LIBRARIES
UNIVERSITY OF WISCONSIN–MADISON

Wisconsin Regional Primate Research Center (1967-1997). 1967/1997

[Madison, Wisconsin]: [s.n.], 1967/1997

https://digital.library.wisc.edu/1711.dl/5YX5MB46MAX2R86

This material may be protected by copyright law (e.g., Title 17, US Code).

For information on re-use, see
http://digital.library.wisc.edu/1711.dl/Copyright

The libraries provide public access to a wide range of material, including online exhibits, digitized collections, archival finding aids, our catalog, online articles, and a growing range of materials in many media.

When possible, we provide rights information in catalog records, finding aids, and other metadata that accompanies collections or items. However, it is always the user's obligation to evaluate copyright and rights issues in light of their own use.

728 State Street | Madison, Wisconsin 53706 | library.wisc.edu

1•8•4•8
NEWS
UNIVERSITY OF WISCONSIN–MADISON

Wisconsin Regional Primate Research Center

Phone: 608/262–3571
Fax: 608/262–2331

Office of News and Public Affairs
28 Bascom Hall • 500 Lincoln Drive
Madison, Wisconsin 53706-1380

FOR IMMEDIATE RELEASE 7/29/97

CONTACT: Larry Jacobsen, (608) 263-3512

UW-MADISON LIBRARIAN WINS TOP NATIONAL SERVICE AWARD

MADISON — The head of library services at the Wisconsin Regional Primate Research Center, Larry Jacobsen, has won the 1997 American Society of Primatologists Distinguished Service Award.

Jacobsen was named the recipient of the national honor recently during the society's 20th Annual Meeting in San Diego.

"Larry was commended for his contributions to primate research, conservation and education," said Joseph Kemnitz, interim director at the center, part of the University of Wisconsin-Madison Graduate School. "For the past 24 years, he has played a key role in developing and expanding our library from a small collection donated by the first director to what is now the world's largest primate-oriented library collection."

The library serves researchers, instructors, staff and students on campus as well as nationally and internationally, Kemnitz said. He added that, in addition to science journals and newsletters, the library contains many special collections, including more than 6,300 slides, 600 videos, a rare book collection, and a children's literature section used by College for Kids summer programs and for teacher education. Along with Jacobsen, the library's permanent staff includes Joanne Brown and Ray Hamel.

"Larry and his staff also provide several widely used Internet services such as job postings, document delivery, a reference service and a discussion forum called 'Primate-Talk,' " Kemnitz said.

Moreover, the library produces the International Directory of Primatology, the only comprehensive source of accurate information about organizations involved in primate research, education and conservation.

###

— Jordana Lennon, (608) 263-7024

WRPRC

FOR IMMEDIATE RELEASE 10/28/97
CONTACT: Mary Schneider, (608) 265-5118

STUDY: SOCIAL DRINKING DURING PREGNANCY RISKS INFANT HEALTH

MADISON - A study conducted at the University of Wisconsin-Madison's Harlow Primate Laboratory demonstrates for the first time in a laboratory setting that even moderate drinking can harm infant development.

Results of the study, published in the October issue of the journal Child Development, show that moderate exposure to alcohol in pregnant rhesus monkeys produced a number of deficits in the infants, including reduced motor skills, shorter attention span and increased drowsiness. Moreover, a combination of alcohol and mild psychological stress on the pregnant mothers compounded some of the symptoms.

Mary Schneider, a UW-Madison occupational therapy professor and principal investigator of the study, says the study is the first attempt to look at the potential health effects of social drinking during pregnancy, using both a controlled laboratory setting and species very close to humans.

Previous studies involving humans reached similar conclusions, but could not factor out other variables, such as environment, other drug use and socio-economic status, that affect infant health, she says.

Most research has focused on fetal alcohol syndrome, a lifelong condition that can cause mental retardation and other behavioral and learning problems. That condition stems from excessive drinking during pregnancy, but Schneider says her study shows the risks are not limited to problem drinkers.

"It seems to contradict a common assumption that 'anything in moderation' is fine," she says. "We hope that doctors and educators will take this to heart and further encourage women to limit alcohol and minimize stress during pregnancy."

The study included 33 pregnant rhesus monkeys that were placed in one of three study groups: One group consumed alcohol daily beginning five days prior to breeding; a second group was exposed to both alcohol and mild stress; and a third control group consumed a solution with no alcohol.

The alcohol dosage was comparable to one or two drinks daily for humans, producing a blood alcohol content of .02 to .05. The mild stress was produced by exposing the monkeys to three short bursts of noise when they were placed in an unfamiliar environment.

After birth, the infants were given a series of physical and behavioral tests that assess infant development, and provide a way to measure characteristics such as attention, neuromotor skills and temperament.

The infants from all three groups were physically normal, Schneider says. However, impairments in the alcohol-exposed infants included poor motor maturity, shorter attention spans and increased drowsiness. Of the pregnant monkeys that were exposed to both alcohol and mild stress, the males were

born with low birth weight. The motor impairments of monkeys in that group also were more severe.

The study was funded by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) and the W.T. Grant Foundation. Dr. Enoch Gordis, director of NIAAA, says Schneider's study takes a big step toward verifying the dangers of moderate drinking during pregnancy.

"This is an important paper, probably the first primate fetal alcohol syndrome project that offers a true moderate drinking model," Dr. Gordis says. "With Dr. Schneider's monkeys, we have all the advantages of animal model control. And among animal models, the primate model is important because primates permit a level of cognitive testing far closer to human behavior than is possible with, for example, rodents."

Despite a growing awareness of fetal alcohol syndrome, drinking during pregnancy remains a major health hazard in the United States. A 1995 phone survey by the Centers for Disease Control and Prevention found that 3.5 percent of 1,313 pregnant women surveyed admitted to having seven or more drinks per week or binged on five or more drinks on a single occasion in the preceding month. That was up from 0.8 percent in 1991. The sample suggested that 140,000 pregnant women nationally were frequent drinkers in that year.

"With so many children born every year having been exposed to alcohol, these results might help explain why we are seeing more and more problems in children when they reach school age and adolescence," Schneider says.
###
- Brian Mattmiller, (608) 262-9772

****
For questions or comments about UW-Madison's email news release system, please send an email to:
UW-news@facstaff.wisc.edu

For more UW-Madison news, please visit the Office of News and Public Affairs Web site:
http://www.wisc.edu/news/

Office of News and Public Affairs
University of Wisconsin-Madison
28 Bascom Hall
500 Lincoln Drive
Madison, WI 53706

Email: UW-news@facstaff.wisc.edu
Phone: (608) 262-3571
Fax: (608) 262-2331

Primate Research Center, Wisconsin Regional

1 • 8 • 4 • 8

NEWS

UNIVERSITY OF WISCONSIN–MADISON

Office of News and Public Affairs
28 Bascom Hall • 500 Lincoln Drive
Madison, Wisconsin 53706-1380

Phone: 608/262–3571
Fax: 608/262–2331

FOR IMMEDIATE RELEASE 10/10/96

CONTACT: Vivienne Marshall, (608) 263-3511 or Terry Devitt, (608) 262-8282

Photo caption

PIONEERING PRIMATES

Twin marmoset infants, Greg and Marsha, cling to their mother's back in this photo, taken at the Wisconsin Regional Primate Research Center at the University of Wisconsin-Madison. The twins, each weighing about two ounces, are the first confirmed New World monkeys to have been conceived by non-surgical embryo transfer. The technique, pioneered at the center, holds great promise for increasing the number of captive rare and endangered New World primates, according to scientists. The new method can achieve a pregnancy rate as high as 40 percent and eliminates invasive procedures used previously. Although new to a New World species like the common marmoset, the technique has been successfully used in rhesus monkeys, baboons and humans. The pregnancy rate of the new technique as applied to marmosets, however, is far higher, holding out the promise of more successful captive breeding programs for rare and endangered primates.

— *Photo by Jeff Miller*

Primate Research Center, Wisconsin Regional

PRIMATE CENTER BOARD OF STUDIES

JULY 9, 1993

CHANCELLOR DAVID WARD

THANK YOU, JOHN. I AM DELIGHTED TO BE HERE TODAY.

IN HIS INVITATION TO ME, PROFESSOR HEARN ASKED THAT I SHARE SOME THOUGHTS ABOUT THE UNIVERSITY'S PRIORITIES AND THE CHALLENGES WE MUST MEET. THIS IS AN APT SETTING FOR THAT ASSIGNMENT. AS ONE OF OUR TOP CENTERS OF MULTIDISCIPLINARY STUDIES, THE WISCONSIN REGIONAL PRIMATE RESEARCH CENTER EMBODIES THE BEST WE HAVE TO OFFER AS AN INSTITUTION OF HIGHER LEARNING. THE CENTER -- AS AN ACADEMIC MICROCOSM OF UW-MADISON -- REPRESENTS ONE OF OUR BEST HOPES OF MEETING THE EXPECTATIONS OF OUR CONSTITUENTS.

AS CHANCELLOR, ONE OF MY MOST IMPORTANT ROLES IS TO BUILD OUTSIDE SUPPORT FOR UW-MADISON. IN ONE SENSE, THIS TASK IS EASY. THE PEOPLE OF WISCONSIN TAKE GREAT PRIDE IN THEIR UNIVERSITY. FOR 150 YEARS THE PEOPLE OF THIS STATE HAVE INVESTED IN THE DEVELOPMENT OF ONE OF THE WORLD'S GREAT CENTERS OF LEARNING. THEY ARE ANXIOUS THAT WE REMAIN IN THE FRONT RANK OF HIGHER EDUCATION. THEY ARE MORE THAN WILLING

TO SUPPORT US AS WE STRIVE TO MAINTAIN THE STRENGTHS WE HAVE DEVELOPED.

BUT IN RECENT YEARS THIS JOB HAS BECOME MORE DIFFICULT. IN LARGE MEASURE, THIS IS DUE TO A PUBLIC MISPERCEPTION THAT WE HAVE FORSAKEN OUR EDUCATIONAL MISSION, ESPECIALLY FOR UNDERGRADUATES. THIS MISPERCEPTION IS NOURISHED BY ANECDOTES THAT TELL US LITTLE ABOUT THE PROBLEM OR HOW IT MIGHT BE SOLVED.

THE GENESIS OF THIS ISSUE IS COMPLICATED. ITS SOLUTION WILL BE NO LESS SO. WE MUST ASK OURSELVES WHAT IS OUR RESPONSIBILITY IN MAINTAINING VIGILANCE SO THAT THE MINIMUM STANDARD FOR TEACHING MEETS STUDENT NEEDS? AND WE NEED TO LOOK BEYOND OUR OWN INDIVIDUAL EFFORTS TO ENSURE THAT OUR INSTRUCTIONAL PROGRAMS ARE OF A QUALITY THAT MEETS OR EXCEEDS THE EXPECTATIONS OF OUR STUDENTS.

MOREOVER, PART OF THE SOLUTION TO THIS PROBLEM LIES IN CONVINCING OUR FRIENDS -- AND OUR CRITICS -- THAT WE **DO** CARE ABOUT HOW THEIR CHILDREN FARE HERE AS STUDENTS, AND THAT WE ARE DOING OUR BEST TO COME TO GRIPS WITH OUR SHORTCOMINGS. THIS IS WHERE WE MUST REDOUBLE OUR EFFORTS. AND I BELIEVE THAT MULTIDISCIPLINARY RESEARCH CENTERS SUCH AS THE PRIMATE CENTER CAN HELP US ACHIEVE A BETTER PUBLIC UNDERSTANDING OF THE THINGS THAT WE DO SO WELL.

THE DEBATE OVER THE QUALITY OF UNDERGRADUATE EDUCATION IS OFTEN CAST AS ONE OF RESEARCH VERSUS EDUCATION. BUT AS SOMEONE WHO HAS SPENT AN ACADEMIC CAREER HERE, I KNOW FIRSTHAND THE VALUE OF RESEARCH AS A TEACHING TOOL. AND I KNOW MANY OF YOU DO AS WELL. THERE ARE SCORES OF LABORATORIES AND RESEARCH SETTINGS ON THIS CAMPUS THAT ARE ANYTHING BUT REMOVED FROM THE EXPERIENCES OF STUDENTS. INCREASINGLY, THIS IS TRUE FOR UNDERGRADUATES AS WELL AS GRADUATE STUDENTS.

IT IS IRONIC THAT WE ARE FAULTED FOR OUR SUCCESS AS A CENTER OF RESEARCH. THE RESEARCH ENTERPRISE AT UW-MADISON IS THE ENVY OF UNIVERSITIES WORLDWIDE. THAT SUCCESS HAS ENABLED US TO BUILD AN INFRASTRUCTURE THAT HELPS SUPPORT OUR EDUCATIONAL AND PUBLIC SERVICE MISSIONS. AND I KNOW WE ARE ABLE TO INTEGRATE THOSE MISSIONS BETTER THAN MANY OF OUR CRITICS WOULD HAVE YOU BELIEVE.

OUR SUCCESS AS A RESEARCH UNIVERSITY HAS ALSO ENABLED US TO BUILD AN IMPORTANT HUMAN INFRASTRUCTURE. WE ATTRACT TO OUR FACULTY AND STAFF PEOPLE WHO ARE THE BEST IN THEIR FIELDS. THESE ARE THE PEOPLE WHO CREATE NEW KNOWLEDGE. THEY EXPOSE OUR STUDENTS TO THE LATEST AND BEST INFORMATION ON A SUBJECT. BUT, IMPORTANTLY, THEY ALSO INSTILL A SENSE OF WONDER ABOUT THE PROCESS OF DISCOVERY AS THEY LEAD OUR STUDENTS ALONG THE PATH TO NEW KNOWLEDGE.

IN THIS BROAD SENSE, I SEE OUR PRIORITIES AS INSEPARABLE. WE HAVE A DISTINCT, TRI-FOLD MISSION WITHIN THE UW SYSTEM. WHAT WE MUST DO NOW IS SHOW OUR CONSTITUENCIES HOW THESE DIFFERENT MISSIONS ARE INTERCONNECTED. THAT WILL HELP SHOW THAT THEIR CONFIDENCE IN US IS WELL PLACED.

THERE MUST BE A CONTINUOUS EFFORT TO BRING BEFORE THE PUBLIC THE INTERPLAY OF OUR TRIO OF MISSIONS. WE NEED TO DEMONSTRATE THAT THEY ARE NOT MUTUALLY EXCLUSIVE. WE NEED TO ILLUSTRATE THE BENEFITS OUR RESEARCH PROWESS CONFERS ON OUR STUDENTS AND THE CITIZENS OF OUR STATE AND NATION.

THE PRIMATE CENTER, BY VIRTUE OF ITS MISSION AND THE ACTIVITIES THAT TAKE PLACE HERE, IS IN A GOOD POSITION TO HELP US ACHIEVE THAT END. THE STUDENTS ENGAGED HERE IN RESEARCH ARE DOING THINGS THEY COULD NOT DO ANYWHERE ELSE IN WISCONSIN, OR IN MOST OTHER STATES FOR THAT MATTER. THE INTERNATIONAL CONSERVATION THRUST ON THE PART OF THE CENTER IS EMBLEMATIC OF THE BEST IN PUBLIC SERVICE. IT GIVES OUR STUDENTS VALUABLE EXPOSURE TO PARTS OF THE WORLD THAT STUDENTS AT MANY OTHER INSTITUTIONS CAN ONLY READ ABOUT. IT IS AN OUTSTANDING EXAMPLE OF HOW SCHOLARLY FORESIGHT AND CREATIVITY CAN BRING OUR DIFFERENT MISSIONS TOGETHER FOR THE BENEFIT OF STUDENTS AND THOSE WHO SUPPORT US.

THE PROBLEMS WE FACE IN WISCONSIN TODAY ARE NOT FOREIGN TO OUR PEER INSTITUTIONS. THEY FACE THE SAME TOUGH ROAD. AND

IN SOME INSTANCES -- BELIEVE IT OR NOT -- THE ROAD IS EVEN ROCKIER THAT ONE-MILE STRETCH BETWEEN BASCOM HALL AND THE WISCONSIN STATE CAPITOL. BY DOING A BETTER JOB OF TELLING OUR STORY TO THE PEOPLE OF THE STATE, WE CAN EFFECTIVELY REMOVE MANY OF THE OBSTACLES THAT IMPEDE OUR PROGRESS.

WISCONSIN REGIONAL PRIMATE RESEARCH CENTER

University of Wisconsin / 1223 Capitol Court / Madison, Wisconsin 53715-1299

FAX (608) 263-4031

John P. Hearn
Professor and Director
(608)263-3500

June 9, 1993

RECEIVED

JUN - 9 1993

MADISON CHANCELLOR'S OFFICE
UNIVERSITY OF WISCONSIN

Chancellor David Ward
161 Bascom Hall
CAMPUS

Primate Center Board of Studies
9th July 1993

Dear David,

Thank you for accepting our invitation to speak for 20 minutes [with 10 minutes discussion] on "Priorities for the Future of UW-Madison" or a topic of your choice. We are particularly grateful as I know you have a very heavy schedule at this time.

The Board of Studies meets quarterly and includes the 120+ Ph.D., M.D. and D.V.M. level scientists who work at the Primate Research Center. These individuals are drawn from departments across campus, and some are from other universities in the midwest, or from other national or international laboratories. We will probably invite some of our senior support staff to attend, as well. Consequently, your audience will be representative from across the biological sciences on campus.

I know that we would be interested in any comments you care to make. Many of my colleagues will not know of the difficult choices that you must make in steering our huge University, so perhaps you could give some flavor of this and of the competing priorities in the first 10 minutes of your address. Perhaps in the second half of your talk you might like to comment more specifically on your views concerning multidisciplinary research centers such as the Primate Center; the biomedical sciences including animal and human health; and the international dimensions of the University which we represent in biomedical and conservation programs.

I enclose the agenda for our meeting and a one page summary of our activities. Please feel free to come at any time, but we will schedule you to speak at 11:00 am. At 11:30 we have a brief general staff meeting and a reception, so that if you have the time to have a drink with us and mix informally with staff, we would be delighted.

With best personal regards,

Yours sincerely,

John Hearn

cc: Dean John Wiley

Attachments
JPH:sc

WISCONSIN REGIONAL PRIMATE RESEARCH CENTER

University of Wisconsin / 1223 Capitol Court / Madison, Wisconsin 53715-1299

FAX (608) 263-4031

To: Members of Board of Studies June 3, 1993

From: John Hearn

Board of Studies Meeting - July 9, 1993

I confirm that we will be holding a meeting of the Board at **10:00 a.m. on Friday, July 9** in the Conference Room of the Primate Research Center. Please note the change in date. The agenda below is open, so if you wish to add any points, please inform Edi Chan before July 7. Please would you make every effort to attend these meetings, since they are the major forum for communication between all of our scientific staff.

Agenda

10:00 a.m.	1. Director's report	John Hearn
	2. Research group reports (highlights only)	Research group chairs
	3. Animal services (AALAC visit, etc.)	Dan Houser
	4. Operational services (business office, purchasing, renovation program, etc.)	Bob Watson
	5. Primate Center Policies and Procedures	John Hearn
	6. Scientific Advisory Board review	John Hearn
	7. Center communications	Sue Carlson
	8. Any other business	
	9. Date of next meeting (Friday, December 17, 1993)	
10:45 a.m.	10. The Aging Research Program	Rick Weindruch
11:00 a.m.	11. Invited speaker "Priorities for the Future of UW-Madison"	Chancellor David Ward
11:30 a.m.	General Staff Meeting	

Please note: This meeting will be followed by a General Staff meeting. John Hearn will speak for 15 minutes on the current status and future plans of the Primate Research Center. All staff are asked to attend. I ask scientific staff to ensure that their support staff are aware of this meeting. Beverages will be served.

Please note: The Primate Center picnic will be held at Vilas Park on Saturday, July 10.

WISCONSIN REGIONAL PRIMATE RESEARCH CENTER
University of Wisconsin / 1223 Capitol Court / Madison, Wisconsin 53715-1299

FAX (608) 263-4031

John P. Hearn
Professor and Director
(608)263-3500

THE UNIVERSITY OF WISCONSIN-MADISON

The University is a leading institution for **scholarship, research and teaching.** There are 2,300 faculty, 4,350 academic staff, 6,900 classified staff, 10,150 graduate and professional students and 28,900 undergraduate students. The research and total budgets, at $318 million and $1.15 billion respectively in 1991, are among the nation's largest and the first among public universities.

The University promotes cross-campus **multidisciplinary interaction and collaboration.** Formal programs include Reproduction, Endocrinology, Cell and Molecular Biology, Developmental Biology and Neurosciences. Primate Center Staff are active in all these programs.

THE WISCONSIN REGIONAL PRIMATE RESEARCH CENTER

The Center is based in the Graduate School and has strong research and teaching links in the schools or Colleges of Medicine, Letters and Science, Agriculture and Life Science, and Veterinary Medicine. It is one of the seven federally supported (NIH-NCRR) Primate Centers in the USA and the only one in the Midwest. The NIH base grant supports **specialist personnel, laboratory, animal and infrastructure resources** in Primate Biology. The 110+ core and affiliate doctoral-level scientists (Ph.D., M.D., D.V.M.) at the Center support their research by attracting competitive grants.

