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POLICY STATEMENT

The purpose of the *Laboratory Primate Newsletter* is (1) to provide information on care, breeding, and procurement of nonhuman primates for laboratory research, (2) to disseminate general information about the world of primate research (such as announcements of meetings, research projects, nomenclature changes), (3) to help meet the special research needs of individual investigators by publishing requests for research material or for information related to specific research problems, and (4) to serve 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 publications, 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].

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We thank the San Diego Zoo for permission
to reproduce the cover photograph
of a proboscis monkey (*Nasalis larvatus*)

Managing Editor: Helen Janis Shuman

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FERTILE OVULATIONS FOLLOWING PROGESTERONE ADMINISTRATION IN MONKEYS

Richard M. Harrison

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In domestic farm animals the administration and withdrawal of progesterone or progestogens has been used to control the time of estrus and ovulation. The compounds have been administered by injection (Lamond & Bindon, 1962), by oral routes (Hinds, Dziuk, & Lewis, 1964), and by subcutaneous implants (Dziuk *et al.*, 1968). In rhesus monkeys (*Macaca mulatta*) progesterone administration on Days 8 to 22 of the menstrual cycle blocked the LH surge and prevented ovulation (Spies & Niswender, 1971) but did not have that effect if given on Days 2 to 6 (Spies & Niswender, 1972). Pfeiffer (1950) administered 0.5 mg of progesterone to rhesus monkeys during the anovulatory season. In one year, one of six monkeys ovulated and that monkey did not receive the progesterone until Day 14 so ovulation may have already occurred naturally. In the next year, three of five ovulated. In both studies, menstruation followed three to eight days after the last injection.

Some research efforts require fetuses of known gestation age or infants born at certain times of the year. The present study was undertaken to determine if a schedule of progesterone administration and withdrawal could be followed at a specific interval with fertile matings. The patas monkey (*Erythrocebus patas*) was selected because of its usefulness in reproductive studies (Doyle & Chandler, 1973).

In the first study, five females received 12 daily injections of progesterone (5 mg/0.2 cc in corn oil, I.M.) and then were placed with a male from 24 to 72 hours on Days 11 to 17 (Day 1 is first day after last progesterone injection) as shown in Table 1. Vaginal smears were taken immediately after removing the female from the male's cage and examined microscopically for the presence of sperm. The ovaries were examined laparoscopically 2 weeks later to see if ovulation had occurred and to determine if the corpus luteum appeared to be sustained. One of the five monkeys (No. 4230) had not mated according to her vaginal smear and a second one did not ovulate. One of the remaining three became pregnant (as diagnosed by laparoscopy and rectal palpation) and delivered a live female infant 166 days after first mating. This mother had been with the male for 72 hours on Days 14

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TABLE 1

Mating Results Following Daily Injections of Progesterone

Female No.	Days with Male	Vaginal Smear	Ovulation	Pregnancy
4226	11-12	+	+	-
4228	16-17	+	+	-
4229	12-13	+	-	-
4230	13-14	-	+	-
4231	14-16	+	+	+

TABLE 2

Mating Results 14 to 16 Days after Progesterone Withdrawal

Female No.	Days with Male	Vaginal Smear	Ovulation	Pregnancy
4228	14-16	+	+	-
4229	14-16	+	+	+
4230	14-16	-	+	-

to 16.

In the second study, three females used previously were used (see Table 2) and the progesterone schedule was changed to 10 daily injections. The injections were staggered so that all three females were caged alone with the male on Days 14 to 16. Again, No. 4230 did not appear to mate. All three females had corpora lutea present 14 days after mating. Again, one female was pregnant and she delivered a live female infant 159 days after first mating.

A similar effort was then tried with one rhesus female. She received 10 daily injections of progesterone and was housed on Days 12 to 16 with a fertile male. This female has not delivered yet but the pregnancy is progressing satisfactorily.

In a third test, involving the 3 patas females that had not be-

come pregnant (Nos. 4226, 4228 and 4230), 4228 was laparoscoped 3 days after the mating session. A fresh ovulation was observed suggesting that the 14 to 16 day post progesterone interval was too short for this female. She was caged with the male 30 days later and became pregnant. This pregnancy is also progressive satisfactorily.

Future studies will attempt to determine the appearance of withdrawal menses and will base the mating session on that observation. These studies do indicate that, in the two species studied, progesterone administration and withdrawal may be an excellent method for preselecting mating and parturition dates. Incidental to these studies, it has been found that laparoscopic examinations prior to mating and during pregnancy do not have any observed detrimental effects.

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RESEARCH RESOURCES INFORMATION CENTER ESTABLISHED

The Division of Research Resources (DRR) of the National Institutes of Health (NIH) has established a Research Resources Information Center (RRIC) to facilitate communication between biomedical scientists, staff, and administrators in its extramural grantee community.

The RRIC Center will be operated by contract with Tracor Jitco, Inc. of Rockville, Maryland, under the direction of Dr. Freeman H. Quimby, project manager. Mr. James Augustine, Information Officer of DRR, is the NIH project officer for the contract.

One of the major thrusts of the RRIC is to make DRR resources better known by the biomedical scientific community. The Center will not generate information, but will strive to provide the means by which individual resources can exchange existing information.

The dissemination of pertinent resource-related information will be accomplished through a regularly scheduled publication called the *Research Resources Reporter*, by a Resource Directory, by publication of technical notes, by telephone contact, by regional audiovisual presentation, and by personal visits from the Center's scientific and administrative staff.

The *Research Resources Reporter* made its debut in January, 1977, and will be issued monthly. It contains information about the DRR resources, work conducted by its users, "exchange" data, technical notes, and other useful information designed for the mutual benefit of DRR facility biomedical researchers and administrators. Future issues of the *Reporter* will carry information about Biotechnology Resources, Animal Resources, the General Clinical Research Centers, and the Minority Biomedical Support Program.

The NIH Division of Research Resources is engaged in conceiving, developing, and assuring the availability of resources that are essential to the conduct of human health research. Its programs include General Clinical Research Centers for clinical investigations of human diseases; Biotechnology Resources for the application of physical sciences, mathematics, and engineering to biology and medicine; Animal Resources for the development of laboratory animal models of human diseases and the improvement of animal facilities; Primate Research Centers for investigations of human diseases by use of nonhuman primates; Biomedical Research Support for flexible funding to strengthen, balance, and stabilize PHS-supported biomedical and behavioral research; and Minority Biomedical Support to encourage increased involvement of ethnic minority students and faculty in the biomedical sciences and health professions.

Individuals interested in being placed on the *Reporter* mailing list may write: Research Resources Information Center, 1776 E. Jefferson St., Rockville, MD 20852.

ADDITIONS MADE TO U.S. LIST OF ENDANGERED AND
THREATENED SPECIES*

The Director, United States Fish and Wildlife Service (the Service), issued regulations which determined the following 12 species of primates to be Endangered species as defined by the Endangered Species Act of 1973 (the Act): Cotton-top marmoset, *Saguinus oedipus* (including *S. geoffroyi* as a subspecies); Pied tamarin, *Saguinus bicolor*; Yellow-tailed woolly monkey, *Lagothrix flavicauda*; Diana monkey, *Cercopithecus diana* (including *C. roloway* and *C. dryas* as subspecies); Red-eared nose-spotted monkey, *Cercopithecus erythrotis*; Red-bellied monkey, *Cercopithecus erythrogaster*; L'hoest's monkey, *Cercopithecus lhoesti* (including *C. preussi* as a subspecies); White-collared mangabey, *Cercocebus torquatus* (including *C. atys* and *C. lunatus* as subspecies); Black colobus monkey, *Colobus satanas*; Mandrill, *Papio sphinx*; Drill, *Papio leucophaeus*; and Francots' leaf monkey, *Presbytis francoisi*.

