*.

The November, 1980 census suggests that population size and troop ranges have remained stable since 1972 and in a small area since 1963. This prolongs the apparent stability described by some authors, remarkable in a 200-ha reserve containing a maximum of 300 *Lemur catta*. However, inadvertent introduction of *Lemur fulvus rufus* and apparent loss of tamarind trees, as well as general genetic and biogeographic considerations, imply this stability may not continue. Berenty underlines the need for long-term, widespread primate research and practical conservation.

Life history of hamadryas baboons: Physical development, infant mortality, reproductive parameters and family relationships. Sigg, H., Stolba, A., Abegglen, J.-J., & Dasser, V. (Ethology & Wildlife Res., Inst. of Zool., Univ of Zurich, Birchstrasse 95, 8050 Zurich, Switzerland) *Primates*, 1982, *23*, 473-487.

Demographic and life history parameters were estimated for a band of free-ranging hamadryas baboons, observed for 5.5 yrs in Ethiopia. Age-related changes in body weight and dentition were found to be delayed relative to laboratory-reared baboons. On the average, females reached menarche at 4.3 yrs of age and had their first infant at the age of 6.1 yrs. The mean interbirth interval was 24 mos if the infant survived this period. The survival of infants and juveniles was higher compared to Amboseli yellow baoons, but somewhat lower than in gelada baboons in the Simen Mountains. Males acquired their first juvenile or adult female at the age of 8.5 to 11 yrs. Male-female pair-bonds lasted several years in most cases. The Cone Rock baboons were organized in a 4-level social structure. The troop could split into bands, bands were divided into clans, and clans into one-male units with bachelor followers. The exchange of individuals between social units predominantly occurred within the band. All males of known origin became adult members of their presumed natal clan. Most females transferred also within clans, and juvenile females tended to remain in their natal clan. Females lost by one male to several rivals tended to reassemble in the same new one-male units later on.

Instruments and Techniques

A flexible restraint chair for the cynomolgus monkey *(Macaca fascicularis)*. Nakamura, R. K., Coates, R., Crawford, H. & Friedman, D. (Laboratory of Psychology & Psychopathology, NIMH, Bldg 9, Rm 1N107, Bethesda, MD 20205. *Journal of Medical Primatology*, 1982, *11*, 178-185.

We have found that commercial restraint chairs suitable for the rhesus monkey *(Macaca mulatta)* cause severe physical distress to many cynomolgus monkeys. A new restraint chair has therefore been designed specifically for the cynomolgus. The key features of the chair are an angled neck piece, a large opening to provide free movement for the tail, a soft waist restraint, and a level surface for both the heels and ischial pads. This new chair is not only suitable for the cynomolgus monkey but may also be more comfortable for the rhesus monkey than standard commercial chairs.

Management of septicemia in rhesus monkeys with chronic indwelling venous catheters. DaRif, C. A., & Rush, H. G. (Univ. of Michigan Med. Sch., Unit for Lab. Ani. Med., Ann Arbor, MI 48109) *Laboratory Animal Science*, 1983, *33*, 90-94.

20 venous-catheterized, septicemic rhesus monkeys from 2 laboratories were studied. The most common isolates from the bloodstream were *Klebsiella oxytoca* from the monkeys in 1 laboratory and *Staphylococcus aureus* from those in the other. 5 septicemic monkeys from the 2 laboratories, each with a central venous catheter, received repeated courses of antibiotics to which the infecting organisms were sensitive. Their catheters, however, were not removed. All 5 monkeys improved clinically, permitting continued use of the catheters. However, until the catheters were removed, bacteria were isolated repeatedly from the bloodstream. Two therapeutic regimens for the management of bacterial septicemia then were compared. Under both regimens, animals with positive blood cultures were treated for 10 days with appropriate antibiotics based on bacterial sensitivity testing. In one group of 10 monkeys, the indwelling venous catheters remained *in situ* during treatment. In a second group of 10 monkeys, catheters were removed at the time antibiotic therapy was initiated. When catheters were not removed, septicemia recurred 3 to 5 days after antibiotics were discontinued. In contrast, when catheter removal accompanied antibiotic therapy, resolution of the septicemia occurred within 3 to 5 days. Thus, catheter removal was required for elimination of bacteria from the bloodstream of septicemic monkeys with long-term indwelling central venous catheters.

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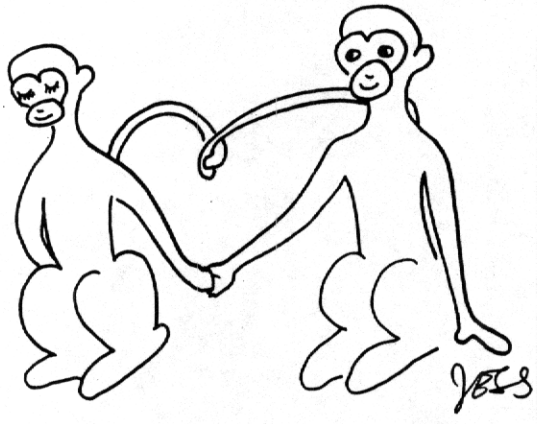

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