OBJECTIVES

Our **mission** is **fundamental research in primate biology with relevance to human and animal health.** Research is pursued at molecular, cellular, systemic, whole animal and environmental levels, including projects in conservation biology. The Center is self sufficient in breeding colonies of primates and does not import from the wild. Animal research is regulated by University committees and by national agencies. The Center is fully accredited by the American Association for the Accreditation of Laboratory Animal Care (AAALAC).

Our objectives are:

1. **Basic Science:** To advance **fundamental knowledge** in primate biology.
2. **Biomedicine:** To develop new, strategic approaches to questions in **human health.**
3. **Conservation:** To improve the breeding, health and management of primates **in captivity and in the wild.**
4. **Education:** To pursue an active **teaching and training program** at undergraduate, graduate and postdoctoral levels, as well as an outreach program to school teachers, students and other interested groups.
5. **Collaboration:** To serve as a **Regional research, development and information center** in the Midwest USA , as well as nationally and internationally. To make available research expertise, materials, reagents, laboratory and our first-class library facilities in serving core and affiliate scientists, visiting professors, researchers and students.

RESEARCH PROGRAMS

There are six interacting Research Groups. The principal disciplines and areas of research are:

1. **Reproduction and Development:** Regulation of fertility, embryonic differentiation, reproductive health.
2. **Neurobiology:** Developmental neurobiology, neuroendocrinology, visual development.
3. **Physiological Ethology:** Reproductive neuroendocrinology, sexual differentiation, conservation biology.
4. **Psychobiology:** Immunobiology, developmental behavior, environmental influences.
5. **Aging and Metabolic Disease:** Biomonitors, caloric restriction, neurodegeneration, ophthalmology, genetics, pathobiology.
6. **Immunology and Virology:** Viral persistence, immunotherapy, transmission and pathogenesis.

WISCONSIN REGIONAL PRIMATE RESEARCH CENTER

University of Wisconsin / 1223 Capitol Court / Madison, Wisconsin 53715-1299

FAX (608) 263-4031

John P. Hearn
Professor and Director
(608)263-3500

THE UNIVERSITY OF WISCONSIN-MADISON

The University is a leading institution for **scholarship, research and teaching.** There are 2,300 faculty, 4,350 academic staff, 6,900 classified staff, 10,150 graduate and professional students and 28,900 undergraduate students. The research and total budgets, at $318 million and $1.15 billion respectively in 1991, are among the nation's largest and the first among public universities.

The University promotes cross-campus **multidisciplinary interaction and collaboration**. Formal programs include Reproduction, Endocrinology, Cell and Molecular Biology, Developmental Biology and Neurosciences. Primate Center staff members are active in all these programs.

THE WISCONSIN REGIONAL PRIMATE RESEARCH CENTER

The Center is based in the Graduate School and has strong research and teaching links with the Schools of Medicine and Veterinary Medicine and with the Colleges of Letters and Science and Agriculture and Life Science. It is one of the seven federally-supported (NIH-NCRR) Primate Centers in the USA and the only one in the Midwest. The NIH base grant supports **specialist personnel, laboratory, animal and infrastructure resources** in Primate Biology. The more than 100 doctoral-level scientists (Ph.D., M.D., D.V.M.) at the Center support their research by winning competitive grants.

OBJECTIVES

Our **mission** is **fundamental research in primate biology with relevance to human and animal health**. Research is pursued at molecular, cellular, systemic, whole animal and environmental levels, including projects in conservation biology. The Center is self-sufficient in breeding primates and does not import animals from the wild. Research projects are reviewed intramurally and extramurally to insure conformity with the regulations and guidelines for conducting research with animals. The Graduate School, including the Primate Center, is fully accredited by the American Association for the Accreditation of Laboratory Animal Care (AAALAC).

Our objectives are:

1. **Basic Science:** To advance **fundamental knowledge** in primate biology.
2. **Biomedicine:** To develop new, strategic approaches to questions in **human health**.
3. **Conservation:** To improve the breeding, health and management of primates **in captivity and in the wild**.
4. **Education:** To pursue an active **teaching and training program** at undergraduate, graduate and postdoctoral levels, as well as an outreach program to school teachers, students and other interested groups.
5. **Collaboration:** To serve as a **regional research, development and information center** in the Midwest USA, as well as nationally and internationally. To make available research expertise, materials, reagents, laboratory and our first-class library facilities in serving core and affiliate scientists, visiting professors, researchers and students.

RESEARCH PROGRAMS

There are six interacting research groups. The principal disciplines and areas of research are:

1. **Reproduction and Development:** Fertility regulation; embryonic differentiation; reproductive health.
2. **Neurobiology:** Developmental neurobiology; neuroendocrinology; visual development.
3. **Physiological Ethology:** Reproductive neuroendocrinology; sexual differentiation; conservation biology.
4. **Psychobiology:** Immunobiology; behavioral development; environmental influences.
5. **Aging and Metabolic Disease:** Biomarkers of aging; effects of caloric restriction; obesity; diabetes mellitus; neurodegeneration; ophthalmology; genetics; pathobiology.
6. **Immunology and Virology:** Viral persistence; immunotherapy; transmission and pathogenesis.

Primate Center, WI Regional

1•8•4•8

NEWS TIPS

UNIVERSITY OF WISCONSIN–MADISON

Office of News & Public Affairs
28 Bascom Hall • 500 Lincoln Drive
Madison, Wisconsin 53706–1380

Phone: 608/262–3571
Fax: 608/262–2331

April 19, 1995

TO: **Editors/News directors**
FROM: **Terry Devitt, (608) 262-8282**
RE: **UW-Madison Animal Research Information and Contacts**

Enclosed is a copy of the University of Wisconsin-Madison's policy statement regarding the use of animals in the laboratory and classroom. In addition, we are providing a fact sheet outlining the scope of animal-based research and teaching at UW-Madison. The fact sheet and policy statement are intended to provide media and other interested people with current information on animal-based research here. The fact sheet includes information on research animal policy, regulation and care.

This year, as in other years, there are animal rights-related events on campus and in other parts of the country. If you are planning coverage of these events, there are relevant UW-Madison contacts who can address issues of animal research, care and policy. The main contacts are listed below. If you have other needs or concerns, feel free to contact me. Over the coming weekend, faculty and administrative contacts can be reached through me. I can be reached at (608) 235-0448. Please share this information with weekend assignment editors and reporters.

UW-Madison Animal Research Contacts

Janet Greger
Associate Dean, Graduate School
(608) 262-1044

John Hearn
Director, Wisconsin Regional Primate Research Center
(608) 263-3500

Richard Lane
Coordinator of Regulatory Affairs,
Research Animal Resources Center
(608) 262-0400

UNIVERSITY OF WISCONSIN MADISON

POLICY STATEMENT ON THE USE OF ANIMALS IN RESEARCH AND TEACHING AT THE UNIVERSITY OF WISCONSIN-MADISON

For more than a century, the University of Wisconsin-Madison has carried out meaningful scientific studies that have involved the use of animals and which have contributed measurably to our understanding and solving of human and animal problems. In this work, the University and its researchers have demonstrated a deep-rooted commitment to the ethical treatment of animals.

The University recognizes the continuing need for the humane use of animals in research and teaching. Accordingly, the University is committed to maintaining good laboratory practices in the care of animals before, during, and after procedures. The University of Wisconsin-Madison adheres to stringent federal statutes and regulations regarding the care and use of laboratory animals. Furthermore, the University maintains mandatory training and certification processes for all individuals using animals, has oversight by in-house animal care committees, and supports a staff of veterinarians and animal care technicians to insure healthful and humane care of research animals.

###

Approved by all campus animal care and use committee, March 30, 1992

Office of News & Public Affairs

28 Bascom Hall University of Wisconsin–Madison 500 Lincoln Drive Madison, Wisconsin 53706–1380
608/262–3571 FAX: 608/262–2331

UNIVERSITY OF WISCONSIN MADISON

ANIMAL-BASED RESEARCH AT THE UNIVERSITY OF WISCONSIN-MADISON

Like all other major research universities, the University of Wisconsin-Madison has extensive programs of research in nearly all branches of science. In the agricultural, medical, behavioral and biological sciences, research inquiries often call for the use of animals as models because no effective alternatives exist.

The benefits of such research are legion. They include such things as new drugs and treatments for human and animal diseases, more food and fiber produced by American farmers, better and more productive lives for the mentally ill and emotionally disabled. At UW-Madison, such research has led to many important discoveries: New organ preservation and transplant techniques; Warfarin, one of the world's most effective rodenticides and life-prolonging blood anticoagulants are all important Wisconsin discoveries that depended on the use of animals in research. Animal models for chronic and life-threatening diseases, such as cystic fibrosis, atherosclerosis, a variety of cancers and AIDS are helping scientists to devise more sensitive and accurate diagnostic tools and to develop better treatments.

Scope

The scope of animal-based research at UW-Madison is extensive, but the number of animals used has declined significantly in recent years. Since 1991, the number of animals used in research and teaching at UW-Madison has declined by 15 percent. In November 1994 (the most recent reporting date), UW-Madison reported to the U.S. Department of Agriculture (USDA) the use of 159,783 animals for research and teaching in the previous year. Eighty-one percent of these animals were rats and mice; 6 percent were chickens and other birds; 2 percent were farm animals and 7 percent were guinea pigs, hamsters, gerbils, rabbits and wild rodents. Altogether more than 40 species of mammals, reptiles, birds and amphibians were studied.

In 1993-94 the National Institute of Health (NIH) funded more than $115 million in research at UW-Madison, a significant; portion of which was dependent on animal use. Other government agencies (including the National Science Foundation, the USDA and the Food and Drug Administration) and a variety of industries funded additional research that was dependent on animals. This work provided training for undergraduate and graduate students and provided employment for a large number of Wisconsin residents, either directly or indirectly.

-more-

Office of News & Public Affairs

28 Bascom Hall University of Wisconsin–Madison 500 Lincoln Drive Madison, Wisconsin 53706–1380
608/262–3571 FAX: 608/262–2331

Research Animal Regulation, Policy and Administration

UW-Madison is governed by and strictly adheres to stringent federal statutes and regulations regarding the care and use of laboratory animals for both teaching and research. At the federal level, both NIH (through the Public Health Service) and the USDA oversee the policies and statutes governing the care and use of laboratory animals and the university is subject to unannounced spot checks by inspectors from those agencies. The university must also submit an annual assurance statement to the U.S. Public Health Service and an annual report to USDA. The university must abide by USDA standards published in the "Federal Register" which are continually being updated, and the Public Health Service policy set forth in the NIH "Guide for the Care and Use of Laboratory Animals."

Responsibility for adherence to federal statutes and guidelines as well as university policies lies with the Research Animal Resources Center, an all-campus Animal Care Committee and the animal care and use committees established by the various schools and colleges.

Prior to any procedure involving animals, UW-Madison researchers are required to submit, in writing, a description of all research protocols for review by the animal care and use committee of the appropriate school or college. All proposed protocols must be approved before the research can take place.

Animal Care

Care of animals used in research is provided by a dedicated and well-trained staff of veterinarians and animal care technicians. At present, eight veterinarians affiliated with the Research Animal Resources Center are responsible for overseeing the responsible care and use of laboratory animals. In addition, all members of the UW-Madison faculty or staff engaged in research employing animal models must be certified by the university through the successful completion of an exam on the responsible use and care of animals. Currently 3,258 faculty, staff and students are certified to handle animals. Full time animal caretakers are also strongly encouraged to complete a 16-week course on animal care.

Revised April 1995

April 1993

WISCONSIN REGIONAL PRIMATE RESEARCH CENTER

University of Wisconsin / 1223 Capitol Court / Madison, Wisconsin 53715-1299

FAX (608) 263-4031

John P. Hearn
Professor and Director
(608)263-3500

THE UNIVERSITY OF WISCONSIN-MADISON

The University is a leading institution for **scholarship, research and teaching.** There are 2,300 faculty, 4,350 academic staff, 6,900 classified staff, 10,150 graduate and professional students and 28,900 undergraduate students. The research and total budgets, at $318 million and $1.15 billion respectively in 1991, are among the nation's largest and the first among public universities.

The University promotes cross-campus **multidisciplinary interaction and collaboration**. Formal programs include Reproduction, Endocrinology, Cell and Molecular Biology, Developmental Biology and Neurosciences. Primate Center staff are active in all these programs.

THE WISCONSIN REGIONAL PRIMATE RESEARCH CENTER

The Center is based in the Graduate School and has strong research and teaching links in the Schools or Colleges of Medicine, Letters and Science, Agriculture and Life Science, and Veterinary Medicine. It is one of the seven federally supported (NIH-NCRR) Primate Centers in the USA and the only one in the Midwest. The NIH base grant supports **specialist personnel, laboratory, animal and infrastructure resources** in Primate Biology. The 110+ core and affiliate doctoral-level scientists (Ph.D., M.D., D.V.M.) at the Center support their research by attracting competitive grants.

OBJECTIVES

Our **mission** is **fundamental research in primate biology with relevance to human and animal health**. Research is pursued at molecular, cellular, systemic, whole animal and environmental levels, including projects in conservation biology. The Center is self sufficient in breeding colonies of primates and does not import from the wild. Animal research is regulated by University committees and national agencies. The Center is fully accredited by the American Association for the Accreditation of Laboratory Animal Care (AAALAC).

Our objectives are:

1. **Basic Science:** To advance **fundamental knowledge** in primate biology.
2. **Biomedicine:** To develop new, strategic approaches to questions in **human health.**
3. **Conservation:** To improve the breeding, health and management of primates **in captivity and in the wild.**
4. **Education:** To pursue an active **teaching and training program** at undergraduate, graduate and postdoctoral levels, as well as an outreach program to school teachers, students and other interested groups.
5. **Collaboration:** to serve as a **Regional research, development and information center** in the Midwest USA, as well as nationally and internationally. To make available research expertise, materials, reagents, laboratory and our first-class library facilities in serving core and affiliate scientists, visiting professors, researchers and students.

RESEARCH PROGRAMS

There are six interacting Research Groups. The principal disciplines and areas of research are:

1. **Reproduction and Development:** Regulation of fertility, embryonic differentiation, reproductive health.
2. **Neurobiology:** Developmental neurobiology, neuroendocrinology, visual development.
3. **Physiological Ethology:** Reproductive neuroendocrinology, sexual differentiation, conservation biology.
4. **Psychobiology:** Immunobiology, developmental behavior, environmental influences.
5. **Aging and Metabolic Disease:** Biomonitors, caloric restriction, neurodegeneration, ophthalmology, genetics, pathobiology.
6. **Immunology and Virology:** Viral persistence, immunotherapy, transmission and pathogenesis.

Primate Research Center, Wisconsin Regional

1 • 8 • 4 • 8

NEWS

UNIVERSITY OF WISCONSIN–MADISON

News & Information Service
19 Bascom Hall • 500 Lincoln Drive
Madison, Wisconsin 53706–1380

Phone: 608/262–3571
Fax: 608/262–2331

FOR IMMEDIATE RELEASE 5/19/94

CONTACT: Joseph W. Kemnitz (608) 263-3588

STUDY: CUTTING CALORIES LETS MONKEYS LIVE BETTER LONGER

MADISON — A study of rhesus monkeys on an enforced diet is providing new evidence that the symptoms of aging can be held at bay.

In a study published in the current issue of the *Journal of the American Physiological Society* (April, 1994), scientists from the University of Wisconsin-Madison report that a reduced diet increases insulin sensitivity and lowers blood glucose in rhesus monkeys.

Insulin sensitivity and glucose tolerance, key factors in the development of adult-onset diabetes mellitus, typically decline during later life, according to Joseph W. Kemnitz, a primatologist at the Wisconsin Regional Primate Research Center on the UW-Madison campus and the lead author of the study.

"There is abundant evidence linking reduced insulin sensitivity and elevated levels of insulin in the blood with the development of diabetes, hypertension and cardiovascular disease," said Kemnitz. "And what we are finding indicates that if you lower food intake and reduce your body fat level, insulin sensitivity will improve, making the development of various age-related diseases less likely."

The monkeys in the Wisconsin study, now in its fifth year, are fed a nutritious diet, but receive 30 percent fewer calories than a control group of monkeys with free access to food. Both groups engage in the same level of physical activity, but the animals on a

-more-

reduced diet have about 40 percent less body fat than those with free access to food.

Insulin is produced by the pancreas and helps the body use sugar and other fuels. As we age, our bodies tend to utilize insulin less efficiently, prompting the pancreas to secrete more and more of the protein hormone. This process is aggravated by increasing body fat levels, a common phenomenon of middle age.

According to Kemnitz, some of the monkeys in the group with free access to food are well on their way to becoming diabetic.

"Some of these monkeys, like humans, have a genetic predisposition to obesity and diabetes," Kemnitz said. "Dietary restriction seems to protect against this by reducing body fat levels and promoting insulin sensitivity."

Some scientists believe the ability of the pancreas to produce insulin is finite. When that ability is used up, it leads to diabetes.

The exact mechanism that leads to the decline in the ability of the pancreas to produce insulin is unclear. It seems, said Kemnitz, as if the pancreas is becoming exhausted, perhaps because modern human diets are too rich in calories.

The findings in the new study are consistent with earlier studies of rodents that showed that disease can be retarded and life prolonged by reducing food consumption.

The Wisconsin study, funded by the National Institutes of Health, measured the response of 15 middle-aged male rhesus monkeys to a gradual 30 percent reduction in diet.

To try and discern age-related change, the Wisconsin researchers looked at a variety of factors that change in later life, including body composition, metabolic rate, vision, physical activity and immune function, as well as glucose tolerance. The same parameters were measured in another group of 15 male rhesus monkeys allowed to eat freely.

The take-home message, Kemnitz said, is that diets with consistently fewer calories, but that still provide adequate levels of essential nutrients may slow the rate of aging. "Dietary restriction appears to affect the basic process of aging and it could result in a longer life span and improved quality of later life."

###

— Terry Devitt, (608) 262-8282

Date: Thu, 4 Sep 1997 12:32:38 -0500
Mime-Version: 1.0
X-url: http://www.wisc.edu/news/
To: UW-news@facstaff.wisc.edu
From: Nick Weaver <jnweaver@facstaff.wisc.edu>
Subject: UW-Madison News Release--policy statement
Status: RO

POLICY STATEMENT ON THE USE OF ANIMALS IN RESEARCH AND TEACHING AT THE UNIVERSITY OF WISCONSIN-MADISON

For more than a century, the University of Wisconsin-Madison has carried out meaningful scientific studies that have involved the use of animals and which have contributed measurably to our understanding and solving of human and animal problems. In this work, the University and its researchers have demonstrated a deep-rooted commitment to the ethical treatment of animals.

The University recognizes the continuing need for the humane use of animals in research and teaching. Accordingly, the University is committed to maintaining good laboratory practices in the care of animals before, during, and after procedures. The University of Wisconsin-Madison adheres to stringent federal statutes and regulations regarding the care and use of laboratory animals. Furthermore, the University maintains mandatory training and certification processes for all individuals using animals, has oversight by in-house animal care committees, and supports a staff of veterinarians and animal care technicians to insure healthful and humane care of research animals.
###

Approved by all campus animal care and use committee, March 30, 1992

****
For questions or comments about UW-Madison's email news release system, please send an email to:
UW-news@facstaff.wisc.edu

For more UW-Madison news, please visit the Office of News and Public Affairs Web site:
http://www.wisc.edu/news/

Office of News and Public Affairs
University of Wisconsin-Madison
28 Bascom Hall
500 Lincoln Drive
Madison, WI 53706

Email: UW-news@facstaff.wisc.edu
Phone: (608) 262-3571
Fax: (608) 262-2331

Date: Thu, 4 Sep 1997 12:32:12 -0500
Mime-Version: 1.0
X-url: http://www.wisc.edu/news/
To: UW-news@facstaff.wisc.edu
From: Nick Weaver <jnweaver@facstaff.wisc.edu>
Subject: UW-Madison News Release--TIP/animal research information and contacts
Status: RO

Sept. 4, 1997

TO: Editors, news directors
FROM: Brian Mattmiller, (608) 262-9772
RE: UW-Madison animal research information and contacts

Accompanying this memo is a copy of UW-Madison's policy statement regarding the use of animals in the laboratory and classroom. Also included is a fact sheet that describes the importance of animal-based studies on campus and regulations on research animal policy, regulation and care. A third piece highlights some current research at the Wisconsin Regional Primate Research Center.

An Oregon-based activist has planned a protest of primate research on campus Sept. 6 - 14, as part of a campaign directed at the nation's seven federally sponsored primate centers. If you are planning coverage of the event, the enclosed background may be useful. The two university officials listed below can answer questions throughout the protest. Please share this information with weekend assignment editors and reporters.