The Service also determined that the following 14 species of primates are Threatened species as defined by the Act: Lesser slow loris, *Nycticebus pygmaeus*; Phillipine tarsier, *Tarsius syrichta*; White-footed tamarin, *Saguinus leucopus*; Black howler monkey, *Alouatta pigra*; Gelada baboon, *Theropithecus gelada*; Stumptail macaque, *Macaca arctoides* (including *M. thibetana* as a subspecies); Formosa rock macaque, *Macaca cyclopis*; Toque macaque, *Macaca sinica*; Japanese macaque, *Macaca fuscata*; Long-tailed langur, *Presbytis potenzani*; Purple-faced langur, *Presbytis senex*; Tonkin snub-nosed monkey, *Rhinopithecus avunculus*; Pigmy chimpanzee, *Pan paniscus*; and Chimpanzee, *Pan troglodytes*.

These regulations are unique in that they also contain special provisions designed to encourage captive breeding of the listed primates to provide specimens for medical research, zoo display, and other specific purposes.

Background

Recognizing that many primate species are being subject to the increasing pressures of habitat disruption and utilization in biomedical research and the pet trade, the Service in 1973 contracted for a survey of the current status of each recognized species. This survey has now been completed in draft form, and the data it contains formed the basis for these regulations.

In the *Federal Register* of April 19, 1976, the Service proposed to list the 26 primates mentioned above. The Service also proposed to list the squirrel monkey (*Saimiri sciureus*) as a Threatened species.

*Based on a notice in the *Federal Register*, 1976, 41 [No. 203] 45990-45994. For further information write to: Federal Wildlife Permit Office, U. S. Fish and Wildlife Service, Washington, DC 20240.

So much information on the squirrel monkey was received in response to the proposal, that further evaluation will be required and no final determination on this species is being issued at this time.

Description of the Regulations

Section 4(a) of the Endangered Species Act of 1973 states that the Secretary of the Interior may determine a species to be an Endangered species, or a Threatened species, because of any five factors. These factors are: (1) The present or threatened destruction, modification, or curtailment of its habitat or range; (2) overutilization for commercial, sporting, scientific, or educational purposes; (3) disease or predation; (4) the inadequacy of existing regulatory mechanisms; (5) other natural or manmade factors affecting its continued existence. The notice goes on to state which of these applies to the various species listed.

Effect of the Regulations

Except as noted in the last paragraph of this article, the Act makes it illegal for any person subject to the jurisdiction of the United States to import, export, ship in interstate commerce in the course of a commercial activity, or sell or offer for sale in interstate or foreign commerce any species listed as Endangered. There will, however, be no restrictions on interstate movement of these species if such movement is not in the course of a commercial activity involving a change in ownership of the specimen. In this context, the term "commercial activity" is defined in section 3(1) of the Act as follows:

The term "commercial activity" means all activities or activities of industry and trade, including but not limited to, the buying or selling of commodities and activities conducted for the purpose of facilitating such buying and selling.

The terms "industry or trade," as used in the above definition, were defined in the September 26, 1975, *Federal Register* as follows:

"Industry or trade" in the definition of "commercial activity" in the Act means the actual or intended transfer of wildlife or plants from one person to another person in the pursuit of gain or profit.

For any species listed as a Threatened species, the same prohibitions apply as to an Endangered species. An exception, however, is made in the case of live animals held in captivity in the United States on the effective date of the regulations listing them as Threatened (in the present case the date is November 18, 1976), or to the progeny of such animals, or to the progeny of animals legally imported into the U.S. after the effective date of these regulations.

None of the prohibitions outlined above apply to such animals--so long as there is satisfactory documentation of each animal's captive status, birth in captivity, or legal importation. "Satisfactory documentation" includes such evidence as records in the International Species Inventory System (ISIS); Federal, State, or local government permits; and notarized studbooks and inventories.

Regulations published in the *Federal Register* of September 26, 1975, provide for the issuance of permits (see Footnote 2 in the article beginning on p. 8 of this issue) to carry out otherwise prohibited activities involving Endangered or Threatened species under certain circumstances. In the case of Endangered species, such permits are available for scientific purposes or to enhance the propagation or survival of the species. In some instances, permits may be issued during a specified time to relieve undue economic hardship which would be suffered if such relief were not available. In the case of Threatened species permits may be issued for scientific purposes, enhancement of propagation or survival, economic hardship, zoological exhibition, educational purposes, or special purposes consistent with the purposes of the Act.

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SHORT NOTES: THE BASILIC VEIN AS A VENEPUNCTURE SITE

There are several recognized sites for blood taking in nonhuman primates, as in man the cubital or femoral triangle is often used. In nonhuman primates the great saphenous vein is used commonly, but, being a superficial vein, it suffers from ready collapse and if used repeatedly soon becomes thrombosed, if not totally, then leaving such a small lumen that only fine gauge needles can be inserted.

Studies of thrombosis resulting from vascular surgery make use of the femoral or jugular vessels and, although these sites can be used to take blood successfully, damage to the vessels ensues, making the animal unsuitable for such studies.

We have found that the basilic vein, high up on the arm, entering the arm pit, can be repeatedly used even with 18-gauge needles in small (3 kg) animals. This vessel does not shut down on venupuncture, does not suffer from superficial vein thrombosis, and is easily visible and accessible. In rhesus monkeys and baboons, the vessel is generally visible without dilation and can be approached by laying the animal on its back and allowing the arm to fall at right angles to the side, palm upwards. Dilation can be achieved by occlusion, using finger pressure, on the vessel in the arm pit.

We suggest that this site can be routinely used by relatively inexperienced technicians, leaving the animal's jugular and femoral vessels intact for surgical procedures.--R. J. Hawker, & J. Fejfar, Dept. of Surgery, Wellcome Wing, The Queen Elizabeth Hospital, Queen Elizabeth Medical Centre, Edgbaston Birmingham B15 2TH, England.

U.S. BEGINS TO IMPLEMENT CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES¹

The Director of the U.S. Fish and Wildlife Service, issued regulations under the Endangered Species Act of 1973 (the Act) (see related article beginning on p. 5 of this issue) that are designed to implement the Convention on International Trade in Endangered Species of Wild Fauna and Flora.

Background

The Convention was negotiated and signed in Washington, DC, in February and March of 1973. This was the culmination of almost 10 years of effort, headed primarily by the International Union for Conservation of Nature and Natural Resources. This international organization, many countries, and many individuals were responsible for the conclusion of a world-wide treaty regulating the trade in endangered species of wildlife and plants. Over 60 countries have now signed the Convention, but signature alone does not bring it into effect. The Convention is subject to ratification by each country, and only those that have ratified are parties to the Convention. The Convention came into effect on July 1, 1975, when the tenth country ratified it. Thirty-four countries are now parties.

The Convention establishes rules for the trade in endangered and other species of wildlife and plants between countries that are parties. "Trade" means all importation, exportation, or re-exportation, including introduction from the sea, whether or not for commercial purposes. The wildlife and plants that are protected by the Convention are listed in three appendices. Appendix I contains the names of those species or other taxa that are threatened with extinction and that are or may be affected by trade. Trade in these species or other taxa is subject to particularly strict regulation in order not to endanger further their survival. Such trade may only be authorized in exceptional circumstances. Appendix II includes all species or other taxa which although not necessarily presently threatened with extinction may become so unless their trade is subject to strict regulation in order to avoid utilization incompatible with their survival. Other species or taxa are also listed in Appendix II if they must be subject to regulation in order that trade in species which are in fact threatened with extinction may be effectively controlled. Finally, Appendix III contains species or other taxa identified by each country that is a party as being subject to conservation regulation within its jurisdiction, and requiring the cooperation of other parties to make such regulations effective.

¹Based on information in the *Federal Register*, 1977, 42 [35], 10462-10488 [February 22, 1977. Part IV]. For further information write to: Federal Wildlife Permit Office, U.S. Fish and Wildlife Service, Washington, DC 20240.

Appendices I and II were established by negotiation at the time that the rest of the Convention was negotiated in 1973. Changes in either of these appendices must be made by agreement between the parties. Just such a process occurred in November, 1976, when Appendices I and II were amended at the first Conference of the parties (see article beginning on p. 12 of this issue). A party that does not agree to the species in Appendix III submitted by another party may issue a reservation, and therefore not be bound to follow the rules of the Convention in respect to that particular species, but the species listed in Appendix III are not subject to negotiation between the parties.