The university has also developed a web site that will provide continually updated information for media and the public. The address is:
http://www.wisc.edu/news/primate/

UW-Madison Animal Research Contacts:

Timothy Mulcahy, (608) 262-1044
Associate Dean, Graduate School

Christine Parks, (608) 265-2697
Director, Research Animal Resources Center

****
For questions or comments about UW-Madison's email news release system, please send an email to:
UW-news@facstaff.wisc.edu

For more UW-Madison news, please visit the Office of News and Public Affairs Web site:
http://www.wisc.edu/news/

Office of News and Public Affairs
University of Wisconsin-Madison
28 Bascom Hall
500 Lincoln Drive
Madison, WI 53706

Email: UW-news@facstaff.wisc.edu
Phone: (608) 262-3571

Date: Thu, 4 Sep 1997 12:32:44 -0500
Mime-Version: 1.0
X-url: http://www.wisc.edu/news/
To: UW-news@facstaff.wisc.edu
From: Nick Weaver <jnweaver@facstaff.wisc.edu>
Subject: UW-Madison News Release--Animal-based research
Status: RO

ANIMAL-BASED RESEARCH AT UW-MADISON

Like all major research universities, the University of Wisconsin-Madison has extensive programs of research in nearly all branches of science. In the agricultural, medical, behavioral and biological sciences, research inquiries often call for the use of animals as models because no effective alternatives exist.

Without animal research, many of the country's biggest medical breakthroughs would not have been possible. Those include a vaccine for polio, insulin treatments for diabetics, medication for high blood pressure, kidney dialysis, and chemotherapy treatments for cancer and leukemia. Animal research is required to test new medical treatments and surgical techniques for efficacy and to test new drugs for safety.

At UW-Madison, such research has led to many important discoveries: New organ preservation and transplant techniques; potential new treatments for Multiple Sclerosis; and the development of life-prolonging blood anticoagulants. All of these important Wisconsin projects depended on the use of animals in research. Animal models for chronic and life-threatening diseases, such as cystic fibrosis, atherosclerosis, a variety of cancers and AIDS are helping scientists to devise more sensitive and accurate diagnostic tools and to develop better treatments.

Primate Research at UW-Madison

The Wisconsin Regional Primate Research Center, supported by the National Institutes of Health (NIH), is one of seven federally sponsored primate centers in the United States. The center is part of the UW-Madison Graduate School and has strong research and teaching links across campus, including medicine, letters and science, agriculture and veterinary medicine disciplines. The center's mission is to advance fundamental knowledge in primate biology to address major health concerns. Those include new therapies or cures for AIDS, infertility, pregnancy complications, obesity, endometriosis, and environmental influences on people and animals.

The Harlow Center for Biological Psychology supports primate research by faculty from several departments, including psychology, psychiatry and kinesiology, who share a common interest in infant and child development. The center works to better understand the prenatal and postnatal factors that promote normal behavioral development and health. Current studies include investigations of how the pregnant female's psychobiological state affects fetal development; and the influence of rearing conditions on the development of an infant's immune system.

Scope

In November 1996 (the most recent reporting date), UW-Madison reported to the U.S. Department of Agriculture (USDA) the use of 182,359 animals for research and teaching in the previous year. Seventy-nine percent of these animals were rats and mice; 7.5 percent were chickens and other birds; 2

percent were farm animals and 4 percent were guinea pigs, hamsters, gerbils and rabbits. Less than 1.3 percent of all animals studied were primates, and less than half of 1 percent were cats and dogs. Altogether more than 40 species of mammals, reptiles, birds and amphibians were involved in studies.

In 1996, UW-Madison received roughly $134 million in research funding from the Department of Health and Human Services, a significant portion of which was dependent on animal use. Other government agencies (including the National Science Foundation, the USDA and the Food and Drug Administration) and a variety of industries funded additional research that was dependent on animals. This work provided training for undergraduate and graduate students and provided employment for a large number of Wisconsin residents, either directly or indirectly.

Research Animal Regulation, Policy and Administration

UW-Madison is governed by and strictly adheres to stringent federal statutes and regulations regarding the care and use of laboratory animals for both teaching and research. At the federal level, both NIH (through the Public Health Service) and the USDA oversee the policies and statutes governing the care and use of laboratory animals and the university is subject to unannounced spot checks by inspectors from those agencies. The university must also submit an annual assurance statement to the U.S. Public Health Service and an annual report to USDA. The university must abide by USDA standards published in the "Federal Register" which are continually being updated, and the Public Health Service policy set forth in the NIH "Guide for the Care and Use of Laboratory Animals."

Responsibility for adherence to federal statutes and guidelines as well as university policies lies with the Research Animal Resources Center, an all-campus Animal Care Committee and the animal care and use committees established by the various schools and colleges.

Prior to any procedure involving animals, UW-Madison researchers are required to submit, in writing, a description of all research protocols for review by the animal care and use committee of the appropriate school or college. All proposed protocols must be approved before the research can take place.

Animal Care

Care of animals used in research is provided by a dedicated and well-trained staff of veterinarians and animal care technicians. At present, 10 veterinarians affiliated with the Research Animal Resources Center are responsible for overseeing the responsible care and use of laboratory animals. In addition, all members of the UW-Madison faculty or staff engaged in research employing animal models must be certified by the university through the successful completion of an exam on the responsible use and care of animals. Currently 3,417 faculty, staff and students are certified to handle animals. Full time animal caretakers are also strongly encouraged to complete a 16-week course on animal care.

###

Revised September 1997

****

For questions or comments about UW-Madison's email news release system, please send an email to:
UW-news@facstaff.wisc.edu

WRPRC

Date: Thu, 4 Sep 1997 12:32:41 -0500
Mime-Version: 1.0
X-url: http://www.wisc.edu/news/
To: UW-news@facstaff.wisc.edu
From: Nick Weaver <jnweaver@facstaff.wisc.edu>
Subject: UW-Madison News Release--WRPRC '97 research highlights
Status: RO

Wisconsin Regional Primate Research Center
1997 Research Highlights

More than 150 scientists are engaged in research at the University of Wisconsin-Madison's Regional Primate Research Center, one of seven federally sponsored primate centers in the country. Research covers the spectrum of the biomedical sciences, and many projects are of significant importance and relevance to human health. The following are a few examples of current research at the Center:

Aging, Diabetes and Obesity

By studying rhesus monkeys, UW Primate Center scientists have started to unlock some of the secrets of old age and the diseases associated with aging. Rhesus monkeys are genetically similar to humans and they contract many of the same diseases people get, making them an important model for research into the effects of aging, and such studies are assuming increasing importance as the elderly population of the nation will grow dramatically in the next 30 years. Scientists here, for example, are finding that a reduced but nutritious diet may retard disease, slow aging, and increase longevity in these monkeys, as it does in mice.
Results to date show that such diets can prevent elevated blood insulin. Elevated blood insulin can lead to diabetes, hypertension and cardiovascular disease. In related research, Center scientists are also regulating blood sugar levels in aged monkeys to better understand why some older people become obese and develop diabetes. Diabetes research will likely remain a priority with the advent of a major government campaign, announced by President Clinton in August, to fight diabetes with an intensified research effort.

AIDS

Center researchers are learning more about how the monkey counterpart of HIV, called SIV, or simian immunodeficiency virus, infects hosts and moves around in the body. Before a cure or effective preventative measures can be found, scientists must first reveal more specifics on the pathogenesis of AIDS, or how the virus operates. Primate Center researchers are using information from recent pathogenesis studies to test novel therapies for simian AIDS, which is very similar to human AIDS. Some therapies proving effective in early treatment trials with rhesus monkeys include a vaccine consisting of a protein from the bacteria pertussis toxin, and positron emission tomography (PET) scanning to learn more about how SIV moves in the body and how it might be stopped. Some UW researchers have recently developed and are testing drugs that may prevent cancer and opportunistic infections in AIDS patients. Others are involved with clinical AIDS drug therapy trials at University Hospital and Clinics.

Women's Health and Reproductive Health

Infertility, recurrent miscarriages and Endometriosis are just a few of the

women's health and reproductive health issues that researchers are addressing at
UW-Madison. Demand is increasing for in-vitro fertilization clinics worldwide, but the success rate for this type of artificial insemination remains less than 25 percent. Primate Center researchers have recently proven that assisted rhesus monkey fertilization resembles the events that occur during either successful or failed assisted fertilization in humans. Now, scientists will be able to use primates to further investigate successful methods for in-vitro fertilization, offering new hope for infertile humans.

In another project here, studies in rhesus monkeys are helping shed light on the molecular mechanisms of maternal-fetal immune tolerance and may help researchers determine the causes of recurrent miscarriages and other complications of pregnancy. Center scientists are also learning more about endometriosis, a painful, chronic disease shared by rhesus monkeys and humans alike, and one which displays similar genetic risk factors in both species.

Endangered and Rare Species Conservation

The Wisconsin Regional Primate Research Center is collaborating with scientists in South America, Africa, and Asia to learn more about rare and endangered primate species and find new ways to protect them and promote their breeding in captivity and in the wild. This work is critical as habitats and populations continue to shrink for many species. (The discovery of the world's second smallest known primate was just confirmed last month in Amazonia.) UW Primate Center researchers are active in conservation and fertility studies in Brazil, Columbia, Kenya and China. Some of the endangered species collaborating field researchers are studying are the muriqui monkey, cotton-top tamarin and blue monkey. Center scientists in 1996 also perfected a noninvasive, assisted fertilization technique in common marmosets. This is the smallest primate to date in which the technique, called an embryo flush, has been successful. The method shows promise as a non-surgical technique for use in conservation efforts for other species.
###

****
For questions or comments about UW-Madison's email news release system, please send an email to:
UW-news@facstaff.wisc.edu

For more UW-Madison news, please visit the Office of News and Public Affairs Web site:
http://www.wisc.edu/news/

Office of News and Public Affairs
University of Wisconsin-Madison
28 Bascom Hall
500 Lincoln Drive
Madison, WI 53706

Email: UW-news@facstaff.wisc.edu
Phone: (608) 262-3571
Fax: (608) 262-2331

WRPC

>Return-Path: jnweaver@facstaff.wisc.edu
>Date: Wed, 27 Aug 1997 08:59:54 -0500
>X-url: http://www.wisc.edu/news/
>To: UW-news@facstaff.wisc.edu
>From: Nick Weaver <jnweaver@facstaff.wisc.edu>
>Subject: UW-Madison News Release--Primate Center Statement
>
>REVIEW OF PRIMATE CENTER POLICIES AND PROCEDURES
>
>STATEMENT BY GRADUATE SCHOOL DEAN VIRGINIA S. HINSHAW
>AUGUST 27, 1997
>
>On August 11, 1997, I stopped any further assignments of UW monkeys from
>the Henry Vilas Zoo colony to invasive research projects. Today, I am
>taking two additional steps to clarify and confirm that existing policies
>and procedures at the Wisconsin Regional Primate Center support the
>important research efforts of the Center.
>
>1. I will meet with the directors of the Primate Center and the Henry Vilas
>Park Zoo to ensure that there is a complete understanding of the existing
>policy and that the policy be accurately and effectively communicated to
>Primate Center personnel.
>
>2. I have appointed Dr. Christine Parks, the director of the campus
>Research Animal Resources Center (RARC), to review and evaluate several
>aspects of animal assignments at the Primate Center to ensure that
>appropriate processes are in place, particularly with regard to the Vilas
>colony. In this review, she will:
>
>(a) examine the animal assignment procedure to define any need for
>additional sign-offs, protocol reviews or controls in the current approval
>process;
>
>(b) review the prior assignment of any Vilas monkey to determine if there
>is any need to change that assignment;
>
>(c) provide a recommendation, in conjunction with the Graduate School
>Animal Care Committee, regarding the feasibility of reassigning monkeys
>currently involved in invasive protocols (of the 26 animals in this
>situation, 10 are now in the breeding program, but the other 16 need to be
>evaluated);
>
>(d) work with the campus animal care committees to investigate whether any
>other "local" agreements or unusual arrangements might exist which would
>require additional oversight.
>
>I have asked Dr. Parks to undertake this review because she has both the
>expertise and experience needed for this endeavor. In addition, she will
>seek advice from outside experts during the reivew. RARC, although not
>directly involved in animal assignments, is responsible for maintaining the
>high standards for animal care on the campus. Her participation also
>provides the opportunity to confirm that the Primate Center has appropriate
>practices and record-keeping in place to meet these high standards. A new
>director is currently being recruited and this individual will certainly
>need such confirmation in planning for the future.
>###
>
>
>**********
>For questions or comments about UW-Madison's email
>news release system, please send an email to:
>UW-news@facstaff.wisc.edu
>
>For more UW-Madison news, please visit the
>Office of News and Public Affairs Web site:
>http://www.wisc.edu/news/
>
>Office of News and Public Affairs

WRPRC

399O8 E000
BAUMGART, JESSICA K RM 0028
% CELLEY, RENEE
BASCOM HALL
500 LINCOLN DRIVE 0050

WisconsinWeek

For Faculty and Staff of the University of Wisconsin-Madison

November 19, 1997

NIH funding ends for Primate Center's Vilas zoo colony

Brian Mattmiller

The National Institutes of Health will end a long tradition of funding the Wisconsin Regional Primate Research Center's monkey colony at Henry Vilas Park Zoo, effective Feb. 1.

The decision will restrict the Primate Center from using funding from its $4.5 million base grant to maintain the Vilas Zoo colony. The facility costs approximately $100,000 a year to maintain, which includes personnel, food and supplies, and utility expenses.

The funding is no longer justified, according to an Oct. 30 letter from NIH, because of an insufficient level of funded research being done at the facility. The letter notes that there has been little outside grant support in recent years for behavioral research on the monkeys.

In addition, monkeys from Vilas are prohibited by a local agreement from being used in biomedical studies on campus, which constitutes the majority of the Primate Center's work.

"This decision puts us in a very difficult position," said Virginia Hinshaw, dean of the UW-Madison Graduate School. "The change in funding means that we have to work rapidly to find options for the colony.

"The NIH's primary role is to fund research to solve human health problems, so it is understandable the agency would feel the colony is no longer its responsibility," Hinshaw added. "Its support does not extend to funding zoo exhibits."

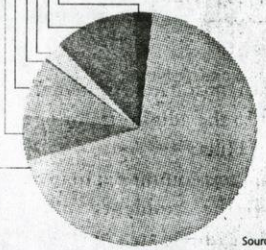
In August, Hinshaw informed NIH officials about a breach of an agreement between directors of the Primate Center and the Vilas Zoo. The agreement, written in 1989, stated that no monkeys from the Vilas colony would be used in invasive research studies at the Primate Center.

In response to news about the agreement and the fact that support for behavioral research had declined, NIH decided to reevaluate its support of the colony. The colony currently houses about 100 rhesus macaques and 50 stump-tailed monkeys.

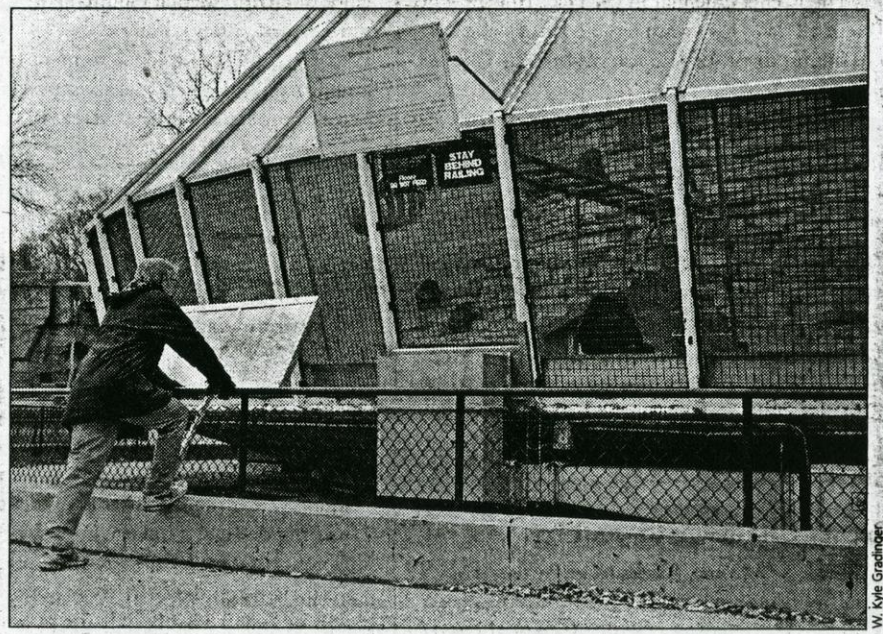
Options include transferring ownership of the facility and ani-

continued on page five

PURPOSE	% OF BASE GRANT
Salaries	68.9%
Equipment	6.5%
Supplies	8.1%
Travel	0.3%
Renovations	2.5%
Other	11.2%
Zoo	**2.4%**



Source: Primate Center



W. Kyle Gradinger

UW-Madison's Primate Center stands to lose funding from the National Institutes of Health to maintain the monkey colony in Henry Vilas Zoo (shown above). About 2 percent of NIH's $4.5 million base grant for the center is used to maintain the colony (*see chart*).

Primate Center

continued from page one

mals to the zoo, if a private funding source can be found to support the colony. Such funding is not available in the zoo's current budget provided by Dane County. Hinshaw said that private foundations and individual donors will be approached about offering financial help.

On Nov. 11, Primate Center Director Joe Kemnitz met with David Hall, director of the zoo, to inform him of the funding change and discuss ways to maintain the colony at Vilas.

Another option is to relocate the animals to another facility. The animals could, for example, serve as a breeding colony for another research center, or be sheltered at a privately run sanctuary, Hinshaw said.

Also being considered is a combination of the two options – for example, reducing the size of the colony, but still transferring responsibility to the zoo. This option could significantly reduce the overall costs of running the facility, Kemnitz said.

Under any option, Hinshaw said the university intends to follow the 1989 agreement that prohibits their use in invasive research.

The satellite primate house, created in 1963, is a very unusual resource for a regional primate center, Kemnitz said. It was meant to provide a useful facility for the Vilas Zoo and a way for the public to enjoy the animals, while also serving as a breeding colony and a place for observational studies.

In the 1980s, former UW-Madison researcher Frans de Waal did highly acclaimed studies of reconciliation and other social behaviors among the Vilas monkeys. Those studies were partially supported by the National Science Foundation.

In recent years, Kemnitz said there has a shift in NIH priorities toward solving pressing public health problems, such as AIDS. At the same time, support for behavioral studies of primates has declined.

Safeguards added to Primate Center animal assignments

Brian Mattmiller

A review of the Wisconsin Regional Primate Research Center outlines seven new ways to safeguard assignments of monkeys originating from the center's colony at Henry Vilas Park Zoo.

Christine Parks, director of UW-Madison's Research Animal Resources Center, conducted the review of colony practices at the request of Graduate School Dean Virginia Hinshaw.

The review was triggered by news reports and an internal inventory in August, which found the center had breached a 1989 agreement with Vilas Zoo prohibiting the use of zoo-origin monkeys in invasive experiments. The inventory found that 65 monkeys had been used in invasive, biomedical research since 1989.

"I think these new steps will help assure that no animal covered by the 1989 agreement is inappropriately assigned in the future," Parks said.

Vilas colony monkeys are still used in research conducted at the center. The new steps are meant to guarantee they are used only in non-invasive projects.

The new procedures have been endorsed by the Graduate School Animal Care Committee. Larger changes include:

- Having investigators sign a statement showing that they are aware of the agreement, and pledge to follow it, before any animal assignments are made. The statement will spell out that action will be taken if animals are used inappropriately.
- Requiring the Graduate School Animal Care Committee, which oversees re-search conducted at the Primate Center, to do a semi-annual review of all animals that are covered under the 1989 agreement.
- Creating a special label or tag to place on cages of animals covered by the agreement, and also creating a special computer code in the records of those animals. The changes will call more attention to animals from Vilas.

New procedures have been developed to ensure that monkeys in the Vilas Zoo colony will not be assigned to invasive research projects. Among the changes is creating a special label and computer-code record that will designate animals from the Vilas colony.

The review also evaluated the status of 29 monkeys from Vilas that are currently assigned to invasive research projects. Of those, 12 monkeys have not yet had any invasive research performed, and will be reassigned to non-invasive projects.

Of the remaining monkeys, seven had already been part of invasive research, but will undergo no further invasive research and be reassigned after those projects.

Seven more animals at the Primate Center and three animals at the Medical School have had irreversible invasive research performed. Parks recommended those animals stay indefinitely in their studies, because they would not benefit from reassignment.

Vilas Zoo Director David Hall is supportive of these decisions.

Joseph Kemnitz, interim director of the Primate Center, said the review by Parks was done with full cooperation of center staff. "Everyone involved will benefit from an unambiguous understanding of the agreement and its implications," he said.

Parks is also working on a clearer definition of "invasive" for Primate Center research projects, noting that there is a gray area with some procedures. She will share her first draft of the definition with a panel of outside experts before recommending it to the Graduate School.

WRPRC

FOR IMMEDIATE RELEASE 11/19/97

CONTACT: Joseph Kemnitz, (608) 263-3588; Christine Parks, (608) 265-2697

SAFEGUARDS ADDED TO PRIMATE CENTER ANIMAL ASSIGNMENTS

MADISON — A review of the Wisconsin Regional Primate Research Center outlines seven new ways to safeguard assignments of monkeys originating from the center's colony at Henry Vilas Park Zoo.

Christine Parks, director of UW-Madison's Research Animal Resources Center, conducted the review of colony practices at the request of Graduate School Dean Virginia Hinshaw.

The review was triggered by news reports and an internal inventory in August, which found the center had breached a 1989 agreement with Vilas Zoo prohibiting the use of zoo-origin monkeys in invasive experiments. The inventory found that 65 monkeys had been used in invasive, biomedical research since 1989.

"I think these new steps will help assure that no animal covered by the 1989 agreement is inappropriately assigned in the future," Parks said.

Vilas colony monkeys are still used in research conducted at the center. The new steps are meant to guarantee they are used only in non-invasive projects.

The new procedures have been endorsed by the Graduate School Animal Care Committee. Larger changes include:

• Having investigators sign a statement showing that they are aware of the agreement, and pledge to follow it, before any animal assignments are made. The statement will spell out that action will be taken if animals are used inappropriately.

• Requiring the Graduate School Animal Care Committee, which oversees research conducted at the Primate Center, to do a semi-annual review of all animals that are covered under the 1989 agreement.

• Creating a special label or tag to place on cages of animals covered by the agreement, and also creating a special computer code in the records of those animals. The changes will call

-more-

more attention to animals from Vilas.

The review also evaluated the status of 29 monkeys from Vilas that are currently assigned to invasive research projects. Of those, 12 monkeys have not yet had any invasive research performed, and will be reassigned to non-invasive projects.

Of the remaining monkeys, seven had already been part of invasive research, but will undergo no further invasive research and be reassigned after those projects.

Seven more animals at the Primate Center and three animals at the Medical School have had irreversible invasive research performed. Parks recommended those animals stay indefinitely in their studies, because they would not benefit from reassignment.

Vilas Zoo Director David Hall is supportive of these decisions.

Joseph Kemnitz, interim director of the Primate Center, said the review by Parks was done with full cooperation of center staff. "Everyone involved will benefit from an unambiguous understanding of the agreement and its implications," he said.

Parks is also working on a clearer definition of "invasive" for Primate Center research projects, noting that there is a gray area with some procedures. She will share her first draft of the definition with a panel of outside experts before recommending it to the Graduate School.

###

— Brian Mattmiller, (608) 262-9772

WRPRC

FOR IMMEDIATE RELEASE 11/19/97

CONTACT: Joe Kemnitz, (608) 263-3588; Virginia Hinshaw, (608) 262-1044

NIH FUNDING ENDS FOR PRIMATE CENTER'S VILAS ZOO COLONY

MADISON – The National Institutes of Health will end a long tradition of funding the Wisconsin Regional Primate Research Center's monkey colony at Henry Vilas Park Zoo, effective Feb. 1.

The decision will restrict the Primate Center from using funding from its $4.5 million base grant to maintain the Vilas Zoo colony. The facility costs approximately $100,000 a year to maintain, which includes personnel, food and supplies, and utility expenses.

The funding is no longer justified, according to an Oct. 30 letter from NIH, because of an insufficient level of funded research being done at the facility. The letter notes that there has been little outside grant support in recent years for behavioral research on the monkeys.

In addition, monkeys from Vilas are prohibited by a local agreement from being used in biomedical studies on campus, which constitutes the majority of the Primate Center's work.

"This decision puts us in a very difficult position," said Virginia Hinshaw, dean of the UW-Madison Graduate School. "The change in funding means that we have to work rapidly to find options for the colony.

"The NIH's primary role is to fund research to solve human health problems, so it is understandable the agency would feel the colony is no longer its responsibility," Hinshaw added. "Its support does not extend to funding zoo exhibits."

-more-

In August, Hinshaw informed NIH officials about a breach of an agreement between directors of the Primate Center and the Vilas Zoo. The agreement, written in 1989, stated that no monkeys from the Vilas colony would be used in invasive research studies at the Primate Center.

In response to news about the agreement and the fact that support for behavioral research had declined, NIH decided to reevaluate its support of the colony. The colony currently houses about 100 rhesus macaques and 50 stump-tailed monkeys.

Options include transferring ownership of the facility and animals to the zoo, if a private funding source can be found to support the colony. Such funding is not available in the zoo's current budget provided by Dane County. Hinshaw said that private foundations and individual donors will be approached about offering financial help.

On Nov. 11, Primate Center Interim Director Joe Kemnitz met with David Hall, director of the zoo, to inform him of the funding change and discuss ways to maintain the colony at Vilas.

Another option is to relocate the animals to another facility. The animals could, for example, serve as a breeding colony for another research center, or be sheltered at a privately run sanctuary, Hinshaw said.

Also being considered is a combination of the two options – for example, reducing the size of the colony, but still transferring responsibility to the zoo. This option could significantly reduce the overall costs of running the facility, Kemnitz said.

Under any option, Hinshaw said the university intends to follow the 1989 agreement that prohibits their use in invasive research.

The satellite primate house, created in 1963, is a very unusual resource for a regional primate center, Kemnitz said. It was meant to provide a useful facility for the Vilas Zoo and a way for the public to enjoy the animals, while also serving as a breeding colony and a place for observational studies.

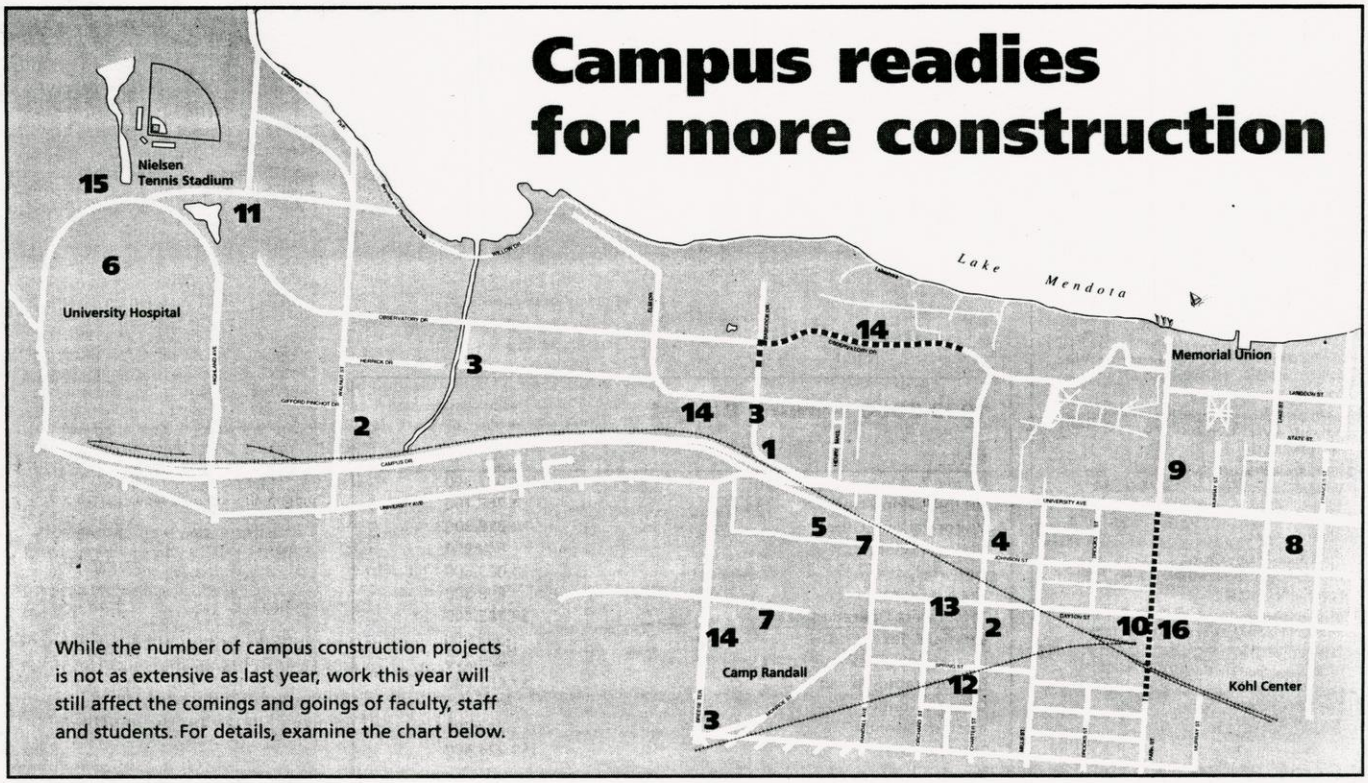
In the 1980s, former UW-Madison researcher Frans de Waal did highly acclaimed studies of reconciliation and other social behaviors among the Vilas monkeys. Those studies were partially supported by the National Science Foundation.

In recent years, Kemnitz said there has been a shift in NIH priorities toward solving pressing public health problems, such as AIDS. At the same time, support for behavioral studies of primates has declined.

###

— Brian Mattmiller, (608) 262-9772

Campus readies for more construction



1999 CONSTRUCTION PROJECTS

PROJECT	STATUS	IMPACT
1 Babcock Drive/Campus Drive intersection	Under way. Completion: August.	Babcock Drive will be closed from University Avenue to Linden Drive July 1-Aug. 1.
2 Boiler/Chiller additions, Walnut and Charter physical plants	Start: June. Completion: April 2000.	Charter Street sidewalk closed. Some parking disruption at Walnut Street plant.
3 Campus Utility Projects	Under way. Completion: July.	Babcock Drive will be closed May 17-July 1 for sanitary sewer lift station construction. Water meter pit construction in Lot 19 (Camp Randall) will disrupt parking from late spring to mid-summer.
4 Chemistry Addition	Under way. Completion: July 2000	Lane closure continues to narrow Charter Street.
5 Chilled water extension, Henry Mall to Engineering Drive	Start: June. Completion: July 2000.	Engineering Drive will be closed sporadically beginning May 15.
6 Clinical Science Center 3 Module Addition	Under way. Completion: May 2000.	Driveway reconfiguration will cause rerouting of buses. Dropoff circle will be closed.
7 Engineering Ramp (Lot 17)	Start: May. Completion: May 2000.	Loss of 350 spaces during construction. Ramp will have 800 spaces when completed. From May 1-July 1, Randall Avenue will be closed from Dayton Street north to the railroad tracks for sewer construction. Engineering Drive will have occasional closings. From July 1-Aug. 9, the intersection at Randall Avenue and Engineering Drive will be closed to add turn lanes and pedestrian islands.
8 Fluno Center for Executive Education	Under way. Completion: December.	Underground ramp will add 300 visitor spaces when completed.
9 Humanities Exterior Stucco Repair	Start: Spring. Completion: Fall.	Pedestrian access below work areas will be restricted starting in June.
10 Park Street Underpass Renovation (City of Madison project)	Under way. Completion: September.	Spring Street and Dayton Street west of Park Street are closed until May 17. Park Street will be closed May 17-Aug. 13 from University Avenue to Dayton Street, with traffic on West Johnson Street restricted to two lanes. Access to loading docks at Vilas and Grainger halls will be open during the project.
11 Pharmacy Building	Under way. Completion: September 2000.	From May 17 through the end of June, there will be lane closures on Highland Avenue.
12 Primate Center Addition	Under way. Completion: December.	Sidewalk closed from Capital Court to Spring Street. Part of Lot 51 remains out of service.
13 Tower construction, Meteorology Building	Start: Fall. Completion: Fall.	Lane closures on Dayton Street in early fall for one or two days.
14 Utility Distribution Systems Upgrade	Start: June. Completion: September.	Sanitary sewer construction will disrupt parking in lots along the railroad from the Stock Pavilion to Babcock Drive from mid-June to Oct. 1. Water main construction will cause phased road closures along Observatory Drive from Elizabeth Waters Hall to Babcock Drive and along Babcock Drive for one-half block south from Observatory Drive. One lane of Breese Terrace will be closed for three weeks between mid-June and mid-August.
15 Waisman Center Addition and Lot 82 expansion	Under way. Completion: September 2000.	Construction will occasionally disrupt parking.
16 Southeast Recreational Facility Fields	Start: April. Completion: September.	This project should have little effect on traffic.

The construction project most likely to affect campus commuters this spring and summer is not sponsored by the university.

Construction on the Park Street underpass, a City of Madison project, continues this spring and summer and should be completed by the end of September. Lane closures will be staggered to minimize traffic impact.

Other projects also will affect traffic.

- The Lot 17 ramp on the engineering campus. Road and utility work will begin in May, which will close Randall Avenue from Dayton Street north to the railroad tracks from May 1-July 1. The Randall Avenue-Engineering Drive intersection will also be closed from July 1-Aug. 9. When completed, the ramp will hold 800 vehicles.
- Closer to the central part of campus, work will continue this summer on the Babcock Drive / Campus Drive intersection. The construction will close Babcock Drive from University Avenue to Linden Drive during July.
- On the southeast part of campus, the renovation of the Southeast Recreational Facility fields should have little to no effect on traffic, says Bruce Braun, assistant vice chancellor for facilities planning and management. Soccer fields and sand volleyball courts will be installed.
- Utility work will have some impact on the campus as well. The Utility Distribution Systems Upgrade will close portions of Babcock Drive, Observatory Drive and Breese Terrace at various times during the summer. Other campus utility projects will close Babcock Drive and Lot 19 near Camp Randall Stadium.

And more projects are on the drawing boards. Additions to SERF and the Clinical Sciences Center parking ramp are in the design stage. ■

Research by Erik Christianson

Wisc. Regional Primate Research Center

1•8•4•8

NEWS

UNIVERSITY OF WISCONSIN–MADISON

Office of News and Public Affairs
28 Bascom Hall • 500 Lincoln Drive
Madison, Wisconsin 53706-1380

Phone: 608/262–3571
Fax: 608/262–2331

HOLD FOR AUG. 15, 1995 RELEASE

CONTACT: John P. Hearn, (608) 263-3500; James A. Thomson, (608) 263-3585

SCIENTISTS OBTAIN FIRST EMBRYONIC STEM CELLS FROM MONKEYS

MADISON — Scientists at the University of Wisconsin-Madison have harvested and grown embryonic stem cells from primates for the first time in the laboratory.

Embryonic stem cells are the parent cells of all other cells in the body. From them, all other cells develop, including those that compose blood, bone, hair and the major organs.

The discovery of a method to propagate such cells in the lab is a critical first step toward new transplant therapies for humans and may one day allow scientists to grow such tissues as blood, muscle and nerves in the laboratory.

"We can grow these cells forever in an undifferentiated state, but by changing how they are grown they potentially could develop into any cell type in the body," said James A. Thomson, an academic staff scientist at the Wisconsin Regional Primate Research Center on the UW-Madison campus and the lead author of a study published today (August 15, 1995) in the "Proceedings of the National Academy of Sciences."

The stem cells were harvested from the six-day-old embryos of rhesus macaques, a primate very similar genetically and developmentally to humans.

Although their development cannot be accurately directed yet, the harvested cells have been observed in the lab to differentiate into cells that compose many of the different tissues and organs of the body, Thomson said.

So far, the Wisconsin scientists have observed bone, cartilage, liver, nerve, gut, lung

-more-

and even hair cells develop in the laboratory from the parent stem cells.

"This is important because it gives us the ability to study development very closely in the lab," Thomson said. The ability to work with such cells in primates will lay a foundation for such work in humans. In the long term, it may help scientists isolate human stem cells and grow specific cells in the laboratory as replacements for diseased tissue, according to John P. Hearn, a co-author of the study and the director of the Wisconsin primate center.

Comparable work has been done in mice for several years.

Both Thomson and Hearn emphasized that new transplant therapies for humans would be many years away.

"Our focus now is on early development of the embryo, about which we know very little in primates," Hearn said.

The success of the Wisconsin effort, supported by the National Institutes of Health, depended largely on new techniques for the non-surgical harvesting of embryos at their earliest stages of development.

"We have the world's only non-surgical, uterine stage embryo recovery system for primates. A big obstacle to this work in the past has been access to embryos at this early stage," said Hearn.

But because the stem cells can be propagated indefinitely in the laboratory, the need for embryos and research animals will be minimized, Thomson said.

The Wisconsin group has applied for patents on the primate stem cell recovery and propagation methods .

###

— Terry Devitt, (608) 262-8282

1 • 8 • 4 • 8

NEWS

UNIVERSITY OF WISCONSIN–MADISON

Phone: 608/262–3571
Fax: 608/262–2331

News & Information Service
19 Bascom Hall • 500 Lincoln Drive
Madison, Wisconsin 53706–1380

FOR IMMEDIATE RELEASE 5/7/93

CONTACT: Susan Carlson, (608) 263-3520; John Hearn, (608) 263-3500

GOVERNOR OPENS NEWLY EXPANDED PRIMATE RESEARCH CENTER

MADISON — Wisconsin Gov. Tommy Thompson opened new research laboratories at the Wisconsin Regional Primate Research Center (WRPRC) on the University of Wisconsin-Madison campus Thursday (May 6).

Taking part in ceremonies dedicating the newly revamped facility, Thompson noted the university's international reputation for scholarly research, and the contributions the Primate Center has made toward that reputation. He pointed to the long-standing partnership between the state and UW-Madison as a model for bolstering the scientific enterprise and contributing to Madison's and Wisconsin's expanding base of high-technology companies.

The facility, which includes new labs for research in genetics, immunology, virology and developmental biology, was built at a cost of $3.5 million and funded through a combination of grants from the federal government and the state of Wisconsin.

The Wisconsin Regional Primate Research Center was established on the UW-Madison campus in 1960 and is one of seven such centers nationwide. Supported by a base grant from the National Institutes of Health National Center for Research Resources and by numerous competitive grants from NIH, the National Science Foundation and other agencies, the WRPRC specializes in basic research in primate biology that relates to human

-more-

and animal health, behavior and conservation.

Interim UW-Madison Chancellor David Ward, speaking to WRPRC staff and guests at the opening ceremony, emphasized the importance of multidisciplinary research centers such as the Primate Center. He noted that more than 120 scientists from an array of academic disciplines are involved in research at WRPRC and that such scholarly cross-fertilization is essential to modern science.

John Hearn, a UW-Madison professor of physiology and director of the center, said the new laboratories will enable the center to embark on new lines of research and maintain its position as an international leader in primatology.

"We are already regarded as a world leader in many aspects of primate research and this new facility will make it possible for our faculty and staff to build on that reputation," Hearn said. "It will mean more research dollars and more jobs for Wisconsin, and will lead to improvements in human and animal health and to the preservation of species diversity."

###

— Terry Devitt, (608) 262-8282

Primate Center will open $3.5 million building today

By Nathan Seppa
Science reporter

The Wisconsin Regional Primate Research Center will formally open a new building today, the latest step in its rapid expansion.

In three years, the UW-Madison center has tripled its annual budget to nearly $12 million, most of it coming from the National Institutes of Health, primate center director John Hearn said.

The $3.5 million addition also was largely paid for with federal money, as well as some state contribution, he said. The campus center now has two buidings on Capitol Court.

The expansion has occurred as the center tackles some high-interest areas of biomedical science — aging, AIDS, neurobiology and fertility.

Even though the center's primary mission is research into biomedical areas, its work also extends to animal conservation in the wild, Hearn said.

By doing "basic science" on many species, the center — with related projects in Brazil, Thailand, Kenya and Cameroon — is part of a network of science seeking to understand animal genetics, social structures and disease, he said.

Hearn, a professor of physiology, is well-aware that primate research has critics. He is quick to point out that none of the monkeys used in the center's laboratories — 1,500 rhesus, stump-tailed macaques and common marmosets — are endangered or threatened species. And none comes from the wild; they are all bred in one of the center's labs.

There are more than 120 projects under way at the center. They include:

■ Studies of the common marmoset, a tiny monkey that lives in Brazil, to better understand fertility in humans and monkeys.

Marmosets are the most fertile primates. Their gestation is short, they usually bear twins and females become fertile at age 18 months. But they also seem to have a mechanism that inhibits inbreeding and overpopulation, Hearn said.

Scientists at the center can remove embryos from newly pregnant marmosets without hurting them, and keep the embryo alive in a test tube for weeks to study how it develops.

■ Measuring the effects that subtle stress on a pregnant monkey has on her eventual offspring.

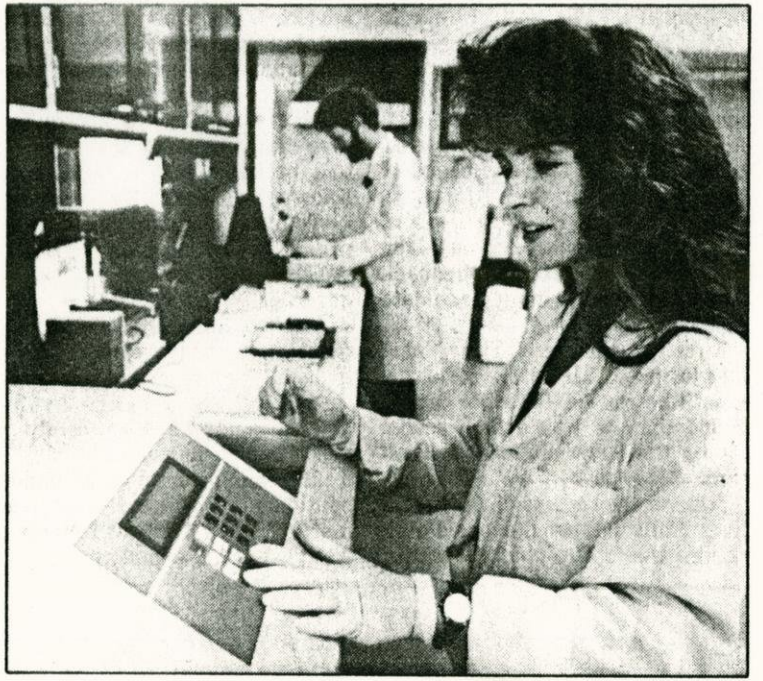
In one case, the "stress" used is a noise, a few times a week. Psychobiology researchers at the center hope to gain insights into what effects stress has on human offspring, Hearn said.