The Convention lays out detailed rules governing the trade in wildlife and plants listed in each appendix. In order for trade in a species listed in Appendix I to be legal, both an export permit from the country of origin and an import permit from the country of destination are required. Certain findings must be made by a Management Authority and a Scientific Authority in each country before the Management Authority may issue the permit. The permit must be issued along the lines of a format specified in the Convention. For trade in species listed in Appendix II, an export permit must be issued by the country of origin, or, if the specimen is coming from a country other than the country of origin, then a certificate of re-export must be issued. The rules for trade in species listed in Appendix III are similar to those for Appendix II, except that in the case of Appendix III, either an export permit must be issued by the country of origin, a re-export certificate must be issued by a country into which that species has previously been imported, or a certificate of origin must be issued if the species is being exported from a country that did not place it in Appendix III. The Convention provides that parties should accept similar documentation to that required by the Convention for trade with countries that are not parties.

The United States ratified the Convention and became a party as of July 1, 1975. On April 13, 1976, the President signed an Executive Order which names the Department of the Interior as the Management Authority under the Convention for the United States. This authority has been delegated to the Federal Wildlife Permit Office.² This made it possible for the United States to begin implementing the Convention. Other parties are likewise establishing Management and Scientific

²The recently created Federal Wildlife Permit Office (WPO) has assumed licensing responsibilities formerly held by the U.S. Fish and Wildlife Services' Division of Law Enforcement. As of November 15, 1976, WPO received the authority to issue, modify, suspend, and revoke permits and exemptions for import and export of wildlife at nondesignated ports, injurious wildlife, Endangered and Threatened species, marine mammals, and migratory birds. Direct inquiries and permit applications to Wildlife Permit Office, U.S. Fish & Wildlife Service, Washington, DC 20240.

Authorities and putting into effect the laws and regulations necessary to carry out the Convention.

Actions

The new regulations were issued following receipt of public comments on the regulations as proposed in June, 1976. The new regulations involve amendments to Title 50 ("Wildlife and Fisheries") of the Code of Federal Regulations, chiefly a new Part 23 ("Endangered Species Convention:") which deals with the implementation of the Convention, including prohibitions and permit requirements. One of the major problems was the coordination of the new regulations with those of the Endangered Species Act.

In response to the public comments, the Service decided to make permits available pursuant to Part 23 for species listed in an appendix to the Convention but not listed as Endangered or Threatened under the Act, instead of requiring Endangered or Threatened species permits for such species. This will reduce the paperwork required to apply for a permit, and to report on activities conducted under the permit, for those species for which less information is required.

If a species that is listed in Appendix I, II, or III is also listed as an Endangered or Threatened species under the Act, then the regulations in both Part 23 and other Parts implementing the Act apply to its importation, exportation or re-exportation. The application requirements are generally stricter for Endangered or Threatened species permits than for Convention permits. Consequently, the Service has decided to simplify the procedure by determining that a single application for an Endangered or Threatened species permit under Part 17 ("Endangered and Threatened Wildlife and Plants") will also fulfill application requirements for a Convention permit, and that a single composite permit, when issued, will suffice for both the Act and the Convention. Such a permit will only be issued when the criteria of both Part 17 and Part 23 are met.

The Service does not intend to list every species that is included in an appendix to the Convention as Endangered or Threatened under the Act. The criteria for adding species to the appendices and to the Endangered and Threatened lists are not the same. Species will be examined on an individual basis to see if those listed in one system qualify for listing in the other.

The basic difference between these systems is that the Convention appendices include species that are or may be affected by international trade in such volume as to be a potential threat to the survival of the species, while the lists of Endangered and Threatened species include species that are Endangered or Threatened as a consequence of any of several additional factors (see article beginning on p. 5 of this issue). In addition, Appendices I and II of the Convention include species that

are placed there by agreement of the parties, while the list of Endangered and Threatened species includes species that are placed there by the Secretary of Commerce or the Secretary of Interior following procedures given in the Act.

The parties, at their first meeting on November 2-6, 1976, recognized that certain species presently listed in the appendices did not meet the criteria specified by the Convention, or did not conform to current taxonomic opinion. They resolved that the appendices are to be reviewed in a special working session, and that recommendations from this session are to be made to the parties for action at their next meeting in 1978.

The final rules extend the exceptions to exportation and re-exportation, as allowed by the Convention. The previously proposed requirement of an export or re-export permit for each outgoing shipment of such animals or plants would have placed an unreasonable burden upon persons who sought to conduct trade under the terms of the Convention. The prohibition and exceptions in both Part 23 and other Parts implementing the Act apply to species that are included in both an appendix to the Convention and the list of Endangered and Threatened species. The circumstances in which exceptions may be granted are generally most restricted in the case of Endangered species.

Sections of these regulations authorizing the Service to issue permits and certificates took effect on February 22, in order to meet the requirements of other parties for such documents. This will enable the Service to issue export permits for wildlife and plants listed in Appendix I, II, or III, import permits for wildlife or plants listed in Appendix I, and certificates authorizing exceptions. The remaining sections will take effect 90 days later, to allow time for persons concerned with such activities to comply with these new regulations.

In the future, the Service intends to publish a combined list of all species included in the Appendices and in the list of Endangered and Threatened species, indicating the regulations that apply to each species. This combined list will be for the convenience of the public, and will not mean that all species listed in the appendices are listed as Endangered or Threatened.

The Service intends to review and, if necessary, revise these regulations in the future. Comments on them are welcomed and should be sent to the Director. Regarding changes in the appendices, the Service will publish in the *Federal Register* proposals made by the United States or by any other parties to the Convention, and invite public comment. In addition, any person may request the Director to add or delete certain species in the appendices. Such requests will be considered for proposal to the other parties. Each request should be accompanied by substantial evidence concerning the status of populations of the species and the extent of international trade in the species.

CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES:
APPENDICES NOW INCLUDE ALL PRIMATES*

A conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora was held in Berne, Switzerland, November 2-6, 1976. This was the first conference since 80 nations negotiated the Convention in 1973. The International Union for the Conservation of Nature and Natural Resources served as the Secretariat of the Convention at the request of the United Nations Environment Programme (UNEP). Twenty-four of the 34 nations that have ratified the treaty were represented at the Berne meeting. Thirteen non-Party nations actively participated in the discussions, with representatives of France, Belgium and the Netherlands indicating their governments would soon ratify or accede to the Convention. Observers from various organizations concerned with the Convention also attended the meeting.

U.S. delegation members noted that few of the developing nations, the producers of wildlife, were represented. However, it was felt that in some cases this was due to a lack of funds rather than a lack of interest.

The following were added to Appendix I as of February 4, 1977: the cottontop (*Saguinus oedipus*), pied (*S. bicolor*), and white-footed tamarins (*S. leucopus*); the white-eared (*Callithrix aurita*), buff-headed (*C. flaviceps*), and pygmy marmosets (*Cebuella pygmaea*); all lemurs (*Lemur* spp.); the golden langur (*Presbytis geei*); and all chimpanzees (*Pan* spp.). The United States also will conduct a further review to determine whether other members of the marmoset family are in need of Appendix I protection.

All other primates of the world were added to Appendix II of the Convention (except those already in Appendix I). This appendix, less restrictive than Appendix I, requires an export permit certifying that trade is legal and not detrimental to a species' survival. Commercial trade is not automatically prohibited as it is in Appendix I. (See article beginning on p. 8 of this issue.)

Parties to the Convention adopted a resolution that trade in wild animals for the pet trade should gradually be restricted. Captive breeding of animals for this purpose should be encouraged with the objective of eventually limiting pets to those species which are bred in captivity.

The conference decided to treat all nations *not* party to the

*Based on information in the *National Society for Medical Research Bulletin*, 1977, 28 [1], the *Federal Register*, 1977, 42 [35], 10462-10488. [February 22, 1977, Part IV], and the *Endangered Species Technical Bulletin*, 1977, 2 [1], 1-2.