■ The discovery that the less you eat, the longer you live.

"You can postpone the physiological process of aging," Hearn said. A research group is documenting how individual cells react to the intake of 30 percent to 40 percent less food — enough to live on but not enough to make a monkey lose weight.

■ Findings that monkeys are susceptible to "simian AIDS," a disease akin to human AIDS.

In rhesus monkeys, scientists are studying the infection process, in particular, through contact via the skin membrane.



State Journal photo/L. ROGER TURNER

Laura Hennes and Ted Garber, scientists at the Primate Research Center, are shown here working in one of the center's new labs. Hennes studies genes in organ transplantation, while Garber studies genes and proteins involved in infectious diseases.

Primate Research ctr, Wis. Regional

1•8•4•8 NEWS
UNIVERSITY OF WISCONSIN–MADISON

Phone: 608/262–3571
Fax: 608/262–2331

News & Information Service
19 Bascom Hall • 500 Lincoln Drive
Madison, Wisconsin 53706–1380

FOR IMMEDIATE RELEASE 10/6/92

CONTACT: Larry Jacobsen, (608) 263-3512, 263-3852

IN THE NICK OF TIME, COMPUTER NETWORK RESCUES A CHIMP COLONY

MADISON — Three chimps were already dead by the time Sarah Boysen read the message on her computer screen:

"Studying the behavior of chimp colony in northern Italy. Serious respiratory disease. Suspect respiratory sincizial illness. Three animals dead already; five others out of the acute crisis; another 14 having difficulty breathing. Does anybody know anything which could help?"

Within 30 minutes, Boysen, a primatologist at Ohio State University, was keying in a response: *"Just spoke with Brent Swenson, veterinary chief at Yerkes Primate Center, Emory University, about your problem. He will contact you via Email or fax to outline treatment regimen. If the appropriate drugs are unavailable to you, or if costs are a problem, I have asked Brent to let me know so we can cover such expenses for you. Good luck. Every chimp counts."*

In the end, nine chimps survived. And their survival, according to Boysen, depended as much on a fledgling computer network for primatologists as it did on the antibiotics that ultimately tamed the bacterial pneumonia afflicting the chimps.

The computer network, known as Primate-Talk, is a worldwide Email network managed by the Wisconsin Regional Primate Research Center (WRPRC) on the UW-Madison campus. According to Larry Jacobsen, the center's librarian and the motivating force behind the new network, Primate-Talk links more than 250 primatologists from Tasmania to the Netherlands.

-more-

"The chimp story is illustrative of the most positive aspects of the network," Jacobsen said. "The real goal is to promote rapid communications and bring primatologists closer together, to create a better sense of community."

Many primatologists work in isolation at small institutions or in foreign countries where information resources are fewer, said Jacobsen. Primate-Talk is an easy way for those people and others to get immediate access to many outstanding people in the field as well as a wealth of veterinary and library resources.

A trip through Primate-Talk files reads like the shoptalk one might overhear at a professional meeting or colloquium. There are messages about everything from the sex lives of bonobos to queries — and answers — about how to non-invasively glean genetic material from primates in the wild.

Primate-Talk has also become an important electronic springboard for graduate students seeking help with research and field placements. "For students, Primate-Talk is a very democratizing thing. It puts them on a plane with and gives them access to some of the very best people in the field," said Jacobsen.

Jacobsen said that in addition to the apparent contributions Primate-Talk makes to primatologists, it is also emblematic of the more active role specialized libraries are now taking to meet the needs of their users. Network members can use Primate-Talk to borrow or contribute items to the Primate Center library, and to browse through lists of new audiovisual and book acquisitions.

"For too long libraries have been perceived as being little more than passive receivers and organizers of information," said Jacobsen. "But now libraries are taking the lead in using new technologies to make information readily available to large numbers of people. And, as illustrated by the situation with the sick chimpanzees, it's already having a dramatic and positive impact."

###

— Terry Devitt, (608) 262-8282

1•8•4•8
NEWS
Primate Research Ctr, Wis. regional
UNIVERSITY OF WISCONSIN–MADISON
News & Information Service
19 Bascom Hall • 500 Lincoln Drive
Madison, Wisconsin 53706–1380
Phone: 608/262–3571
Fax: 608/262–2331

FOR IMMEDIATE RELEASE 10/6/92

INTERNATIONAL DIRECTORY OF PRIMATOLOGY AVAILABLE

MADISON — The Wisconsin Regional Primate Research Center has recently published the first International Directory of Primatology.

The 225-page directory, with more than 600 entries of scientists and institutions from around the world, includes an array of information on programs of research, species used, affiliations and staff.

The intent of the directory, according to Primate Center Library Director Larry Jacobsen, is to enhance communications among organizations and individuals involved in primate research, conservation, and education.

The directory is available from the Primate Center Library at a cost of $10. Copies can be obtained by writing to Jacobsen at: Wisconsin Regional Primate Research Center, 1220 Capitol Court, Madison, WI 53715; or by calling (608) 263-3512.

###

— Terry Devitt, (608) 262-8282

1•8•4•8
NEWS
UNIVERSITY OF WISCONSIN–MADISON

Primate Res. ctr, WI. Regional

Phone: 608/262–3571
Fax: 608/262–2331

News & Information Service
19 Bascom Hall • 500 Lincoln Drive
Madison, Wisconsin 53706–1380

FOR IMMEDIATE RELEASE 10/30/92

CONTACT: Sue Carlson, (608) 263-3520

VILAS ZOO'S MONKEY PATRIARCH SUCCUMBS TO OLD AGE

MADISON — Spickles, the long-time patriarch of the Vilas Zoo's rhesus macaque troop and one of the oldest monkeys at the zoo, has died of heart failure.

Spickles had lived in the Wisconsin Regional Primate Research Center (WRPRC) building at the zoo since 1972. He came to Madison as a young adult, a member of a large troop of monkeys imported from India.

At the time of his death Oct. 9, he was an estimated 30 years old. In the wild, macaques seldom live beyond 15 years of age.

Spickles became the alpha or dominant male in 1976 and held sway over the troop until shortly before his death, according to WRPRC researcher Lesleigh M. Luttrell. Known as Mr. Spickles in the 1989 award-winning book "Peacemaking Among Primates" by former UW-Madison ethologist Frans de Waal, the monkey achieved an international notoriety of sorts for his group-leading strategies and exploits.

Despite failing health, Spickles maintained a firm hold on his position as leader because most members of his troop were born during his reign and respected his leadership, Luttrell said.

He fathered many monkeys during his years at the zoo, but genetic studies of his troop proved that less than half of the infants born there were his offspring.

The new dominant male of the rhesus macaque troop is his last confirmed son, a 7-year-old male named Otis.

###

— Terry Devitt, (608) 262-8282

1•8•4•8
NEWS
UNIVERSITY OF WISCONSIN–MADISON
News & Information Service
19 Bascom Hall • 500 Lincoln Drive
Madison, Wisconsin 53706–1380
Phone: 608/262–3571
Fax: 608/262–2331

FOR IMMEDIATE RELEASE 4/8/92

CONTACT: Deborah Blum, (916) 321-1086; Viktor Reinhardt, (608) 263-3514; Clay Schoenfeld, (608) 231-2331/753-2481; Sharon Dunwoody, (608) 263-3389

UW-MADISON GRADUATE WINS PULITZER PRIZE FOR REPORTING

MADISON — Pulitzer Prize-winning reporter Deborah Blum says she defined and refined her professional philosophy while a graduate student at the University of Wisconsin-Madison.

Blum, who won the Pulitzer Tuesday for beat reporting, says she came to believe that science writing "should make science approachable, fun. You can't do that unless you go beneath the surface of issues, peel off the top layer, get past the abstract."

The Pulitzer committee honored her efforts toward that end in citing her for her series, "The Monkey Wars." The articles investigated ethical and moral questions surrounding primate research. The series was written for the Sacramento Bee, where Blum is a staff reporter.

Blum interviewed Viktor Reinhardt, a veterinarian at the UW Primate Research Center, for "Monkey Wars." He remembers her as being rigorously "open-minded."

"She didn't take sides. "She got all the right information and was very thorough," he says.

However, those are not Blum's only virtues, as far as two of her UW-Madison professors are concerned. Clay Schoenfeld, emeritus professor of journalism and Blum's major adviser here, remembers her as a gifted writer with exceptional dedication to her craft.

-more-

"She had a real feeling for the quality of words," he says. "She brought vivid imagery to solid reporting."

So impressed was Schoenfeld with Blum's journalist talent that he excerpted articles she had written to fulfill her degree requirements for a chapter in his new journalism textbook, "Interpreting Public Issues."

"She described a trip through (California's) Imperial Valley in a discussion of pesticide spraying there," Schoenfeld says. "It was truly remarkable."

Blum says that the key to writing well is to care about your subjects. The animal research issues she addressed in "The Monkey Wars" are quite close to her heart, she adds.

"Animal research is not so much about animal rights but about people and how they make choices," she says. Blum realized that the series was a success "when I got dinged from both sides."

Incorporating the complexities of science often turns out to be a hard job. But according to Sharon Dunwoody, professor of journalism who was on Blum's orals committee, Blum is a masterful interpreter.

"When you write about science you're also writing about politics, economics, sociology and other fields," says Dunwoody, who heads the science writing program at the School of Journalism and Mass Communication. "Deborah takes that and all aspects of her work very seriously. She's always been a very steady, consistent reporter."

However, Blum says she's surprised that steadiness and consistency should be anything out of the ordinary for any journalist: "To me, it's the most fundamental part of working in this field."

###

— Barbara Wolff, (608) 262-8292

uw news

Primate Research Ctr.

From the University of Wisconsin-Madison / News Service, Bascom Hall, 500 Lincoln Drive, Madison 53706 / Telephone: 608/262-3571

Release: Immediately 2/28/91

CONTACT: Hideo Uno (608) 263-3529

AGING MONKEYS EXHIBIT HIGH INCIDENCE OF COLON CANCER

By Terry Devitt
University News Service

MADISON--A unique group of elderly rhesus monkeys may give scientists new clues to the causes of colon cancer.

Scientists from the Wisconsin Regional Primate Research Center at the University of Wisconsin-Madison report that aging rhesus monkeys are prone to the same disease that afflicts more than 110,000 Americans a year.

The incidence of colon cancer in the United States is second only to that of lung cancer. Yet potential causes of the deadly disease, which occurs most often among the elderly in industrialized Western societies, are hotly debated by scientists.

Some studies suggest that colon cancer predispositions may be inherited, but environmental factors such as diet and pollution have also been implicated.

The monkeys in the study have been housed indoors and fed a simple diet of Monkey Chow, supplemented with fruits such as bananas, apples and oranges.

But despite the controlled environment and diet, the Wisconsin monkeys, like humans in the United States, are apt to develop colon cancer as they age.

"There is very limited exposure to environmental factors. Almost none. But still, in monkeys over age 20 we are finding an increased incidence of cancer," said Hideo Uno, a UW-Madison professor of pathology who for 10 years

-more-

has tracked the rate of spontaneously occurring cancer in the nation's only fully documented, aging group of captive rhesus monkeys.

"They are given a very simple diet," he said. "Total fat content is about 5 percent. It's very low. And because they are housed indoors, their exposure to such things as exhaust from automobiles and smoke is also very low."

Of 39 cancers detected in 176 postmortems of older monkeys, 19 -- or almost 50 percent -- were colon cancer. The incidence of colon cancer, Uno found, increased as a factor of age with the highest percentage occurring in elderly monkeys aged 26 to 36 years.

The finding is important, Uno said, because it represents "perhaps the first background noise of the spontaneous rate of cancer with the inhibition of dietary induction and environmental factors."

The link between diet, environment and the onset of colon cancer is the subject of intense scientific scrutiny. Epidemiologic studies strongly suggest that environment, including diet, influences the incidence of colon cancer.

For instance, in the United States, colon cancer incidence is high, but in Japan it is low. However, persons of Japanese descent living in the United States exhibit the same high incidence of colon cancer as other Americans, suggesting people who live in the United States are exposed to something in their diet or environment that leads to higher colon cancer rates.

Studies of diet and the onset of colon cancer are inconclusive, but scientists now are playing close attention to animal fat and fiber intake as well as other foods. They are uncertain if there is something in peoples' diets that either predisposes them to colon cancer or protects them from it.

Uno believes the spontaneous development of cancer in older monkeys will provide new opportunities to unmask the hidden factors that play a role in the development of the deadly disease.

He said the link between colon cancer and diet as animals age may be especially important.

"It's almost undeniable that aging is a major factor in the cause of cancer," Uno said. "With this group of animals it is possible to do things like manipulate diet to see if the incidence of colon cancer changes."

The results of Uno's study were reported at the most recent meeting of the American Society of Primatology.

###

-- Terry Devitt (608) 262-8282

#4512

uw news

From the University of Wisconsin-Madison / News Service, Bascom Hall, 500 Lincoln Drive, Madison 53706 / Telephone: 608/262-3571

Primate center

Release: Immediately 3/2/90

CONTACT: John P. Hearn (608) 263-3500

ACCLAIMED BIOLOGIST TO LEAD WISCONSIN PRIMATE CENTER

MADISON--John P. Hearn, an international authority on primate biology and a former scientific director of the Zoological Society of London, has been named director of the Wisconsin Regional Primate Research Center.

Hearn succeeds Robert W. Goy, a psychologist who became the center's second director in 1971 and who retired as director in mid-1989.

Hearn is an expert on the developmental and reproductive physiology of primates. In addition, he has a broad administrative background, including a stint as deputy director of Britain's Agricultural and Food Research Council, a research agency that oversees basic and strategic research for that country's agricultural, food and biological industries.

The 47-year-old Hearn assumes the directorship of a world-renowned research center where some 50 University of Wisconsin-Madison faculty and staff conduct studies of such things as aging, obesity, the immune system and reproduction.

The center houses approximately 1,100 rhesus monkeys in its facilities on the UW-Madison campus and at the Vilas Park Zoo, and has an annual operating budget of nearly $4 million from the National Institutes of Health. It is one of seven such centers nationwide.

Hearn will also assume a faculty position in the UW-Madison Medical School's physiology department.

-more-

In an interview, Hearn said he plans to capitalize on the research foundation laid by his predecessor, Robert Goy, by focusing on traditional UW-Madison research strengths.

"We need to concentrate in a few areas in depth," said Hearn. "We are organizing with these objectives in mind in the fields of neurobiology, reproductive and developmental biology, clinical biomedicine, ethology, ecology, psychobiology and conservation biology.

"We're building critical masses in these areas that are world-competitive," he said.

Hearn said the rapid and dramatic changes now occurring in biology will present a broad front of opportunities to address problems of aging, fertility and reproduction, genetic inherited diseases and neurodegenerative diseases such as Alzheimer's.

"We are in the early stages of a biological revolution which will help shape the 21st century," Hearn said. "Primate biology is essential in advancing knowledge relevant to human health and species survival. The scientific opportunities are enormous and we are competing for a leading position in this area of science."

Hearn emphasized, too, that the Primate Center must remain a leader in conservation biology. In the past, center scientists have played key roles in helping to preserve threatened primate habitat in such places as Africa and South America.

The center is already embarking on new conservation initiatives in Asia, Africa and South America, Hearn said.

"Our research should contribute to the preservation of a genetic diversity on which we all depend," he said. "The primates, our nearest biological relatives, teach us about ourselves. We in turn must learn better how to conserve them and a wider biological diversity for our children."

Hearn's selection was greeted with enthusiasm by center researchers.

Frans de Waal, a center scientist and one of the world's most promising young animal behaviorists, said Hearn's scientific and administrative credentials are outstanding.

"I think he'a an excellent choice," de Waal said. "I'm excited that he's here. He has a good administrative background and a good science background, just the right mix for the job."

Center scientist Joseph Kemnitz echoed de Waal's praise: "I've been impressed with his energy and enthusiasm for the job. He's going to build on the strengths developed during Bob Goy's tenure, but he'll bring his own strengths and some interesting new perspectives to the program."

Born in India to the last British commander of the famed Khyber Rifles, Hearn was educated in England, Kenya, Ireland and Australia.

In addition to his research on primates, Hearn has studied the reproductive biology of the giant panda, elephant, kangaroo and rhinoceros. He is a scientific consultant to the World Health Organization and to the World Wildlife Fund for Nature.

###

-- Terry Devitt (608) 262-8282

Wisconsin Regional Primate Research Center

Spring 1990

Vol. 1, No. 1

centerline

Current Contents

Research Focus —

Monkey with Down-like Syndrome Being Studied at Center

Scientists at the Wisconsin Primate Center are studying the first monkey known to be developmentally retarded as a result of spontaneous autosomal trisomy. The animal, a female rhesus macaque *(Macaca mulatta)* born June 29, 1988, received worldwide media attention last year because her condition appears to parallel human Down Syndrome.

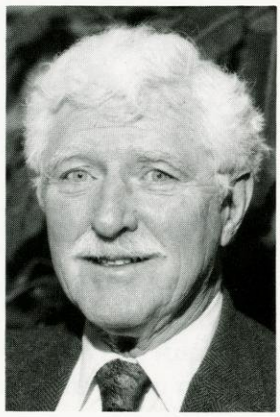
The monkey, named Azalea, was born into a large group being intensively observed by Dr. Frans de Waal and Lesleigh Luttrell. Azalea's physical appearance was strikingly different from her peers during her first 6 months of life (see photo, page 3). Her motor deficiencies were noticed within weeks, and indications of social retardation appeared later.

According to de Waal, Azalea now is normal-looking, healthy, and well accepted by the group, "but she is also much slower at learning and is much less active socially than other monkeys." She makes gaffes, such as inappropriately joining in on the side of her mother in dominance disputes. Her coat is still scruffier than those of other rhesus monkeys because she tends to ignore grooming. Despite her numerous deficits, however, only experts would notice anything unusual about Azalea.

With years of experience in studying primate behavior, de Waal and Luttrell found Azalea's actions to be far outside the range of

(continued on page 3)

John Hearn



Robert Goy

Dr. John Hearn has assumed the directorship of the Center on the retirement of Dr. Robert Goy, who will continue his research here and at the UW–Madison Psychology Department. Dr. Hearn and Dr. Goy have been colleagues and friends for over 15 years.

New Director Takes Over

Dr. John P. Hearn arrived in Madison with his family in early January and, after a two-week return to Great Britain to complete commitments there, is now fully engaged in the directorship of the Center, his research program, and his teaching duties as professor in the UW–Madison Physiology Department (Medical School).

Dr. Hearn noted that he was attracted to UW–Madison by the enormous strength on campus across the biological and medical sciences and the University's support of cross-campus collaboration. "The University of Wisconsin and the Wisconsin Primate Center have international reputations at the forefront of biology and biotechnology. I am delighted to join this team and dedicated to building further its excellence in the years ahead," he said.

At the Center, Dr. Hearn has established a Board of Studies, comprising all doctoral-level researchers, to develop and coordinate scientific activities.

The 60 core scientists and active affiliates will each join one of five research groups

(continued on page 2)

(continued from page 1)

established by Dr. Hearn. These groups are Neurobiology (Dr. Ei Terasawa, chair), Ethology and Ecology (Dr. Frans de Waal, chair), Clinical Biomedicine (Dr. William Bridson, chair), Reproduction and Development (Dr. Barry Bavister, chair), and Psychobiology (Dr. Chris Coe, chair).

Dr. Hearn stressed that "we are in the early stages of a biological revolution which will help shape the 21st century. Primate biology is essential in advancing knowledge relevant to human and animal health as well as to species survival. The scientific opportunities are enormous, and we are competing for a leading position in this area of science."

In other early actions, Dr. Hearn has initiated collaborative conservation and biomedical research programs with laboratories in Cameroon, Thailand, Kenya, and Brazil and is developing strong links with a number of departments at UW–Madison.

Dr. Hearn, 47, was born in India, where his father Lt. Col. H. P. Hearn (barrister at law and author) was then the last British commander of the historic "Khyber Rifles" on the Northwest Frontier. He was educated in England, Kenya (high school), Ireland (B.Sc., M.Sc.), and Australia (Ph.D.). His research is in primate biology, concentrating on the molecular biology, biochemistry, and endocrinology of early pregnancy. He has also contributed research papers in wildlife reproductive biology (giant panda, kangaroo, elephant, rhino) and conservation. He is a scientific consultant to the World Health Organization and to the World Wildlife Fund. He was president of the International Primatological Society from 1984 to 1988.

From 1987 to 1990, Dr. Hearn was Deputy Secretary of the UK Agriculture and Food Research Council (AFRC). He was Director of the MRC/AFRC Comparative Physiology Research Group (1984-89) at the Zoological Society of London, where he was also Scientific Director from 1979 to 1987. He is visiting professor of primate biology at the New England Regional Primate Research Center, Harvard University Medical School (since 1989) and visiting professor of reproductive biology at University College London (since 1979). From 1972 to 1979 he was a scientist with the UK Medical Research Council in Edinburgh. He is the author of over 120 scientific papers, 140 other publications, and the editor of five books in primate biology, reproduction, and conservation.

Dr. Hearn and his wife Margaret were married in 1967. They have five children, aged 5 to 21 years.

People

Virologist Miroslav Malkovsky recently began an appointment as half-time core scientist at the Center. Dr. Malkovsky holds a joint appointment in the Department of Medical Microbiology at UW–Madison.

Dr. Robert Matteri has received a joint appointment as assistant professor in the UW–Madison Department of Meat and Animal Science. He has also been named to the Graduate School Animal Care Committee.

Dr. Polani Seshagiri has joined Dr. John Hearn's research team to work on gene activation in primate embryos.

Dr. Peter Judge is conducting postdoctoral research with Dr. Frans de Waal.

Dr. Bertrand Deputte returned to France after spending 16 months at the Center as a Visiting Scientist.

Dr. Charles Snowdon and Anne Savage have received approval for funding of a grant for field research on cotton-top tamarins from the NSF Conservation Biology Program.

Recently hired research specialists include Laura Luchansky (with Dr. Ei Terasawa) and Mark Miller (with Dr. Kevin Schultz).

Andrine Lemieux is a new graduate student with Dr. Chris Coe.

New student hourlies include Carrie Leatherman (with Dr. Hideo Uno), Jennifer Christensen (with Dr. Joe Kemnitz), and animal caretakers Brent Brandemuhl, Robert Bay, and Duncan Miller.

Rochellys Diaz has received a 3-year fellowship from the American Psychological Association to continue her graduate studies in the Neurosciences Training Program. She will work with Drs. Philippa Claude and Samuel Sholl.

Carla Dewey has joined the Center library as a technical services support student. Joanne Brown is the library's new document-delivery student. Karen Infield is a student volunteer assisting Ray Hamel with the library's audiovisual collection.

(continued from page 1)

normal behavior for rhesus monkeys, and they made the preliminary diagnosis of Down-like syndrome. When samples of her blood were taken to Dr. Lorraine Meisner last summer, the UW–Madison cytogeneticist confirmed that Azalea's 20th chromosome has three segments instead of the normal two. In humans, a triplet 21st chromosome causes Down Syndrome. In a further parallel with human Down Syndrome, Azalea's mother is an aging female (over 20 years old when Azalea was born) that has produced 11 apparently normal offspring in 15 years at the Primate Center.

Her mother is also the highest-ranking female in the troop, so Azalea has been sheltered despite her social deficits, de Waal points out.

When Azalea was 2 1/2 months old, her facial expression was less alert than that of a normal rhesus infant. *(Photo by Frans de Waal)*

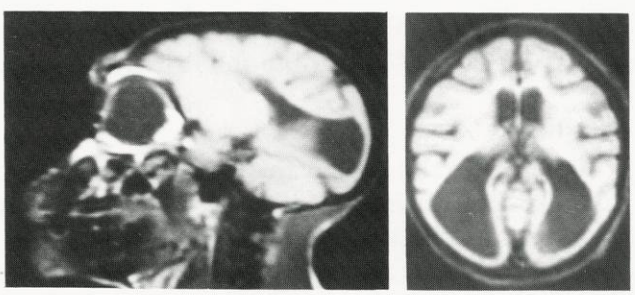
Nonetheless, she will face challenges from other animals as her position in the social hierarchy becomes established. De Waal hopes to study her adjustment to these challenges over the next several years. Together with 23 peers of similar age and housed under the same conditions, Azalea has been included in a long-term behavioral study since her day of birth.

Even Azalea's brain is being scrutinized for clues about her rare condition. Dr. Hideo Uno performed magnetic resonance imaging (MRI) of Azalea's brain when she was 18 months old and

A normal female rhesus monkey infant at 3 1/2 months of age. *(Photo by Frans de Waal)*

discovered hydrocephalus with marked dilation of the lateral ventricles (see photos below). Hydrocephalus is extremely rare in human Down Syndrome patients. The condition should not affect Azalea's general health, but Uno plans to monitor changes in her brain with MRI every six months.

The only other reported cases of autosomal trisomy in nonhuman primates were in great apes — one chimpanzee, one gorilla, and one orangutan — and none of them were housed in social conditions. Thus Azalea offers a rare chance for investigators to determine how a primate with a retarded social repertoire copes among normal peers in a stimulating environment. No interventions will be attempted, so Azalea's adaptation will provide an instructive contrast to the situation for human Down Syndrome patients, most of whom are institutionalized or take part in other therapy programs.



Sagittal (left) and horizontal images through Azalea's brain show dilation of the lateral ventricles (dark areas) as a result of hydrocephalus.

News & Views

Thailand Collaboration

Research Associate Kim Bauers is currently in Thailand for a 3-month evaluation of the feasibility of a field-based research program on group structure and reproductive strategies of stumptailed macaques, an endangered species. She will be establishing ties with colleagues from Chulalongkorn and Mahidol Universities. Dr. Bauers's principal interests are in the areas of social behavior and physiological ecology.

Travel

In travel news since the start of 1990, Dr. Ei Terasawa attended a meeting of the NIH Reproductive Biology Study Section in Washington, DC; Dr. Robert Goy lectured at Rockefeller and Columbia Universities in New York City; graduate student Anne Savage attended the First Pan American Conference on the Conservation of Wildlife through Education in Caracas, Venezuela; Dr. Hideo Uno gave a seminar at the University of Pennsylvania Dermatology Department on his collaborative study with Dr. Albert Kligman on the effects of retinoic acid (Retin-A) on facial pigmentation and hair growth in stumptailed macaques; and Dr. John Hearn was a speaker at World Health Organization meetings on fertility regulation in Chicago and Nairobi.

AAALAC Site Visit

Site visitors from the American Association for the Accreditation of Laboratory Animal Care (AAALAC) toured the animal care areas of the Center, Annex, and the Vilas Park ethology facility recently. The AAALAC visitors were on campus to inspect all animal facilities maintained by the UW–Madison Graduate School. A successful site visit would lead to AAALAC accreditation for all units of the Graduate School, including the Primate Center.

Visitors

Visitors to the Center this year have included Dr. Vladimir Anisimov of the Petrov Institute in Leningrad, who was in Madison to review research on cancer and aging at UW–Madison; Dr. Takashi Yoshida of the Tsukuba Primate Center in Japan, whose research interests include in vitro fertilization; and 15 students from Harvey Elementary School in Kenosha, who learned about research at the Vilas Park ethology facility from Lesleigh Luttrell.

Seminars

Since the beginning of the year, Center seminars and round table discussions have been presented by Associate Scientist Miroslav Malkovsky, who outlined current and future studies of immunodeficiency viruses; Assistant Scientist Ted Golos, who presented results of his research on rhesus placental hormone genes; and Dr. Werner Heuschele, director of the Center for Reproduction of Endangered Species at the San Diego Zoo, who described the zoo's biological research on primates. Center veterinarian Viktor Reinhardt discussed environmental enrichment for caged macaques; Dr. Dennis Rasmussen talked about compromises between work and affiliation in a group of stumptailed macaques; Dr. Joel Krasnow, UW–Madison Department of Obstetrics and Gynecology explained how aromatase genes are expressed in the granulosa cells of rats; and Dr. Ray Helfer, Department of Pediatrics and Human Development at Michigan State University, spoke on "Primate parallels: mothers, infants, and love."

In February, Dr. John Hearn presented an Endocrinology-Reproductive Physiology Program seminar entitled "Regulation of embryo implantation in primates," and Dr. Ted Golos discussed his work on rhesus placental hormone genes at a UW–Madison Anatomy Department seminar.

Revamped Newsletter

As the Center moves into the 1990's with a new Director, a fresh publication — *Centerline* — replaces *Primate Memo*, our in-house newsletter which first appeared in 1982. In its editorial content, *Centerline* will communicate our scientific strengths, research interests, and Center activities four times a year. We hope to achieve a high-interest, low-cost publication and look to the support of all staff in producing copy. The design of *Centerline* will evolve as the capabilities of Macintosh graphics and desktop-publishing programs are developed. Suggestions for stories, as well as any comments about *Centerline*, should be sent to John Wolf, editor; phone (608) 263-3508 or fax 263-4031.

Fit or fat?

Rhesus may hold key to obesity

WI.Week 10/12/88

By WisconsinWeek staff

Spontaneous obesity, the familiar mid-life condition that gives many people that "spare tire," is cropping up in middle-aged research monkeys.

Researcher Joseph Kemnitz of the University of Wisconsin Regional Primate Research Center, who studies the condition in the center's research colony, says that at least 10 percent of the center's middle-aged rhesus monkeys are overweight.

The portly monkeys, which were used in the past for behavioral studies and breeding purposes, consume the same number of calories as their slimmer counterparts, but their weight and girth has grown in much the same way as some obese humans.

As a result, the overweight monkeys have become an important window to the problems of obesity and its relationship to metabolism, Kemnitz said.

"The monkeys make excellent models," he said, "because, like humans, they accumulate excess fat around their abdomens, a pattern of fat deposition associated with diabetes and heart disease."

In fact, some of the older obese monkeys at the Primate Center have developed diabetes and require insulin injections to help them metabolize sugar and other nutrients.

Kemnitz and others theorize that a defect in the metabolism of obese monkeys causes them to put on pounds rather than burn off calories.

His studies are aimed at understanding human obesity, which has become an increasingly prevalent public health problem.

Like humans, some middle-aged monkeys develop a "spare tire."

In one study of 14 adult male rhesus monkeys, Kemnitz found the food intake of groups of monkeys categorized as very obese, moderately obese and non-obese was about the same. The monkeys were allowed to eat freely and no attempt was made to induce obesity.

Neither was there any difference in the monkeys' preference for sweets. All groups avidly consumed drinks made with sugar and aspartame, an artificial sweetener.

The monkeys, regardless of weight, reduced their daily food intake to compensate for the extra calories in the sugar solutions. They did not reduce their food intake after drinking aspartame solutions, which are essentially calorie-free.

This indicates monkeys are sensitive to the carbohydrate content of ingested food and fluids and accurately adjust their eating to keep daily consumption of these calories consistent, Kemnitz said.

In a related study, Kemnitz found that obese monkeys were much less active during the day than non-obese monkeys. But while this may partially account for the inadequate energy expenditure observed in obese monkeys, Kemnitz believes another process is involved.

Most of the calories monkeys—and humans—consume are burned up, or metabolized, to create energy to maintain normal physiological functions, he said.

After eating, however, body temperature rises and the body radiates heat in what appears to be a wasteful process. Because greater heat generation is associated with low-protein meals, scientists theorize the process evolved as a safeguard against obesity.

"In India and Nepal, the rhesus monkey's natural environment, protein sources are scarce," Kemnitz said. "The monkeys must eat a lot of calories to get enough protein to survive."

Heat generation after low-protein meals keeps the body at a normal weight by burning off excess calories, he said.

(Continued on Page 2)

Obese . . .

(Continued from Page 1)

Kemnitz is now studying correlations between metabolic rate, diet and the development of obesity. Monkeys are placed in metabolic chambers and their oxygen consumption and carbon dioxide production analyzed to measure metabolic rate.

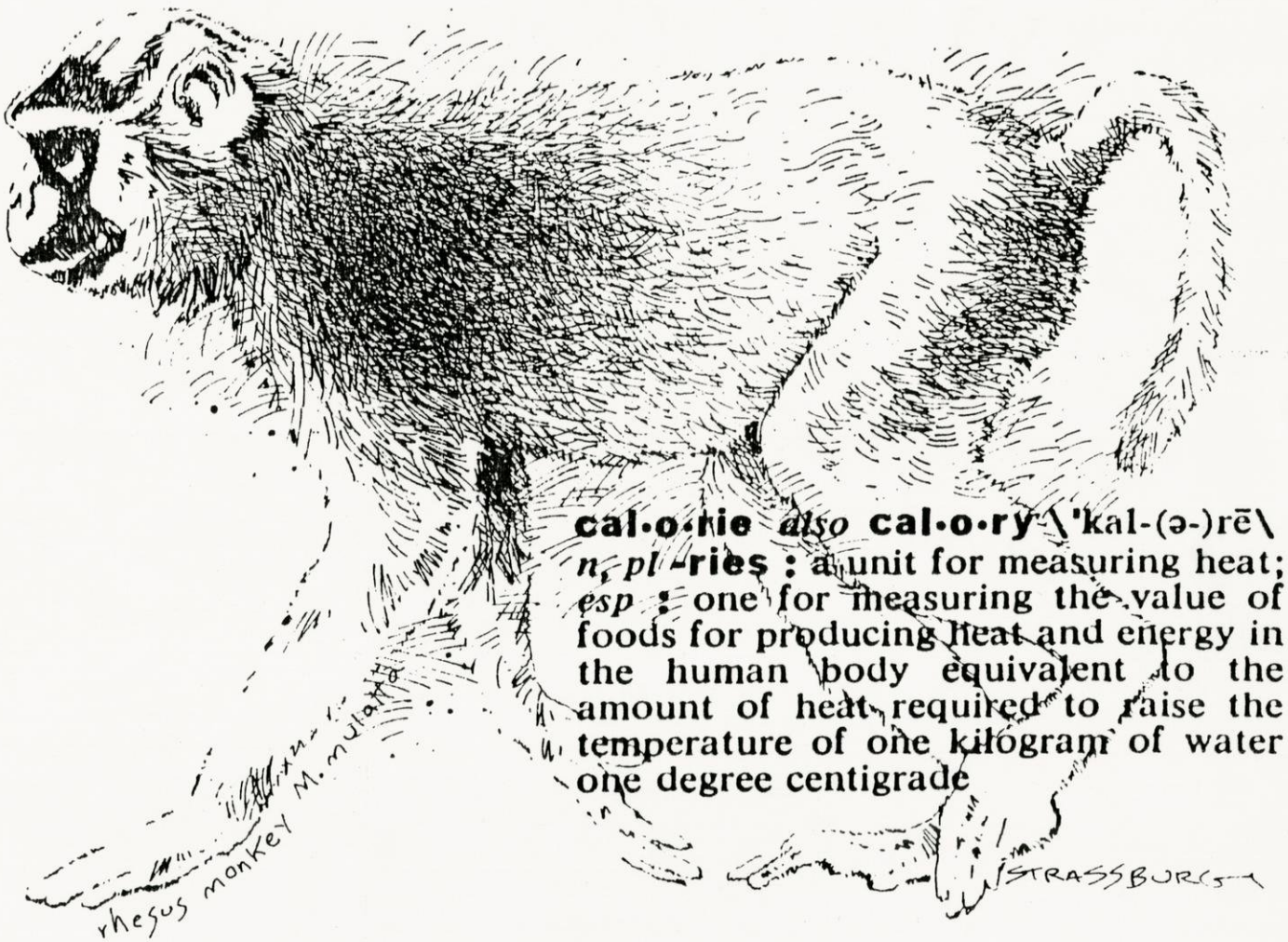
By comparing the metabolic rates of non-obese monkeys to those which he predicts may be genetically predisposed to becoming obese, Kemnitz hopes to better understand the physiological patterns that determine obesity.

He also will analyze the effect of a high-fat diet on metabolism by feeding the monkeys food to which fat has been added or by giving them one of their favorite treats—milkshakes.

"The diet they get now is very healthy," Kemnitz said. "It's particularly low in fat. We believe that if we give them more fat we'd see problems comparable to human populations, a 25 to 40 percent incidence of obesity, depending on your definition."

"The clearest advantage of using the animals as models is that you have good control over their environment and food intake," Kemnitz said.

Once the metabolic processes involved in the development of obesity are understood, it may be possible to devise drug treatments to correct them, he added. ■



cal·o·rie *also* **cal·o·ry** \'kal-(ə-)rē\ *n, pl* **-ries** : a unit for measuring heat; *esp* : one for measuring the value of foods for producing heat and energy in the human body equivalent to the amount of heat required to raise the temperature of one kilogram of water one degree centigrade

uw news

From the University of Wisconsin-Madison / News Service, Bascom Hall, 500 Lincoln Drive, Madison 53706 / Telephone: 608/262-3571

Release: Immediately 12/29/87

CONTACT: Charles Snowdon (608) 262-3974, Toni Ziegler (608) 262-0039

UW-MADISON MONKEYS HELPING FORGE SCIENTIFIC LINKS WITH CHINA

By JEFF ISEMINGER
University News Service

MADISON--One of the world's rarest monkeys has forged a scientific tie between China and Wisconsin.

The tie grew from events at the Shanghai Laboratory Animal Research Center. Scientists there had successfully bred native rhesus monkeys, but their colony of moustached tamarin monkeys from Peru was aborting (as the Chinese later learned, the moustached tamarin is notoriously tough to breed in captivity).

Chinese scientists were using the tamarins to study a major concern of their densely-populated society: reproduction and contraception. The research focused on processes like ovulation timing and sperm blockage in the female reproductive system.

But aborting monkeys eventually equal no monkeys. So the Shanghai lab appealed for help to the Chinese government, which turned to Sinotech, a Connecticut firm that's an intermediary between China and America.

Sinotech was aware of the successful breeding of rare cotton-top tamarins at University of Wisconsin-Madison, a 10-year-old program headed by zoology and psychology Professor Charles Snowdon. Sinotech contacted Toni Ziegler, an associate researcher in Snowdon's lab, who said the lab would be glad to help.

The Chinese needed more than monkeys, said Ziegler.

-more-

"They had to know how to care for the monkeys. They weren't getting that information from their private suppliers in Peru of the moustached tamarin."

In other words, no instructions were included.

The Wisconsin researchers proposed a free, long-term loan of cotton-tops to the Chinese, and the offer was accepted. The Chinese agreed to send a scientist to UW-Madison for training, use the monkeys from Madison only for breeding, not testing, and provide suitable caging and food.

Last May, Ziegler flew to Shanghai to talk with lab scientists and inspect their facilities, and found the cages inappropriate for tamarins.

"Because tamarins are tree-dwellers," Ziegler said, "you have to give them vertical space and plenty of room. If you crowd them, they become very susceptible to stress disorders."

The Chinese replaced their cages with ones identical to those at UW-Madison.

Last summer the associate director of the Shanghai lab, Wang Yun, spent two months in Madison studying how Snowdon, Ziegler and graduate student Anne Savage have maintained a healthy group of 50 cotton-tops. She learned, for example, that Ziegler has devised a urine test to determine if females are ovulating normally or are pregnant, thus eliminating the need for blood samples. Such "non-invasive" techniques reduce stress on the monkeys.

Simulating the monkeys' jungle home also has increased breeding success. The cages are crisscrossed by ropes and branches designed to give the captive-born monkeys a chance to develop their natural skills.

UW-Madison researchers have bred cotton-tops for conservation reasons, said Snowdon. The wild cotton-top population in Colombia is smaller than the worldwide captive population of 1,500, which has resulted in Colombia banning export of the monkeys. Snowdon and his associates feel compelled to preserve the monkeys' genetic pool for their possible reintroduction into the wild.

Other centers worldwide are breeding cotton-tops because they are the only

primates besides humans to spontaneously develop colon cancer.

In August, Savage took the 27-hour flight to Shanghai with 10 breeding pairs of cotton-tops. The Chinese government paid all transportation costs for that flight and Ziegler's in May. "The monkeys traveled much better than I did," said Savage. "The airline was very good in letting me check them at every stop."

After seeing the monkeys settled in, Savage talked with scientists at the lab. She focused on animal behavior and its relevance to captive breeding, since there is little behavioral training at the veterinary and medical schools which the lab scientists attended.

Savage found that the Chinese had devised an excellent substitute for the commercial monkey food used in America but unavailable in China. Their recipe includes rice, oatmeal, powdered milk, fish emulsion, eggs (scarce in China), honey, soy and fresh yogurt bought daily.

At last report, Savage said, all 20 cotton-tops from stateside are doing fine. Some of the females have shown signs of pregnancy, and one of them has given birth to twins.

The Madison-Shanghai door is still open. The Wisconsin experts have invited the Chinese to send other scientists to UW-Madison and plan to share American research findings with the Chinese. One effort under way at other U.S. centers, for instance, is testing how diet change can reduce the incidence of colon cancer among cotton-tops (very low in the Madison colony).

The UW-Madison researchers are anxious to help, said Savage, "because anyone working with an endangered species is obligated to share information."

This isn't the first time UW-Madison has provided cotton-tops to other institutions for breeding. Wisconsin-bred monkeys are alive and well at 10 American zoos. Scientists here have the satisfaction of knowing that if cotton-tops thrive in captivity and survive in the wild, one of the lifelines will lead from Madison.

###

uw cutlines

Primate Center

From the University of Wisconsin-Madison / News Service, Bascom Hall, 500 Lincoln Drive, Madison 53706 / Telephone: 608/262-3571

Release: Immediately 3/7/86

[Photo #86-10]

FEARS AND PHOBIAS: LEARNED BEHAVIOR?

A University of Wisconsin-Madison researcher has found that rhesus monkey offspring like the one shown here can learn fears and phobias merely by watching their parents.

-- Wisconsin Primate Center photo

###

uw news

From the University of Wisconsin-Madison / News Service, Bascom Hall, 500 Lincoln Drive, Madison 53706 / Telephone: 608/262-3571

Primate Research Center

Release: Immediately 1/21/86

CONTACT: Barry Bavister (608) 262-0728/263-3530, John E. Wolf (608) 263-3508, Mike Cranfield (301) 728-5622

TEST-TUBE FERTILIZATION COULD HELP SAVE ENDANGERED PRIMATES

By TERRY DEVITT
University News Service

MADISON--In-vitro fertilization -- the process used to produce "test-tube" babies -- may soon be used to help bring endangered primate species back from the brink of extinction, says University of Wisconsin-Madison physiologist Barry Bavister.