Convention as if they were parties and thereby require the same documentation. This presumably will make law enforcement much easier and help eliminate the problem of "laundry countries" for listed species. "Laundering" wildlife occurs when wildlife taken illegally in its country of origin is smuggled to another country which has no laws or permit requirements to show legal export from the country of origin. Upon export from the "laundry" country, it is impossible to tell if the specimens came from another country illegally.

The United States is one of five nations on a steering committee to coordinate with the Secretariat in organizing a special technical meeting to be held in May, 1977 in Nairobi, Kenya. The tasks of the meeting are to (1) develop identification aids, (2) prepare guidelines on the care and shipment of live specimens, (3) consider problems concerning the control of readily recognizable parts and derivatives of species, (4) consider a simplified method of marking shipments of preserved animal specimens to facilitate their exchange between registered scientific institutions and (5) analyze Appendices I and II for scientific validity.

The steering committee will also assist the Secretariat with arrangements for the next conference of the Parties in 1978.

The development of an effective Secretariat was viewed by many countries as essential to the success of the Convention. Although the question of funding an enlarged Secretariat was discussed, no Party was prepared to make a financial commitment at the time. Sources of funding, possibly by establishment of a trust fund by UNEP, will be investigated further.

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PATHOLOGY OF LABORATORY ANIMALS COURSE

The "Pathology of Laboratory Animals" course will be conducted at the Armed Forces Institute of Pathology August 20 to September 2, 1977. Military and federal service employees in the veterinary and other medical science fields are requested to consult respective agency regulations for appropriate application procedures. Civilian veterinarians and allied scientists are invited to apply and will be considered on a space available basis.

All applications must be received by August 1, 1977, and may be made by writing to: The Director, Armed Forces Institute of Pathology, Washington, DC 20306, ATTN.: AFIP-EDE.

Upon application, non-federal civilians and foreign nationals are required to submit a \$125 fee, payable to the Treasurer of the United States.

ADULT FEMALE BABOONS FOR SALE

Three female baboons, *Papio* sp., age 8+ years. These baboons were previously used in hormonal and biochemical investigations associated with the estrus cycle. These animals have received regular health examinations including TB tests, and fecal examinations for parasites and pathogenic bacteria, and are in excellent health. Price is negotiable.--Contact: Dr. E. D. Olfert, Director, Animal Resources Centre, University of Saskatchewan, Saskatoon, Saskatchewan, S7N 0W0. (Phone: 306-343-2469)

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SQUIRREL MONKEYS AVAILABLE

Four female and 3 male squirrel monkeys (*Saimiri sciureus*) are available. These animals are in good health and have been in our colony for 2-7 years and are no longer suitable for our research purposes. Contact: R. R. Hutchinson or G. S. Emley, Foundation for Behavioral Research, 600 Cherry St., Augusta, MI 49012 (616-731-5775).

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DIRECTOR FOR YERKES PRIMATE CENTER SOUGHT

Emory University seeks applications for the position of Director, Yerkes Regional Primate Research Center. Qualifications sought are a doctoral degree; leadership in interdisciplinary research management; experience in dealing with federal, state and industrial funding sources; and a knowledge of general university administrative operations. Also desired is a distinguished research record in biological, behavioral or medical science, as well as experience in teaching and research direction at the graduate level. Applications or nominations with current resumé, names of three professional references and other pertinent information should be submitted prior to June 1, 1977, to the chairman of the search committee: Orie E. Myers, Jr., Vice President for Business, Emory University, Atlanta, GA 30322. (An Equal Opportunity/Affirmative Action Employer.)

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AALAS CAPITAL AREA BRANCH SEMINAR

The National Capital Area Branch of the American Association for Laboratory Animal Science will hold its annual seminar September 7-8, 1977 at the Hunt Valley Inn, Cockeysville, MD. The theme of the program will be "Current Concepts in Good Laboratory Animal Practices." For additional information concerning the seminar, contact the chairman, Dr. Gene New at the National Cancer Institute, Building 37, Room 6B17, Bethesda, MD 20014. (Phone: 301-496-1866)

LABORATORY PRIMATE NEWSLETTER QUARTERLY SURVEY:
SECOND AND THIRD QUARTERS OF 1976

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 to 4 are based on reports from the following facilities: California, Delta, New England, Washington (including the Field Station), and Wisconsin Regional Primate Research Centers, Laboratory for Experimental Medicine and Surgery in Primates, National Institutes of Health, and the Southwest Foundation for Research and Education. (See the October, 1976 issue for the previous survey report.)

TABLE 1. MORTALITY SUMMARY BY SYSTEM: APRIL 1-JUNE 30, 1976

SPECIES	Generalized	Integumentary	Musculoskeletal	Respiratory	Cardiovascular	Digestive	Urogenital	Nervous	Endocrine	Neoplasia	Trauma	Unspecified
<i>Pan troglodytes</i>	1 ^a											
<i>Macaca arctoides</i>	1					5					2	2
<i>M. cyclopis</i>	1											1
<i>M. fascicularis</i>	1			3	2	2					1	5
<i>M. mulatta</i>	8	1	1	32 ^c	2	25	1				2	22
<i>M. nemestrina</i>	7	3		8		11	17 ^d	2			15	
<i>M. radiata</i>				1		1						1
<i>Erythrocebus patas</i>				3								
<i>Cercopithecus aethiops</i>				10 ^b		2	1					1
<i>Papio</i> spp.	1			3		4	2				4	24
<i>Aloutta caraya</i>						1						
<i>Saimiri sciureus</i>	3			3	2	2	4				15	27
<i>Ateles geoffroyi</i>												1
<i>Cebus</i> spp.				3		1						
<i>C. albifrons</i>												1
<i>Aotus trivirgatus</i>	3			3	2	1	2	3				4
<i>Saguinus oedipus</i>	1					4						5
<i>S. nigricollis</i>							3					
<i>S.</i> spp.				1	1	5						7
<i>Callithrix jacchus</i>				1								
Totals	27	4	1	71	9	64	30	5	0	0	39	101

^aIncludes 1 newborn

^bIncludes 7 tuberculosis

^cIncludes 17 tuberculosis

^dIncludes 9 abortions & 7 stillbirths

TABLE 2. CENSUS, NUMBER OF BIRTHS, AND MORBIDITY SUMMARY BY SYSTEM:
APRIL 1-JUNE 30, 1976

	Census	Births	Generalized	Integumentary	Musculoskeletal	Respiratory	Cardiovascular	Digestive	Urogenital	Nervous	Endocrine	Neoplasia	Trauma	Unspecified
<i>Pan troglodytes</i>	256	8	5	5		3		17					38	8
<i>Macaca arctoides</i>	269	6		11	1	6	1	28	5					1
<i>M. cyclopis</i>	90	7		1										
<i>M. fascicularis</i>	406	16	1					1	4					
<i>M. mulatta</i>	5074	192	14	200	58	254 ^c	31	348 ^d	19	60	9		54	95
<i>M. nemestrina</i>	925	78	4	3		12		52	20				47	
<i>M. radiata</i>	300	15		8	8	3		49	9					2
<i>Cynopithecus niger</i>														1
<i>Erythrocebus patas</i>	90	1	1	1				4					2	3
<i>Cercopithecus aethiops</i>	101					27 ^a		28 ^b					1	1
<i>C. talapoin</i>													1	
<i>Papio spp.</i>	1178	27		1			1	1	4				1	3
<i>P. cynocephalus</i>	27			4	1	1		9	2				1	1
<i>P. papio</i>	75	1												
<i>Mandrillus sphinx</i>								10						
<i>Saimiri sciureus</i>	689	11	2	1				2					3	1
<i>Cebus spp.</i>	152		1										1	
<i>Aotus trivirgatus</i>	172	9	1											
<i>Saguinus oedipus</i>	61		1			1								
<i>S. mystax</i>		2												
<i>S. nigricollis</i>	46			1		2		19	3					
<i>S. spp.</i>	77	7						3						
<i>Callithrix jacchus</i>		2												
Totals	9988	382	30	236	68	309	33	571	66	60	9	0	149	116