Working with scientists at the Baltimore Zoo, Bavister hopes to use in-vitro fertilization techniques and surrogate rhesus monkey mothers to bolster the zoo's colony of 20 lion-tailed macaques -- an acutely endangered species of monkey native to India.

According to Bavister, the lion-tail eggs used in the pilot project will be taken only from "infertile" females, monkeys that, for various reasons, are unable to reproduce naturally.

There are only 1500 of the endangered macaques in the wild and 250 more in zoos, mostly in the U.S. In the wild, lion-tails bear only one infant every two or three years.

By gleaning eggs from infertile females in the Baltimore lion-tail colony, fertilizing them in shallow plastic dishes and then implanting the fertilized eggs in rhesus monkey mothers, Bavister hopes not only to increase the Baltimore Zoo's lion-tail population, but also give zoos a powerful new tool to help preserve endangered species.

-more-

Bavister envisions broad implications. "If it works, the technique could be applied to other, even more endangered species like the mountain gorilla. It could even be used with non-primates.

"The situation with the lion-tails is quite bad because of the 20 animals at the Baltimore Zoo, 11 are adult females and three of those are already reproductively incompetent," Bavister said. "However, we can stimulate those three animals, remove eggs from them, fertilize the eggs in the lab and then put the embryos back into another animal."

Because the female macaques are "superstimulated" with a hormone preparation, they produce many more eggs than is usual. If the techniques are perfected, extra eggs could be fertilized, frozen and retrieved when needed, bavister said. With such a store of fertilized eggs on hand, a species, in the event of a disaster, could literally be resurrected.

The rhesus monkey, a type of macaque, was chosen for the role of surrogate mother because it is a cousin to the lion-tail and because the species is readily available at primate centers, including the Wisconsin Regional Primate Research Center in Madison. A Wisconsin rhesus monkey will bear the first test-tube lion-tail if the project is a success, Bavister said.

The idea for the project came from Dr. Mike Cranfield, a veterinarian at the Baltimore Zoo. The zoo in Baltimore has been breeding lion-tails for more than 20 years. But Cranfield said their breeding program took on a new impetus when they learned of Bavister's in-vitro fertilization work with rhesus monkeys at UW-Madison.

A team led by Bavister produced the world's first test-tube rhesus monkey, Petri, in August of 1983. Bavister, who heads the in-vitro fertilization project at the primate center, was also involved in the first successful human test-tube birth. In 1969, he helped demonstrate that human eggs could be fertilized outside the body.

Add 2--Test-Tube Monkeys

To test the feasibility of using in-vitro fertilization techniques and surrogate mothers of another species, the researchers have obtained eggs from pig-tailed macaques, a non-endangered species also in residence at the Baltimore Zoo.

Fertilized in a Baltimore lab set up by Cranfield and Bavister, the eggs were then prepared for a flight to Madison where they were to be implanted in rhesus monkeys at the Wisconsin Regional Primate Research Center.

"We have succeeded in fertilizing pig-tailed monkey eggs in Baltimore and growing them to the early cleavage stage," Bavister said. "However, those eggs were damaged either before or during the flight back to Madison and could not be transferred. But we aim to repeat the procedure. I think we're close to having it to the point where it will work."

Bavister, Cranfield and colleagues will begin work with the lion-tailed macaques early this year. Bavister said obtaining eggs from the three infertile lion-tailed females will be the first step.

Bavister said that while in-vitro fertilization techniques hold promise for endangered species, they should not be considered a substitute for traditional means of conservation such as education and habitat preservation.

"We are not proposing that this very expensive and involved procedure substitute for all other methods of primate conservation. What we're trying to do is introduce yet another tool for saving endangered primates."

###

-- Terry Devitt (608) 262-8282

Primate Research Center

Title of Center and Center Director

Resource:
Wisconsin Regional Primate Research Center
The center occupies a four-story, 30,000-square-foot building on the University of Wisconsin-Madison campus as well as space in three nearby annexes. In addition, the center maintains a 5,000-square-foot breeding research facility at the Vilas Park Zoo in another part of the city. The university administers the center and provides its academic setting.

Center Director:
Robert W. Goy, Ph.D.
Wisconsin Regional Primate Research Center
1223 Capitol Court
Madison, Wisconsin 53715-1299
(608) 263-3500

Principal Investigator:
Robert M. Bock, Ph.D.
Dean
Graduate School
University of Wisconsin

Emphases of Core Research Units

- *Basic Research Mission:* Primate behavior, reproduction, and neurosciences.

Current Research

- *Reproductive Physiology:* Hormonal control of implantation and maintenance of pregnancy; factors regulating development of ovarian follicles; mechanisms involved in initiation of puberty; role of the corpus luteum in late pregnancy; in vitro fertilization in nonhuman primates.
- *Neurochemistry:* Effects of female sex hormones on brain chemistry and behavior.
- *Gonadotropic Physiology:* Developmental changes in the synthesis and release of pituitary hormones related to reproduction.
- *Neurophysiology:* Control mechanisms of gonadotropin secretion, especially the role of the hypothalamus and limbic structures in reproductive cycles.
- *Aging:* Changes in hormonal and nervous systems associated with aging in nonhuman primates.
- *Behavior of Group-Living Primates:* Social behavior, especially behaviors serving the regulation and reduction of aggression and tensions in primate groups.
- *Behavioral Endocrinology:* Endocrinological regulation of reproductive and social behavior in monkeys and rodents; social and experimental factors that modify hormonal influences; studies of the interaction of social and hormonal factors that mediate the development and expression of individual differences in the display of sexual and aggressive behavior in rhesus monkeys.
- *Experimental Pathology:* Structural studies of the pituitary-hypothalamic axis and of sensory and autonomic nerves in primates.
- *Primate Ecology:* Survey and census of primates in Cameroon, West Central Africa.
- *Feeding Behavior:* Identification of variables that influence feeding behavior and body weight regulation in the rhesus.
- *Contact Person:* Robert W. Goy, Ph.D., center director, (608) 263-3500.

Resources Provided

To Outside Investigators

- *Specimens:* Tissue specimens, organs, and other biological materials are provided when available. Costs are normally assumed by the individual requesting the specimens.

To Collaborating Scientists

- *Eligibility:* The center actively encourages researchers from the midwest region to use its facilities and services and to conduct collaborative studies. Scientists wishing to conduct research at the center must have projects reviewed and approved by the center director and his advisory review committees and must have independent funding to cover costs of the research.
- *Services:* The center's services are available to collaborating scientists on varying bases. Some are provided without charge, some on a fee (chargeback) basis. They include:

  —*Bioservices:* Clinical laboratory tests, including assay procedures for adrenal, gonadal, and pituitary hormones; surgery; breeding colony; baseline data service on reproductive behavior.

  —*Colony Management:* Maintenance and veterinary medicine; assistance in drug administration, specimen collection, and animal handling.

  —*Computer Services:* Colony record system and research data processing.

  —*Photomedia:* Art and photographic services.

  —*Library:* 5,500 books, 9,500 volumes of journals, 200 active journal subscriptions, audiovisual collection.

  —*Animals: Macaca mulatta* (over 1,000), *M. arctoides.* The center maintains a breeding colony that produces over 100 rhesus infants a year.

uw news

From the University of Wisconsin-Madison / News Service, Bascom Hall, 500 Lincoln Drive, Madison 53706 / Telephone: 608/262-3571

Primate Center

Release: Immediately 8/15/84

UW-MADISON NEWSBRIEFS

PRIMATE CENTER SCIENTIST TO EDIT JOURNAL

Wisconsin Primate Center scientist Donald J. Dierschke has been appointed editor-in-chief of Biology of Reproduction, the research publication of the Society for the Study of Reproduction.

Dierschke, a professor in UW-Madison's meat and animal science department, was appointed at the society's annual meeting last month in Laramie, Wyo. He will begin his four-year post as editor next summer.

Another Primate Center scientist, Jerry Robinson, will serve as assistant editor. Robinson is acting director of UW-Madison's Institute on Aging.

The Wisconsin Regional Primate Research Center is one of seven such facilities around the country devoted to carrying out meaningful scientific research related to human problems through the use of nonhuman primates. It is funded by the Division of Research Resources, National Institutes of Health.

-o- -o- -o-

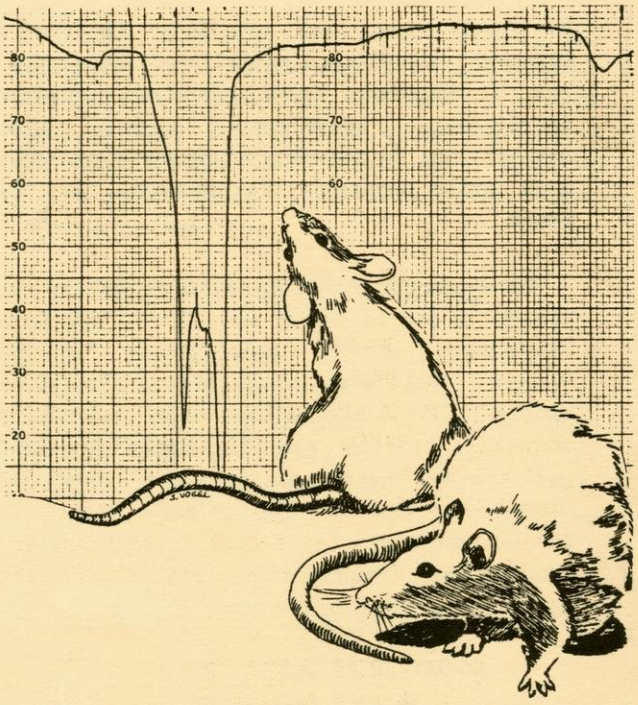
Communication arts Professor Kathy Kellermann has been named the recipient of two research grants, a $5,000 Biomedical Research Support Grant for the study of Sequential Structure in Interaction and a $15,000 National Institute of Mental Health grant to support the study of the efficiency and appropriateness of information-seeking strategies.

###

1983 Primate Center

WHY THE UNIVERSITY WILL CONTINUE TO HAVE REQUIREMENTS FOR RESEARCH ANIMALS

Biological Studies Involving Animals at the University of Wisconsin



The University of Wisconsin not only cares about research animals, it cares for them too. Let us explain.

The use of animals in biomedical research concerns those of us interested in the welfare of both people and animals. This brochure answers some of the most frequently asked questions about research involving animals. It tells how we have benefited from this research and explains why research involving animals is vital to continued medical, veterinary, and agricultural progress.

WE ALL HAVE BENEFITED

Biomedical research involving animals has helped everyone of us at some time. Whenever we receive a vaccination, take a prescription drug or undergo surgery, we benefit from research conducted with animals. Hundreds of thousands of people who have chronic medical conditions like cancer, diabetes, heart disease, high blood pressure, eye disorders, or who have been treated for burns or other injuries, are alive today because of research involving laboratory animals.

THE JOB IS NOT DONE

Although a great deal of progress has been made toward bettering health and treating disease, many biomedical puzzles remain unsolved. Next year more than 8800 people in Wisconsin will die from cancer and another 17,000 cases will be diagnosed. Heart attacks, strokes, and kidney disease continue to claim the lives of men and women, many in their prime. Each year nearly a million Americans die of cardiovascular disease alone, and more than that are incapacitated by psychiatric disorders. These, and many other incapacitating or life-threatening medical problems, are being studied at the University of Wisconsin (UW), partly through the use of animals.

WHO DOES THE RESEARCH?

In large part, the researchers are physicians, psychiatrists, psychologists, veterinarians and their associates, who divide their time between caring for their patients and performing scientific studies that work toward improving the lives of patients everywhere. Other researchers are UW professors and their associates who are both teachers and research scientists.

WHY ARE ANIMALS USED WHEN IT IS THE HUMAN WE WANT TO UNDERSTAND?

It is not ethical to use human subjects in most exploratory research. However, the

general functions of cells, tissues and organs are the same in animals as in people. In addition, most human diseases have counterparts in animals. Some examples are atherosclerosis and hyaline membrane disease in monkeys, diabetes and hemophilia in dogs, leukemia in cats, and muscular dystrophy in mink and chickens.

In many groups of bacterial and viral human pathogens there is a variant that affects animals. In these cases, and in many others, knowledge about how people become ill and how they can stay healthy comes from observing the way that animals develop and fight diseases, and how they respond to potentially useful treatments. Even determining why some animals don't have disorders found in humans is important, and examining these differences can increase our understanding of how the human body works.

WHO OVERSEES THE USE OF RESEARCH ANIMALS AT UW?

Three components of the UW advise and coordinate for the chancellor in the regulation of animals used in research at UW: The All-Campus Research Animal Resources Committee, the Office of Biological Safety in the Safety Department, and the Research Animal Resources Center. The Office of Biological Safety is concerned about the potential impact of university research animals on our campus and its environment. The Research Animal Resources Center provides centralized management of the university-wide animal care program. The Research Animal Resources Committee has the responsibility of providing liaison between the users of research animals and the Research Animal Resources Center. Each college or school within the university, such as Letters and Science, Agriculture, Health Sciences, and School of Veterinary Medicine, has its own animal care committee. The UW Research Animal Resources Center coordinates activities with other universities in the UW system and cooperates with other research institutions in the state.

The Regional Primate Research Center at the UW is one of seven such facilities in a nationwide network established by the National Institutes of Health (NIH). Each center is affiliated with a major university and all provide special facilities and well-trained personnel for the care and study of primates. The primate center at the UW emphasizes basic studies on behavior, neuroscience, reproductive physiology, and aging.

DO ANY RULES GOVERN THE USE OF ANIMALS IN RESEARCH?

UW scientists adhere to regulations and guidelines for humane treatment of laboratory and domestic farm animals established by government and professional groups. Many of UW's laboratory animal facilities are accredited by the American Association for Accreditation of Laboratory Animal Care. All investigators certify, as part of all extramural grant applications involving animal research, that the researchers planned use of the animals is humane and appropriate.

Several organizations also monitor the use of animals at the UW. The United States Department of Agriculture (USDA) periodically inspects the UW to make sure animal feeding, housing, and cleanliness are up to standards. Granting agencies, such as the NIH, DOD, the American Cancer Society, and American Heart Association, review grant applications for scientific worth and relevance to human problems. The NIH and several professional societies, such as the American Physiological Society, have guidelines for humane treatment that protect animals from unnecessary pain and suffering. Questions about specific cases are referred to the UW Research Animal Resources Committee.

WHO TAKES CARE OF THE ANIMALS?

The UW employs 8 veterinarians, 2 veterinary technologists, 11 animal facility managers and 105 animal caretakers whose primary responsibilities are to care for the animals. Staff members are on duty days, nights, weekends, and holidays to look after the animals.

CAN'T SCIENTISTS USE OTHER METHODS THAT DON'T INVOLVE ANIMALS?

Recent advances in laboratory tests of blood, cells, milk, and urine and other specimens donated by humans, as well as computer simulations, secondary cell cultures and new technologies, such as those that enable researchers to scan internal organs without surgery, allow researchers to carry out many studies without direct use of animals. Biomedical scientists choose the technique that makes the most sense scientifically. Contrary to popular belief, animal use has dropped markedly in recent years. Between 1968 and 1978 the acquisition of animals for research decreased 35%. Between 1969-1980, the number of monkeys imported into the United States decreased 79%. The UW Regional Primate Research Center has not imported any monkeys since 1978.

Practical as well as ethical considerations lead researchers to use animals conservatively. Competition for research dollars assures that only projects of highest scientific merit are funded. Studies that are mediocre, redundant, or a waste of animal resources do not receive grant support and are not carried out.

CAN'T ALTERNATIVE METHODS FULLY REPLACE ANIMALS IN MEDICAL RESEARCH?

Unfortunately, not yet. Life and the mechanisms of living things are so complex and incompletely understood that scientists cannot engineer a total substitute for animals. Computers, for example, can only make predictions based on the information programmed into them, and that information is limited by current human understanding of biology. Computerized data must be derived from animals and the computers predictions must be tested on animals to see if they are valid.

Other tests, whether in cell cultures or bacteria, may lead scientists to suspect that a substance is beneficial or hazardous, but the results of tests in cell culture do not always reflect the response of an entire living organism. The public rightly demands rigorous testing to prevent the marketing of drugs and other substances that might cause birth defects, cancer or other tragedies. Such testing requires the use of animals.

ARE THERE ANY BENEFITS FOR THE ANIMALS?

Animal research benefits animals as well as humans. Because people and animals share many of the same diseases and physiological processes, finding a new treatment for these illnesses helps both people and animals. Polio and measles vaccines, developed through previous animal research, are now given to gorillas and other primates to protect them from these potential crippling diseases. New

advances in breeding and animal care have enabled researchers to preserve some endangered species from extinction.

At the UW, researchers are studying animals with influenza, a viral disease similar to the one that produces infection in people. Treatments developed will help both the animals and human patients.

Active research is in progress at the UW directed specifically at diseases of animals. These studies are primarily carried out in the School of Veterinary Medicine and the College of Agricultural and Life Sciences. Some of the specific diseases that are under investigation include pneumonia, lymphatic leukemia, parasitic diseases, mastitis and reproductive disorders. Research of this nature has resolved many disease problems in animals and tremendously increased agricultural productivity.

Progress in medical care, for people and animals, depends on continued research involving animals. For many diseases, the alternative is either to perform studies in animals, or to abandon research necessary to reduce disease and suffering among all species.

Research Animal Resources Committee
Robert Auerbach
Paul Bass
Gerald Bisgard
Roswell Boutwell
Donald Dierschke
David Gilboe
Alfred Harper
June Osborn
James Starling
Bernie Wentworth, Chair
James Will, Ex officio

uw news

From the University of Wisconsin-Madison / News Service, Bascom Hall, 500 Lincoln Drive, Madison 53706 / Telephone: 608/262-3571

Release: Immediately 1/3/84

CONTACT: John Wolf (608) 263-3508

WISCONSIN PRIMATE CENTER RELEASES AUTOPSY REPORTS

MADISON--The Wisconsin Regional Primate Research Center at University of Wisconsin-Madison released copies Tuesday (Jan. 3) of 527 of its unofficial autopsy reports on center monkeys that died between 1978 and 1983.

Center director Robert W. Goy, in turning over the reports to a local animal advocacy group, Alliance for Animals, stressed that the autopsies serve only as preliminary sources of information and "do not constitute final determinations of causes of death of the animals."

Interpretations and analyses based on unverified perusal of the reports, which are unedited transcriptions of pathologists' notes, could be inaccurate and misleading, Professor Goy warned. He said that all autopsy data from the reports should be confirmed by contacting the investigator in charge of the animal, the center veterinarian or the pathologist who conducted the autopsy.

Autopsy reports are not required by the National Institutes of Health, which funds the center, or by any other federal, state or local governmental entity, and thus are not kept as official center documents, according to Goy. They are not signed by a pathologist, as are human autopsy reports.

All monkeys that die at the center, either from spontaneous causes or as part of a research project, are autopsied to obtain as much information as possible, thus maximizing the amount learned from each death, Goy noted.

Information derived from the autopsies, and from subsequent confirmation and analysis of the autopsy results, has formed the basis of research findings

-more-

and scientific publications relevant to public health concerns by center investigators over the past 22 years, he said.

The Wisconsin Primate Center is one of seven such facilities around the country dedicated to studying human health problems through research on nonhuman primates. The center at Wisconsin is well known for its studies of hyaline membrane disease, a disease which annually claims the lives of about 9,000 premature infants in the United States; on the endrocrinology of aging and arthritis; and on reproduction and sterility. Last summer, the world's first test-tube rhesus monkey, Petri, was born at the center.

###

uw news

From the University of Wisconsin-Madison / News Service, Bascom Hall, 500 Lincoln Drive, Madison 53706 / Telephone: 608/262-3571

Primate Center

Release: Immediately 9/30/83

CONTACT: Steve Gartlan (608) 263-3507, Robert Goy (608) 263-3500,
Wallace Houser (608) 263-3571 or John Wolf (608) 263-3508

PETRI'S LIFE AT THE PRIMATE CENTER

MADISON--Several weeks of anticipation and anxiety have ended at the Wisconsin Regional Primate Research Center at University of Wisconsin-Madison, where Petri, the world's first test-tube rhesus monkey, and his foster mother Grits have formed a close bond, according to center personnel.

But what if Petri had been born in his natural habitat, an Indian jungle? Would life be harder? Healthier? Longer?

Center veterinarian Dan Houser thinks that monkeys are a lot better off in the center than in the wild, where they must struggle to survive against predators, hunger, weather and disease. "When rhesus monkeys were imported from India, they arrived in this country with all sorts of diseases and parasites," Houser said.

No wild-caught monkeys have been imported since 1978, he said, partly because of Indian government restrictions. But the center's breeding colony has been so successful, Houser noted, that imports have been unnecessary.

Houser speculated, in fact, that laboratory breeding colonies someday may be virtually the only source of rhesus monkeys. Destruction of their habitat and a change in Indian attitudes has led to a drastic decrease in the wild population of these animals. Monkeys are no longer treated as sacred by much of the population of India, he noted.