^aIncludes 7 tuberculosis

^bIncludes 23 *Shigella*, 3 *Salmonella*

^cIncludes 7 tuberculosis

^dIncludes 71 *Shigella*, 41 *Salmonella*,
4 rectal prolapses

TABLE 3. MORTALITY SUMMARY BY SYSTEM. JULY 1 - SEPTEMBER 30, 1976

SPECIES	Generalized	Integumentary	Musculoskeletal	Respiratory	Cardiovascular	Digestive	Urogenital	Nervous	Endocrine	Neoplasia	Trauma	Unspecified
<i>Pan troglodytes</i>											1	1 ^d
<i>Macaca arctoides</i>	2			2		3						1
<i>M. cyclopis</i>	1			1			2				1	2
<i>M. fascicularis</i>	1										3	4
<i>M. mulatta</i>	17		1	27 ^c	1	19	3	1	1	1	17	28
<i>M. nemestrina</i>	7			6		14	9 ^b	2			10	2
<i>M. radiata</i>				2	1						5	
<i>Erythrocebus patas</i>	1			2								1
<i>Cercopithecus aethiops</i>	1											1
<i>C. talapoin</i>											2	2
<i>Papio cynocephalus</i>												1
<i>P. papio</i>						1						
<i>P. spp.</i>	4			4		6			1		3	18 ^a
<i>Saimiri sciureus</i>	11			3	2	3	5			1	4	21
<i>Cebus albifrons</i>						1						
<i>Aotus trivirgatus</i>	1			8	3	2	2	1				4
<i>Callicebus moloch</i>						2						1
<i>Saguinus oedipus</i>	5	2		2		15	1	4				9
<i>S. mystax</i>	1										1	2
<i>S. nigricollis</i>	2			1		6						
<i>S. spp.</i>				5		9					1	2
<i>Callithrix jacchus</i>	1											4
<i>Tupaia glis</i>	1											
Totals	56	2	1	63	7	81	26	8	2	2	48	104

^aAll study related

^bIncludes 5 stillborn, 3 abortions

^cIncludes 17 confirmed tuberculosis

^dDuring Quarantine - Wild origin

TABLE 4. CENSUS, NUMBER OF BIRTHS, AND MORBIDITY SUMMARY BY SYSTEM:
JULY 1-SEPTEMBER 30, 1976

	Census	Births	Generalized	Integumentary	Musculoskeletal	Respiratory	Cardiovascular	Digestive	Urogenital	Nervous	Endocrine	Neoplasia	Trauma	Unspecified
<i>Pan troglodytes</i>	261	4				4		6						1
<i>Hylobates</i> spp.			3											
<i>Macaca arctoides</i>	274	5	2	3	3	5	2	44	2					10
<i>M. cyclopis</i>	91	1												
<i>M. fascicularis</i>	363	18	1	1		1		6					2	7
<i>M. fuscata</i>		1												
<i>M. mulatta</i>	5011	175	4	198	46	256 ^a	40	598 ^b	63	4		2	44	70
<i>M. nemestrina</i>	903	55		3		6		34	13				31	
<i>M. radiata</i>	299	3		19	11	17	1	40	7	7				7
<i>Erythrocebus patas</i>	97	1												
<i>Cercopithecus aethiops</i>	64		1											
<i>Papio anubis</i>	26													
<i>P. cynocephalus</i>	146			3				9	3	1				1
<i>P. papio</i>	75	1						8	1					
<i>P. spp.</i>	1195	35	17	2				30					91	13
<i>Theropithecus gelada</i>														2
<i>Saimiri sciureus</i>	719	47	2	1	1	1	7	2	5	2				1
<i>Cebus</i>	33													
<i>Aotus trivirgatus</i>	212	2	2											
<i>Callicebus moloch</i>	33					3		5						2
<i>Saguinus oedipus</i>	125	1						3						
<i>S. mystax</i>		4												
<i>S. nigricollis</i>	36	2				1		2						5
<i>S. spp.</i>	117	2												
<i>Galago</i> spp.													1	
Totals	10080	357	32	230	61	294	50	787	94	14	0	2	169	119

^aIncludes 23 tuberculosis

^bIncludes 13 *Salmonella* & 33 *Shigella*

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

Books

Contributions to Primatology. Vol. 9. *A Study of Roles in the Arashiyama West Troop of Japanese Monkeys (Macaca fuscata)*. L. M. Fedigan. Basel: Karger, 1976. Soft cover. 95 pp. [Price: Approx. \$20.]

This volume reports on part of a two-year study of the Arashiyama West troop of Japanese monkeys, in which multivariate statistics are used to test the assumption of normative rather than idiosyncratic differentiation of behavior. Many researchers have noted that subgroups of monkeys within a troop behave in characteristic patterns, which some primatologists have called 'roles'. Role groups, as previously postulated by Japanese primatologists, are shown to be associated with statistically significant and ethologically meaningful clusters of behaviors. The characteristic patterns of behavior associated with each role group are described, and a model of the Arashiyama West social structure as an organization of these roles, is presented. While the author does not claim this model to be all-encompassing, he feels that it does furnish a holistic explanation of social organization, and that this study provides a detailed example of what is believed to be a good predictive instrument for nonhuman primate studies. Contents: I. INTRODUCTION. Background and objectives; Related studies; The study species; The study troop. II. METHODS. The study sample; Data collection; Hypothesis; Data analysis. III. RESULTS. Multiple discriminant analysis. IV. DISCUSSION. Subjects grouped by a single criterion; Subjects grouped by two criteria; Performance of behavior factors; Role typologies; Modified theory of role groups; Central-peripheral tendency; Variability within roles; Conclusion: A role model of social structure. V. SUMMARY.

Contributions to Primatology. Vol. 10. *Craniofacial Morphology of Pan paniscus*. D. L. Cramer. Basel: Karger, 1977. Soft cover. 64 pp. [Price: Approx. \$18.]

This volume reports the results of morphometric techniques, including radiography, that were used to compare the craniofacial complex

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 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.

of two living pongids, *Pan paniscus* and *P. troglodytes*. Discriminant analysis of the data indicates significant differences in the facial regions of the two forms. Multiple regression analysis of the cranial base demonstrates that at least 40% of the variance in cranial base angles between species can be accounted for on the basis of craniofacial variables alone. Hypotheses inferring certain body postures from craniofacial remains in fossils are discussed in light of the conclusions of this study. Contents: I. INTRODUCTION. II. PROCEDURES. III. MATERIALS AND METHODS. IV. RESULTS. Discriminant analysis; Prediction equation; Results of discriminant analysis; Nonmetric traits. V. DISCUSSION. VI. SUMMARY AND CONCLUSIONS.

Reports and Proceedings

REP: *Annual report 1975*. Rijswijk, The Netherlands: Organization for Health Research TNO, 1976.

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: The chimpanzee's major histocompatibility complex, ChL-A: Improved identification of several SD antigens and provisional evidence for their relevance to histocompatibility, by Balner, H., de Lannoy, W. L., & van Vreeswijk, W.; Occurrence of a delayed intestinal syndrome in x-irradiated monkeys treated with autologous bone marrow, by Broerse, J. J., Wage-maker, G., van Bekkum, D. W., & Hollander, C. F.; An analysis of mother-infant interactions in macaques, by Dienske, H.; Abnormal behaviour patterns in rhesus monkeys with different life histories, by Dienske, H., Paul, H. H., & Ribbens, L. G.; Time patterns of body rocking in chimpanzees and macaques, by Dienske, H., & Pohl, P.; Autoaggression and autogrooming in adult stumptailed macaques under solitary conditions, by Goosen, C., & Ribbens, L. G.; Autoaggression and social grooming in a pair of adult stumptailed macaques, by Goosen, C., & Ribbens, L. G.; Description of abnormal behaviour patterns in rhesus monkeys, by Ribbens, L. G., Paulk, H. H., & Dienske, H.; Macaque varicella infection in monkeys at the Primate Center, by van den Ende, M. C., & Schaap, G. J. P.; Similarities between allo-antigens of the chimpanzee and man, further evidence for the sharing of SD antigens, possibly of LD determinants, by van Es, A. A., Schreuder, I. G. M. T., Keuning, J. J., & Balner, H.; and Genetics of "Ia-like" antigens of rhesus monkeys: Provisional mapping of two loci in the RhI-A complex, by van Vreeswijk, W., Roger, J. H., & Balner, H.

Proceedings of the National Cancer Institute Symposium on Biohazards and Zoonotic Problems of Primate Procurement, Quarantine and Research. Simons, M. L. (Scientific Ed.). DHEW Publication No. (NIH) 76-890. (*Cancer Research Safety Monograph Series*. Vol. 2). [Requests for copies should be

addressed to the series editor, Leon S. Idoine, Frederick Cancer Research Center, P. O. Box B, Frederick, MD 21701]

The symposium was held at the Litton Bionetics, Inc. Frederick Cancer Research Center on March 19, 1975 under the sponsorship of the Office of Biohazard & Environmental Control, Viral Oncology, National Cancer Institute. Contents: An overview of use of nonhuman primates, current and probable future problems, by Held, J. R.; The importance of the source, proper procurement, and quarantine procedures, by Renquist, D. M.; Important primate diseases (Biohazards and zoonoses), by Whitney, R. A., Jr.; Biohazards of experimentally infected primates, by Gerone, P. J.; Primate quarantine facility design including recommended air handling systems, by Valerio, D. A.; Health program for people in close contact with laboratory primates, by Muchmore, E.; Research hazards associated with chemicals, by Moore, J. A.; Development of a domestic primate source, by Pucak, G. J., & Foster, H. L.

"The Owl Monkey." Proceedings of the Fifth Annual Assembly of the New England Regional Primate Research Center. *Laboratory Animal Science*, 1976, 26, (Part II), 1001-1141.

This meeting was held in Boston on May 13, 1974. Contents: Observations on the geographic variation and skeletal development of *Aotus*, by Thorington, R. W. Jr., & Vorek, R. E. (U.S. National Museum of Natural History, Smithsonian Inst., Washington, DC 20560). Chromosome polymorphism and banding patterns in the owl monkey (*Aotus*), by Ma, N. S. F., Jones, T. C., Muller, A. C., Morgan, L. M., & Adams, E. A. (New England Reg. Primate Res. Ctr., Harvard Med. Sch., Southborough, MA 01772). Management and breeding of *Aotus trivirgatus*, by Elliott, M. W., Sehgal, P. K., & Chalifoux, L. V. (New England Reg. Primate Res. Ctr., Harvard Med. Sch., Southborough, MA 01772). The female genital tract of the owl monkey (*Aotus trivirgatus*) with special reference to the ovary, by Hertig, A. T., Barton, B. R., & MacKey, J. J. (Div. of Pathobiology, New England Reg. Primate Res. Ctr., Southborough, MA 01772). Studies on the hearing of the owl monkey (*Aotus trivirgatus*), by Beecher, M. D. (Primate Lab., Kresge Hearing Res. Inst., Univ. of Michigan, Ann Arbor, MI 48104). Microbial agents of the owl monkey (*Aotus trivirgatus*), by Daniel, M. D., Fraser, C. E. O., Barahona, H. H., Hajema, E. M., & Melendez, L. V. (New England Reg. Primate Res. Ctr., Harvard Med. Sch., Southborough, MA 01772). Pseudotuberculosis (*Yersinia enterocolitica*) in the owl monkey (*Aotus trivirgatus*), by Baggs, R. B., Hunt, R. D., Garcia, F. G., Hajema, E. M., Blake, B. J., & Fraser, C. E. O. (New England Reg. Primate Res. Ctr., Harvard Med. Sch., Southborough, MA 01772). A coagulopathy of the owl monkey (*Aotus trivirgatus*) associated with high antithrombin III activity, by Loeb, W. F., Cicmanec, J. L., & Wickum, M. (Analytical Services Div. and the Dept. of Lab. Animal Med. & Sci., Veterinary Sciences Div., Litton Bionetics, Inc., Kensington, MD 20795). Glomerulonephritis in the owl monkey (*Aotus trivirgatus*), by Hunt, R. D., Van Zwieten, M. J., Baggs, R. B., Sehgal, P. K., King, N. W., Roach, S. M., & Blake, B. J. (New

England Reg. Primate Res. Ctr., Harvard Med. Sch., Southborough, MA 01772). Glomerulonephritis in the owl monkey (*Aotus trivirgatus*): Ultrastructural observations, by King, N. W., Jr., Baggs, R. B., Hunt, R. D., Van Zwieten, M. J., & MacKey, J. J. (New England Reg. Primate Res. Ctr., Harvard Med. Sch., Southborough, MA 01772). The owl monkey (*Aotus trivirgatus*) as an animal model for viral diseases and oncologic studies, by Barohona, H., Melendez, L. V., Hunt, R. D., & Daniel, M. D. (New England Reg. Primate Res. Ctr., Harvard Med. Sch., Southborough, MA 01772). Studies of cultured lymphocytes of the owl monkey (*Aotus trivirgatus*) infected with *Herpesvirus saimiri*, by Giddens, W. E., Jr. (Reg. Primate Res. Ctr., & Dept. of Pathology, Sch. of Med., Univ. of Washington, Seattle, WA 98195). EB virus in the owl monkey (*Aotus trivirgatus*), by Epstein, M. A. (Dept. of Pathology, Univ. of Bristol, The Med. Sch., Univ. Walk, Bristol BS8 1TD, England). Studies with induced malaras in *Aotus* monkeys, by Young, M. D., Baerg, D. C., & Rossan, R. N. (Gorgas Mem. Lab., PO Box 2016, Balboa Heights, Canal Zone). The owl monkey (*Aotus trivirgatus*) as an animal model in trachoma research, by Fraser, C. E. O. (New England Reg. Primate Res. Ctr., Harvard Med. Sch., Southborough, MA 01772).

Bibliographies

Bibliography on sex hormones and behavior in nonhuman primates. Williams, J. B. (Primate Information Ctr., Reg. Primate Res. Ctr. SJ-50, University of Washington, Seattle, WA 98195) Seattle, Primate Information Ctr., 1976, 100 pp. [Price: \$2.50]

Disease

Erratum: The names and the address of the authors of a paper entitled "Nonenteric shigella infections in nonhuman primates" were incorrect in the January, 1977 issue of this *Newsletter*. The authors of this article are McClure, H. M., Alford, P., & Swenson, B. (Yerkes Reg. Primate Res. Ctr., Emory Univ., Atlanta, GA 30322)

Pulmonary nocardiosis in an orangutan. McClure, H. M., Chang, J., Kaplan, W., & Brown, J. M. (Dept. of Vet. Pathology, Yerkes Reg. Primate Res. Ctr., Emory Univ., Atlanta, GA 30322) *Journal of the American Veterinary Medical Association*, 1976, 169, 943-945.

Pulmonary nocardiosis was diagnosed in an adult male orangutan (*Pongo pygmaeus*) being maintained in an outdoor facility. Periodically, the orangutan had had clinical signs of an upper respiratory tract infection, as evidenced by slight nasal discharge and cough. At the terminal stage, the orangutan had acute respiratory embarrassment, with epistaxis, and died before diagnosis could be made and treatment initiated. Gross necropsy findings included fibrosis of the pulmonary parenchyma as well as evidence of air sac infection, extensive pneumonia, and extensive chronic pleuritis. Microscopically, some of the lung sections had alveoli filled with polymorphonuclear cells,

with other sections being diffusely fibrotic; the areas of fibrosis contained interspersed foci of polymorphonuclear cell infiltration. Many of the latter areas contained organisms colonized in the form of granules that resembled those seen in actinomycosis. These organisms were gram-positive and branched, and measured close to 1 μ m in diameter. *Nocardia asteroides* was isolated from the pulmonary tissue.

Use of immune serum globulin (human) to reduce mortality in newly imported rhesus monkeys (*Macaca mulatta*). Barsky, D., Palmer, A. E., London, W. T., & Kerber, W. T. (Primate Imports Corporation, Port Washington, NY 11050) *Journal of Medical Primatology*, 1976, 5, 150-159.

Immune serum globulin (human) (ISGH) was administered intramuscularly to approximately 5,600 rhesus monkeys weighing between 1.5 and 3.6 kg. The animals were housed at three separate facilities under differing quarantine conditions. ISGH recipients were grossly healthier, suffered less morbidity and fewer developed antibodies against measles (rubeola) virus. Mortality among ISGH-treated animals was only 20-57% of that in the control animals. No adverse effects were seen from the injection of ISGH into rhesus monkeys, and residual antibodies from the injected material could not be detected 18 and 47 days postinoculation.

Physiology

Some guidelines for collection and reporting of nonhuman primate growth data. Watts, E. S. (Dept. of Anthropology, Tulane Univ., New Orleans, LA 70118) *Laboratory Animal Science*, 1977, 27, 85-89.

Some basic guidelines were offered to aid researchers in planning and implementing the collection and reporting of data on growth and development of nonhuman primates. Weight and linear dimensions are the most frequently used measures of growth, and osseous and dental development are the most useful indicators of general bodily maturity. Estimates of sexual development can be made from general bodily maturity but more accurate assessments are based on the appearance of certain secondary sex characters. The most useful growth data are obtained from repeated, regularly scheduled examinations of the same individual. Standard procedures for measuring the external body utilize certain specific measuring points and measurements. Serial radiographs are also extremely valuable. When reporting data, age of subjects should be given in years and decimals. Means and other measures of central tendency and variability should be reported separately for each species, subspecies, and sex.

Pharmacology and Anesthesia

Cardiovascular and respiratory responses to ketamine hydrochloride in the rhesus monkey (*Macaca mulatta*). Ochsner, A. J., III. (Oregon Reg. Primate Res. Ctr., 505 NW 185th Av., Beaverton, OR 97005) *Laboratory*

Animal Science, 1977, 27, 69-71.

Catheters were placed in the left ventricle and pulmonary artery of 12 rhesus monkeys (*Macaca mulatta*). Heart rate, left ventricular systolic pressure, pulmonary arterial systolic and diastolic pressure, and respiratory rate were measured before and 5, 15, and 30 min. after intramuscular injection of the monkeys with ketamine HCl (10 mg/kg). Heart rate, systolic pressure in the left ventricle, and respiratory rate decreased significantly. No significant changes occurred in the pulmonary arterial pressure.

Aeromedical review: Selected topics in laboratory animal medicine. Vol. 5. *Anesthesiology*. Cramlet, S. T., & Jones, E. F. Brooks Air Force Base, Texas 78235: Aerospace Medical Div. (AFSC), USAF School of Aerospace Medicine, 1976. (Review 1-76)

This review discusses the pharmacology of anesthetic agents and the principles and techniques for their administration in laboratory animals.

Breeding

Hybridization in the genus *Leontopithecus*, *L. R. Rosalia* (Linnaeus, 1766) XL. *R. Chrysomelas* (Kuhl, 1820) (Callitrichidae, primates). Coimbra-Filho, A. F., & Mittermeier, R. A. (Departamento de Conservação Ambiental, FEEMA, Rio de Janeiro, Brasil) *Rev. Brasil. Biol.*, 1976, 36, 129-137.

This paper reports on the first three known cases of hybridization between two subspecies of the rare southern Brazilian primate genus *Leontopithecus*. A wild caught *L. rosalia chrysomelas* female mated with a captive born *L. r. rosalia* male and gave birth to three sets of hybrids (2 infants, 1 infant, 2 infants). The hybrids were roughly intermediate in color pattern between their pure parents, but no two individuals showed the exact same pattern. None of the infants survived more than a day. The parents' lack of success in raising the hybrid infants was probably due to inexperience resulting from their own abnormally early separation from their family groups.

Pregnancy diagnosis in the orangutan (*Pongo pygmaeus*) using the subhuman primate pregnancy test kit. Hodgen, G. D., Turner, C. K., Smith, E. E., & Bush, R. M. (Sect. on Endocrinology, Rep. Res. Br., National Inst. of Child Hlth., & Human Dev., NIH, Bethesda, MD 20014) *Laboratory Animal Science*, 1977, 27, 99-101.

A determination was made of the gestational interval over which the Subhuman Primate Pregnancy Test, a hemagglutination inhibition test for urinary chorionic gonadotropin, accurately indicated conception and the continuation of pregnancy in an orangutan (*Pongo pygmaeus*). The initial positive diagnostic test response occurred about 8 months before parturition and positive responses continued throughout gestation. A test made one day after parturition was positive indicative of some residual urinary chorionic gonadotropin. Tests made 3 days after parturition and later were negative.

Nursery rearing of infant monkeys (*Macaca fascicularis*) for toxicity studies. Willes, R. F., Kressler, P. L., & Truelove, J. F. (Toxicology Res. Div., Bureau of Chem. Safety; Ottawa, Canada) *Laboratory Animal Science*, 1977, 27, 90-98.

At birth, 9 infant male cynomolgus monkeys weighed an average of 402 g and 16 infant females weighed an average of 362 g. All infants lost 15-20 g by the 4th day after birth. Female and male infants showed a growth rate of approximately 4 and 5 g body wt/day, respectively, from 4 to 150 days of age. Caloric intake increased from approximately 140 cal/kg body weight/day in both females and males on the first day after birth to peak values of 325 and 290 cal/kg body weight/day in females and males, respectively, and subsequently declined to about 200 cal/kg/day in males and 250 cal/kg/day for females. Total calories consumed per day increased from 53 cal/day in females and 68 cal/day in males to approximately 200 cal/day after 60 days of age in both females and males. Erythrocyte counts, packed cell volume, and hemoglobin values decreased from birth to 2 weeks of age, then stabilized. An increase in lymphocyte count, with a concomitant decrease in mature neutrophils, was observed from birth to 6 weeks of age. "Temper fits" and certain aggressive behavioral signs were observed as early as 3-4 days after birth, and infants began to develop social orders as early as the 30-40th day. Behavioral abnormalities frequently seen in infants reared in isolation were not observed.

Temperate season outdoor housing of *Saimiri sciureus* in the northern United States. Jarosz, S. J., & Dukelow, W. R. (Endocrine Res. Unit, Michigan State Univ., East Lansing, MI 48824) *Journal of Medical Primatology*, 1976, 6, 176-185.

This study demonstrates the ability of *Saimiri* to adapt to outdoor housing in a northern temperate climate from May through October, to ovulate (both naturally and in response to an induction regime), become pregnant, give birth, and to initiate lactation. The observations reported are of importance for the captive breeding of *Saimiri* for use in biomedical research.

Diagnosis of pregnancy in chimpanzees using the nonhuman primate pregnancy test kit. Hodgen, G. D., Niemann, W. H., Turner, C. K., & Chen, H-C. (Sect. on Endocrinology, Reprod. Res. Br., NICHD, NIH, Auburn Bldg.-203, Bethesda, MD 20014) *Journal of Medical Primatology*, 1976, 5, 247-252.

The usefulness of The Nonhuman Primate Pregnancy Test kit for diagnosis of pregnancy in chimpanzees was determined. This hemagglutination inhibition test for urinary chorionic gonadotropin accurately indicated conception by positive responses in 151 of 153 specimens collected between 20 and 133 days after the estimated day of fertilization. The rate of false positive responses did not exceed 1%.

Age, weight, and weight gain in the individual pubertal female rhesus

monkey (*Macaca mulatta*). Wilen, R., & Naftolin, F. (Dept. of Obs. & Gyn., McGill Univ. & Royal Victoria Hosp., Montreal, Quebec, H3A 1A1, Canada) *Biology of Reproduction*, 1976, 15, 356-360.

The relationship between age, body weight and weight gain at puberty (first perineal turgescence and menarche) in the normal untreated rhesus monkey was determined from a longitudinal growth study of seven individual rhesus, 30 individual rhesus previously studied by other investigators and a review of 50 years of reported similar observations on captive rhesus at puberty. There was evidence of a secular trend towards an earlier age of puberty in the rhesus. Puberty was found to be generally coincident with the onset of the adolescent weight spurt and is invariably present before the maximum rate of pubertal weight gain. Although the average weight at puberty in the present study was consistent with prior studies, average pubertal age varied, suggesting a constant critical "demographic weight" at varying ages of puberty. Nevertheless, examination of 37 individual sexually mature rhesus from three separate studies showed age and weight at puberty were positively correlated. These data suggest that positive correlation in the pubertal age-weight distributions found in rodents and domestic animals may also occur in higher primates. A major species difference distinguishing the human from a general mammalian pubertal age-weight pattern, found in the rhesus, raises theoretical questions regarding the role "critical body weight" plays in triggering puberty.

Ecology and Field Studies

Notes on primates in Parc-National du W du Niger, West Africa. Poché, R. M. (Dept. of Forestry & Cons., Univ. of Calif., Berkeley, CA 94710) *Mammalia*, 1976, 40, 187-198.

Parc National du W du Niger is one of the least known and least visited West African game reserves. This lack of exposure is attributed to the geographical isolation of Niger, over 1,000 km from the Atlantic coast and bordered on the north by the Sahara Desert. Primates are among the most numerous mammals inhabiting southwestern Niger. The anubis baboon (*Papio a. anubis*), patas monkey (*Erythrocebus p. patas*), tantalus monkey (*Cercopithecus aethiops tantalus*) and the lesser galago (*Galago s. senegalensis*) represent the four species found in the region. The distribution of the tantalus is restricted primarily to gallery forests and riparian vegetation along major rivers, whereas the three remaining primates are more wide ranging. A severe drought in 1972 caused the death of numerous wildlife, including anubis baboons and patas monkeys. Cranial measures of recovered skulls are given.

Taxonomy

Craniometric corroboration of the specific status of *Lepilemur septentrionalis*, an endemic lemur from the north of Madagascar. Jungers, W. L., & Rumpler, Y. (Dept. of Anthropology, Univ. of Michigan, Ann Arbor, MI

48104) *Journal of Human Evolution*, 1976, 5, 317-321.

The disputed taxonomy of the genus *Lepilemur* I. Geoffroy, 1851 has been clarified considerably by cytogenetic techniques, especially analysis of karyotypes. An allopatric species of *Lepilemur*, *L. septentrionalis*, has been created recently on the basis of cytogenetic distinctions (Rumpler & Albignac, 1975). *L. septentrionalis* is shown here to be significantly smaller than the morphologically similar *L. dorsalis* in thirty-four of thirty-seven linear cranial dimensions, but significantly larger in interorbital breadth (lacrimale-lacrimale). Craniometric results therefore reinforce the cytogenetic conclusion that *L. septentrionalis* is a valid species distinct from *L. dorsalis*.

Provisional classification and key to living species of macaques (Primates: *Macaca*). Fooden, J. (Div. of Mammals, Field Museum of Nat. History, Chicago, IL 60605) *Folia primatologica*, 1976, 25, 225-236.

19 recognized species of macaques (*Macaca*) are allocated to four species groups (*fascicularis* group, *silenus-sylvanus* group, *sinica* group, *arctoides* group) based primarily on structure of male external genitalia. Geographic ranges of all four species groups are partly sympatric; ranges of species within each group apparently are allopatric. Distribution patterns suggest that the *silenus-sylvanus* group probably dispersed earliest, the *sinica* group next, and the *fascicularis* group most recently; successively more recent dispersals probably contributed to reduction and disjunction of ranges of species groups that dispersed earlier. An artificial key to external characters of recognized species is presented. Deficiencies are noted in Hill's recently published taxonomic treatment of macaques; these criticisms concern Hill's classification, key, nomenclature, and range maps.

Instruments and Techniques

The use of diagnostic ultrasound in evaluation of the abdomen in primates with emphasis on the rhesus monkey (*Macaca mulatta*). James, A. E., Jr., et al. (Dept. of Radiology, Vanderbilt Univ. Hosp., Nashville, TN 37232) *Journal of Medical Primatology*, 1976, 5, 160-175.

To characterize the sonographic appearance of the abdominal organs in primates, a program of routine imaging and diagnostic evaluation was undertaken. Compound B-mode methodology with bistable and grey scale machines was employed utilizing a 2.25- to 3.5-MHz transducer focused at 7 cm. Visualization of the liver, gallbladder, spleen, kidney, and of intraabdominal pathology are described. The stage, position, and condition of a pregnancy can be determined by this methodology.

Conservation

The International Primate Protection League. Special Report: Chimpanzee rehabilitation. Brewer, S., Nokomis, Florida: International Primate

Protection League, 1976. [Price: \$1. Available from: IPPL, P.O. Box 370, Nokomis, FL 33555]

This report describes procedures that the author and R. Savirelli are developing in an attempt to rehabilitate captive chimpanzees to life in the wild.

An appeal for the preservation of habitats in the interests of primate conservation. Bernstein, I. S., *et. al.* (Dept. of Psychol., U. of GA, Athens, GA 30602) *Primates*, 1976, 17, 413-415.

Based on an evaluation of the populations of primates in Northern Colombia, and upon data showing dramatically different abilities of the different species to survive in small forest remnants or radically altered forest environments (see following abstract), the authors urge the immediate establishment of adequately sized forest areas to insure the long term survival of vulnerable species. Hunting and trapping are obvious direct threats to a species, but habitat destruction is more insidious in that it exacerbates hunting and trapping pressures and may lead to the extinction of even those species enjoying vigorous protection. Rapid deforestation in the tropics is often a mark of rapid development and whereas none would wish to hinder such national efforts, developmental efforts may be directed so as to preserve selected wildlife refuges for the future benefit of the nation and the world.

Differential effects of forest degradation on primate populations. Bernstein, I. S., *et al.* (Dept. of Psychol., U. of GA, Athens, GA 30602) *Primates*, 1976, 17, 401-411.

A population survey of nonhuman primates in an area of northern Colombia was conducted using repeated systematic census techniques as well as exploratory transects. Both remnant forest patches and more extensive forests were examined for comparison. Whereas *Lagothrix* and *Ateles* were most numerous in extensive forests, *Lagothrix* was virtually absent in remnant forests. *Cebus*, *Alouatta* and *Saguinus* persist in remnant forests, and the last may even find second growth a favorable habitat. These results are in good agreement with independent studies in a second area in southern Colombia.

Establishment of a free-ranging colony of stumptail macaques (*Macaca arctoides*): Relations to the ecology I. Estrada, A., & Estrada, R. (Inst. de Investigaciones Biomed., Univ. National Autonoma de Mexico, Apartado Postal 70228, Mexico City, D. F., Mexico) *Primates*, 1976, 17, 337-355.

A group of 20 stumptail macaques was released free on the island of Totogochillo in Lake Catemaco, Veracruz, Mexico, on August 15, 1974. Initial adaptations to the island geography and ecology are reported for the first 83 days of observation. The island of Totogochillo is a lava formed island with vegetation type consisting of secondary tropical rain forest. The stumptail group composition consisted of one adult male, five adult female and 14 non adult individuals. Individuals and matrilineal genealogies are identifiable. Home range is limited by the island's size.

LIMITED SUPPLY OF *BIBLIOGRAPHIA PRIMATOLOGICA*
STILL AVAILABLE

Dr. T. C. Ruch's supply of the following work has been exhausted but he has learned that the Historical Library, Yale Medical Library, 333 Cedar St., New Haven, CT 06510 has a limited supply remaining at \$12.00 per copy. The retrospective searches by the Primate Information Center, Regional Primate Research Center SJ-50, University of Washington, Seattle go back to this volume. The full title is the *Bibliographia primatologica: A classified bibliography of primates other than man*, by Theodore C. Ruch, 1941, and covers primate based literature in anatomy, embryology and quantitative morphology; physiology, pharmacology and psychobiology; primate phylogeny, and miscellanea.

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CHIMPANZEES AVAILABLE

Due to space limitations at our Center we have five male chimpanzees (*Pan troglodytes*) ages 9-12 years, which are available free of charge except for transportation costs.--Th.C. van Schie, Primate Center TNO, 151 Lange Kleiweg, Rijswijk, The Netherlands.

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Welcome to Springtime

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