Center ecologist Steve Gartlan, an expert on wild monkeys, described urban

-more-

rhesus monkeys in India as "more aggressive than our center monkeys, probably because they must struggle to make a living scavenging food. There's not much data about wild monkeys, but there's no doubt their infant mortality rate is high and life expectancy low. They suffer from TB, parasites, starvation -- you name it," Gartlan said.

If longevity is a measure of good care, the center must be doing something right. Fifty-six elderly monkeys -- including some in their late 20s and early 30s -- have been set aside for noninvasive research on the aging process, according to center director Robert Goy, who said these animals serve as models for investigating the physical and emotional complications of aged humans.

Houser predicted that Petri can be expected to live a normal monkey life well into his 20s -- compared with Gartlan's estimate of probably less than 15 years in the wild -- because of the center's routine of care:

-- Every morning, caretakers make the rounds to inspect each monkey. To get a careful look, they offer tempting teasers like Froot Loops or raisins for which a monkey will perform extraordinary feats of stretching, and perhaps reveal a hidden medical problem.

-- Each day caretakers hose the cages and floors. Weekly they clean with hot water and acid. Pans beneath other cages are automatically rinsed throughout the day.

-- The monkeys eat a nutritionally-balanced monkey chow along with an occasional orange or sandwich treat -- pancake syrup and a kind of powdered milk between slices of whole wheat bread, a vehicle for sneaking vitamins or medicine to a monkey if needed.

And what about Petri's psychological development?

That depends in part upon whom you talk to.

Animal rights advocates say monkeys have a right to freely roam their own territory. And as one UW-Madison medical student put it, "Living in a cage is

not the greatest."

However, Gartlan, who has studied monkeys in African rainforests for much of the past 16 years, feels the "specific and demonstrable" purpose of biomedical research to benefit mankind and animals alike justifies keeping some monkeys in captivity. He feels that keeping monkeys as pets, however, is "depriving an animal of its freedom with no point to it other than personal gratification."

Goy stressed that it is important for Petri to grow up in a normal social and emotional environment, and said the center tries to maintain normal animal groupings. Even monkeys in individual cages have visual contact with other monkeys, he said.

Earl Duhr, a 19-year veteran caretaker at the center, explained that monkeys become upset when one monkey is removed from a group. "When the monkey comes back, they calm down," he said.

But the monkeys don't always come back. In some experiments, they must be sacrificed -- killed. "When we have to sacrifice an animal," veterinarian Houser said, "we do it painlessly by injection. The animal is removed from its cage, anesthetized, and then taken to the autopsy room where it is injected with an overdose of sodium pentobarbital. Some of our people become so attached to their animals that they take a day off when the time comes to terminate the animal's life," Houser said.

Last year, out of a colony of 1,055 monkeys, 47 died of natural causes -- predominately stillbirths -- and 72 were sacrificed, according to center records.

Houser said that although animals must be killed in the course of certain biomedical research at the center, all proposed projects are evaluated by two separate committees that advise the center's director on scientific merit and humane treatment of animals. In line with the center's policy statement on ethical uses of animals, one of the committees includes two local animal advocates as voting members, Goy noted.

###

-- Jacqueline Kelley (608) 262-8282

uw news

From the University of Wisconsin-Madison / News Service, Bascom Hall, 500 Lincoln Drive, Madison 53706 / Telephone: 608/262-3571

Primate Center

Release: Immediately 9/19/83

(Photo available on request)

CONTACT: Robert Goy (608) 263-3500, John Wolf (608) 263-3508, Barry Bavister (608) 263-3555

WORLD'S FIRST TEST-TUBE RHESUS MONKEY IS THRIVING

MADISON--Petri, the world's first "test-tube" rhesus monkey, is doing very well nearly a month after his birth, report scientists at the Wisconsin Regional Primate Research Center, University of Wisconsin-Madison.

"He's right on schedule -- a very robust and healthy young monkey, judging by all observations we've made since his birth," said primate center director Robert Goy. "And he's formed a very strong bond with his foster mother."

There were some anxious moments during the first two days after Petri's birth Aug. 24, according to Goy. As is often the case following Caesarean section deliveries in monkeys, the infant was rejected by the surrogate mother who had carried the embryo developed from a laboratory-fertilized egg from another monkey.

Goy said the Caesarean section was necessary because the baby was nine days overdue.

Petri was placed with another of the colony's mothers, however, who took him under wing. The foster mother's acceptance was important, Goy said, because the researchers want Petri to grow up in a normal social and emotional environment.

Petri's adoption was overseen by Steve Eisele, supervisor of the center's

-more-

monkey breeding colony.

"We've had monkeys here who have had up to seven adopted infants at the same time," Goy said.

Goy noted that in the wild a wounded mother often will instinctively care for herself rather than her baby -- an example of self-preservation. Perhaps, he speculated, the Caesarean section operation was like an injury to the surrogate mother. She rejected Petri because she thought she was wounded.

Goy said that Petri will be watched very closely as he grows and develops. He will be compared to hundreds of other rhesus monkeys raised at the center.

The Wisconsin scientists are anxious to see if Petri continues to develop normally, especially through puberty when certain developmental problems could show up. His offspring also will be monitored for any signs of abnormalities that might be associated with "test-tube" paternity.

Research on monkeys has lagged behind human in vitro fertilization work, according to UW-Madison physiologist Barry Bavister, who heads the project. But the monkey research is important, he stressed. Monkeys are strikingly similar to humans in many respects and their compressed lifespans may provide early clues to possible problems in test-tube humans and their offspring.

Bavister added that monkeys provide a useful nonhuman primate model for experimental studies of mammalian fertilization and early embryonic development as well as a model to study birth defects and abnormalities.

Petri was delivered one month after the only other test-tube primate -- a baboon -- was born in Texas, and five years after the birth of Louise Brown, the first human test-tube baby.

Bavister also was indirectly involved with Brown's birth, having developed the solution in which the human egg was fertilized.

###

Jacqueline Kelley (608) 262-8282

University of Wisconsin–Madison
Clip Sheet August 25, 1983

Petri, first test-tube rhesus monkey, 30 minutes after birth.
— Photo by Robert Dodsworth, Wisconsin Regional Primate Research Center

Test-tube monkey born at UW facility

WSJ 8/25/83

By Roger A. Gribble
Education reporter

There's a new baby star at the Wisconsin Regional Primate Research Center — the world's first "test-tube" rhesus monkey.

Unofficially named Petri, for the Petri dish in which he was conceived, the 1½-pound male is apparently healthy and doing fine, as is his mother, said John Wolf, a center spokesman. Petri is actually the world's second test-tube monkey; the first was a baboon born in Texas last month.

Petri, born at 9:15 a.m. Wednesday, was nine days overdue and weighed a half-pound more than the usual rhesus baby, so he was delivered by Caesarean section by center veterinarian Dan Houser. He was to be kept in an incubator until reunited with his mother, something scientists will do as soon as possible.

Wolf said the birth represented the first time a monkey egg fertilized in a test tube was transferred to a surrogate mother nonsurgically. The only other test-tube primate, the baboon born in Texas, resulted from the surgical transplant of a fertilized egg into the mother.

Wolf said Petri is getting a lot of attention from secretaries and other staff members at the University of Wisconsin-Madison center. "He's a cute animal and a fairly large animal," he said.

Barry Bavister, the physiologist who heads the center's "in vitro" (in glass) fertilization project, was also involved in the first successful human test-tube birth. While at Cambridge University in 1969 he helped demonstrate that human eggs could be fertilized outside the body.

He also developed the "Bavister medium," a solution in which sperm can mature sufficiently to fertilize an egg. The medium was used to conceive Louise Brown, the first human test tube baby, who was born in 1978.

The application of in vitro fertilization to monkeys provides a nonhuman primate model for experimental studies of mammalian fertilization and early embryonic development, Bavister said.

With this technique "we can analyze the cause of birth defects and developmental abnormalities," he said, and "we will learn about the hormonal conditions needed to start and maintain a pregnancy."

The success rate of human test tube babies is low — about 20 percent — and improvements in techniques must be worked out and evaluated in animal subjects, he said.

Bavister said the reproductive physiology of rhesus monkeys is similar to that of humans, and that could result in some practical spinoffs from such monkey births.

—over—

Clip Sheet is compiled by University News Service, 15 Bascom Hall, 262-8280.
Key: WSJ, *Wisconsin State Journal;* CT, *Capital Times;* MJ, *Milwaukee Journal;* MS, *Milwaukee Sentinel;* NYT, *New York Times*

Animal rights advocates, scientists at loggerheads

MJ 8/22/83

By Lisa Bain

of The Journal Staff

In 1982, more than 9,000 dogs were killed by the Wisconsin Humane Society. Their carcasses were sent to a rendering company.

During the same period, more than 1,000 dogs were purchased at a price of about $150 each for medical research at the Medical College of Wisconsin.

About 1,200 dogs were purchased by the University of Wisconsin — Madison. Federal grants pay for most of that research.

"I think it's a poor use of taxpayers' money to pay that much for a dog when we could get it from the pound for $5 or $10," said David Kostreva, associate professor of anesthesiology and physiology at the medical school and research scientist at the Veterans Administration Medical Center here.

"And the end result is the same for the animal," he said. "It's still dying."

The Humane Society maintains that providing animals for medical research would violate its purpose of protecting life or ending it in the most humane way possible. But scientists argue that the Humane Society's practices stifle medical research and training.

In January 1981, the state law that governs the use of pound animals gave pounds the option of refusing scientists. At that time, said Leon Nielsen, executive director of the Wisconsin Humane Society, the board of directors decided to stop supplying animals to researchers.

"We don't criticize the value of medical research," Nielsen said. "But we do not believe we should be a source of animals."

> ***"Taxpayers get it in the neck one way or another."***
>
> — William Samuels
> Medical research official

Nielsen claimed that from a practical standpoint, the Humane Society must refuse to release animals for research because otherwise, animal welfare supporters would cut back on charitable donations to the organization.

Eight states besides Wisconsin have similarly changed their laws, and about a dozen other states are considering such legislation, said William Samuels, executive director of the National Society for Medical Research in Washington, D.C.

"A little over 100,000 dogs are used [for medical research] in the US each year," Samuels said. "And every year 12 to 14 million dogs are destroyed by the pound. Taxpayers get it in the neck one way or another."

Allen Cowley Jr., professor and chairman of the department of physiology at the Medical College of Wisconsin, said the high cost of animals had affected more than the overall cost of research.

"Wet lab" classes for medical students — where they get hands-on experience working with live animals — have been cut way back.

$5,000 per lab

"It costs the department nearly $5,000 to run one dog lab," he said. "We cannot afford at today's dog prices to run what I think medical students need."

Animal rights activists who have been instrumental in changing the pound seizure laws argue that those laws are necessary to protect animals from painful and inhumane experimentation. John Gleiber, executive secretary of the Animal Welfare Institute in Washington, D.C., gave two reasons for the laws.

First, he said, people might be reluctant to turn animals in to the pound if they knew the animals could be used for medical research. And second, Gleiber argued, pound animals give scientifically inaccurate results because the researchers know nothing about the animal's genetic background or health status.

"There's also a growing awareness in the scientific community that in many cases the use of animals is expensive, redundant and often unnecessary," he said.

Gleiber maintained that many experiments currently done on animals could be carried out using other techniques such as tissue culture — where cells are grown in a test tube or laboratory dish — and computer modeling.

Autopsies are done

Cowley called the argument against the validity of using dogs "nonsense."

"It's true that when we start we don't know which dogs have heartworms or things like that," he said. "But we do autopsies," and then exclude the results from animals with complicating diseases.

James Will, professor of veterinary science and anesthesiology at the University of Wisconsin — Madison, also criticized the argument.

"We think random source animals duplicate the randomness in our population," he said.

Cowley said dogs were crucial in certain types of research. For instance, surgical procedures that require implantation are best carried out in dogs.

"A lot of things just can't be miniaturized so we could use smaller animals such as rats," he said.

In addition, Cowley noted the enormous amount of literature regarding dog physiology. "It's an animal we have a great deal of information about," he said.

Kostreva, who is studying how the nervous system controls blood pressure and heart function, said:

"Animal experiments are absolutely essential. You can't do these experiments in humans and you can't do them on a computer because it's a new area and no one knows how it will work."

Beyond these arguments, scientists maintain that research animals are well-treated. Researchers and research institutions are regulated by federal laws and by rules developed by the National Institutes of Health. And research institutions usually have their own animal research committees that oversee care.

Will said the current pound seizure law had the opposite effect of what animal rights activists intended — protecting their animals from getting into the stream of animals headed for research.

He said that the lack of available dogs had put more pressure on dog dealers and that unscrupulous people could steal dogs, then sell them to dealers. Dealers, he said, have no way of knowing whether the dogs are stolen.

Some research institutions have come up with compromises to satisfy the Humane Society. For instance, at the University of Illinois — Chicago, pound animals can be used, but only for acute experiments. This means that once the animal is anesthetized for an experiment, it never wakes up again.

Scientists fear that the animal rights movement will push for even stricter laws against using animals in research. Most such laws, Cowley said, are "not an effort to improve the way animals are cared for. They're really aimed at stopping the use of research animals."

Legislation currently being considered in California, for instance, would forbid the use of pound animals for research, one step beyond the existing Wisconsin law.

— over —

uw news

From the University of Wisconsin-Madison / News Service, Bascom Hall, 500 Lincoln Drive, Madison 53706 / Telephone: 608/262-3571

Release: Immediately 8/24/83

(Photo available on request)

CONTACT: John Wolf (608) 263-3508, Barry Bavister (608) 263-3555

WORLD'S SECOND 'TEST TUBE' MONKEY BORN AT WISCONSIN PRIMATE CENTER

MADISON--The world's second "test tube" monkey -- and the first test tube rhesus monkey -- was born Wednesday at the Wisconsin Regional Primate Research Center at University of Wisconsin-Madison.

The healthy, 1 1/2 pound male, unofficially named "Petri" by center staff members for the Petri dish in which he was conceived, was born at 9:05 a.m. According to center spokesman John Wolf, the experiment marked the first time a monkey embryo fertilized in a test tube -- "in vitro" -- was transferred to a surrogate mother nonsurgically.

The only other test tube primate, a baboon born in Texas in July, resulted from the surgical transplant of a fertilized egg into the mother.

The Wisconsin infant was delivered by Caesarean section by center veterinarian Dan Houser. It will be kept in an incubator until it can be reunited with its mother.

Physiologist Barry Bavister, who heads the Wisconsin Primate Center's in vitro fertilzation (IVF) project, also was involved in the first successful human test tube birth. While at Cambridge University in 1969, he helped demonstrate that human eggs could be fertilized outside the body, and developed the "Bavister medium," a solution in which sperm can mature sufficiently to fertilize an egg. The medium was used to conceive Louise

-more-

Brown, the first human test tube baby, in 1978.

Bavister said the application of in vitro fertilization to monkeys provides a nonhuman primate model for experimental studies of mammalian fertilization and early embryonic development.

"Using IVF, we can analyze the cause of birth defects and of developmental abnormalities," he said. "In addition, we will learn about the hormonal conditions needed to start and maintain a pregnancy."

Bavister said the reproductive physiology of rhesus monkeys is similar to that of humans, which could result in some practical spinoffs. The in vitro success rate in humans is low -- about 20 percent -- and improvements in techniques must be worked out and evaluated in animal subjects, he said.

"The IVF clinics are not experimental places," said Bavister. "Humans are not suitable for this kind of experimentation. But by using monkeys, we have an opportunity to find out what's really going on."

In addition, although there are scores of human IVF offspring, IVF monkeys mature so much more quickly that their potential developmental problems should be known before any IVF humans reach maturity, he said.

The delivery was by Caesarean because the birth was overdue. Bavister had spent most of the past 10 nights at the center waiting for the birth. The baby was one of the largest rhesus monkeys ever born at the center, which is home to about 1,000 rhesus monkeys.

###

--Jacqueline Kelley (608) 262-8282

April 21, 1983

NOTE TO EDITORS AND NEWS DIRECTORS:

The following statement was issued by University of Wisconsin-Madison Chancellor Irving Shain on Thursday (April 21). The statement, and other enclosed materials, may prove helpful in conjunction with coverage of the Mobilization for Animals demonstrations scheduled for Sunday (April 24).

--University News Service

S T A T E M E N T
By UW-Madison Chancellor Irving Shain

For the past 20 years, the Wisconsin Regional Primate Research Center at the University of Wisconsin-Madison has carried out meaningful scientific studies that contribute to our understanding of human problems. The Center's research has led to the development of important animal models for studying human disorders and to significant advances in the treatment of monkey diseases. In addition, Center scientists have contributed substantially to basic knowledge, as evidenced by hundreds of publications in scholarly journals.

At the same time, the Wisconsin Primate Center has shown an unswerving concern for its animals before, during, and after experimental procedures. Faculty, academic staff, and students in many departments at the University rely on the Center for services and assistance in their research involving nonhuman primates. The Primate Center's contributions to biomedical research as well as the Center's leadership in the humane treatment of nonhuman primates have been significant factors in sustaining the University's reputation as a major research center.

research news

From the University of Wisconsin-Madison / News Service, Bascom Hall, 500 Lincoln Drive, Madison 53706 / Telephone: 608/262-3571

Release: Immediately 2/23/83 jk

(Photos available)

(EDITORS: Care of laboratory animals has been made a public issue recently by animal rights advocates. Mass rallies are planned April 24 in Madison and at Primate Centers in three other U.S. cities. The following release was written by a University News Service reporter who toured the Wisconsin Regional Primate Research Center, a frequent target of the protesters.)

CONTACT: Wallace D. Houser (608) 263-3571

MONKEY LIFE AT THE PRIMATE CENTER

By JACQUELINE KELLEY

MADISON--On their daily rounds to see how the "patients" are doing, these attendants aren't equipped with thermometers and stethoscopes or little paper cups with pills. They don't even say, "And how are we this morning?"

Instead, they carry Froot Loops. They know their charges will turn somersaults, hang upside down or perform extraordinary feats of stretching to reach the delectables. That, in turn, allows attendants at the Regional Primate Research Center at University of Wisconsin-Madison to make a visual inspection of the 1,000 or so rhesus monkeys in their care.

But while the animals may turn handsprings for their caretakers, they treat an unknown visitor with less enthusiasm, even an occasional threat of bared teeth. Mostly, though, they're too busy swinging or grooming to notice.

"I've been in the monkey business 17 years, and I still find them unpredictable," said Dr. Dan Houser, the center's veterinarian. "They have distinct faces and personalities--one has a funny nose, another a long face or a notch in his ear or a peculiar habit like holding an index finger at the corner of an eye.

- more -

"Some of our favorites have names as well as numbers. There's George and Sylvia and Madonna, and everybody's favorite, Stumper, a cross between a rhesus and a stump-tailed macaque. Stumper's strictly a pet."

Houser explained that monkeys, being strikingly similar to humans in their physiology, are particularly useful as research models for studying many human disorders. In some cases, they are the only suitable models. And many aspects of their behavior, such as daily routines and interpersonal relationships, resemble human behavior.

"The work we do here is mainly in the areas of behavior, reproductive physiology, neurosciences and aging. And we collaborate on a variety of projects with other scientists from UW and even other institutions.

"Although we don't often operate, the most common surgery we do is called laparoscopy, in which we make a small abdominal incision--about a quarter inch--to insert a device through which we can see the ovaries. This allows us to monitor exactly what stage the follicle (egg sac) is in. That in turn tells us when an egg will be released, which is important information in many research projects."

Occasionally Houser clamps a renal artery, reducing blood flow to the kidney and producing high blood pressure, which in turn can affect tiny blood vessels in the eye. By studying these changes and what happens after blood pressure is lowered, the primate scientists hope their findings will help people with the same kind of eye problems.

One "operation" the center routinely does involves cutting off anaesthesized male monkeys' upper canine teeth at the gumline. Then, "dentist" Houser performs what amounts to a root canal. In earlier days, he said, these teeth were pulled, but eventually the other teeth shifted out of alignment.

"It's important to get rid of the sharp end of those two canines because the male rhesus can severely bite females and other males, especially during the mating season--also people. The root canal method is more humane and maintains a good set of teeth," Houser said.

Maintaining healthy teeth is important, he explained, in animals that can live more than 30 years in captivity. A colony of old rhesus monkeys at the center provides models for studying aging processes, especially hormone changes associated with growing old and the regulation of blood sugar in aged monkeys.

Houser, Wisconsin's only veterinarian who is board-certified in laboratory animal medicine, helps with research projects when needed and is in charge of the monkeys' care and health. One of his prescriptions is cleanliness.

The rooms where the animals are housed appear close to the center's goal of being hospital clean. Every day, caretakers don coveralls and high rubber boots to hose the cages and floors, and once a week they clean with hot water and acid. Even play equipment, installed at the suggestion of an animal protection group, is blasted daily with the powerful jet stream. Pans beneath other cages are automatically rinsed throughout the day.

"Every year we pour tens of thousands of dollars into construction and remodeling to make the facility as hygienic as possible. For example, we try to eliminate tiny crevices where insects or microorganisms can hide by increasing use of stainless steel," Houser said.

Careful attention to cleanliness may help account for the center's success in breeding rhesus monkeys. A colony of about 250, Houser said, supplies all the monkeys the center needs as well as a few extra to sell to other primate researchers. A large colony benefits young and old, he added. Monkeys are social animals, and sometimes a tired old monkey is rejuvenated by being put into the hubbub of a breeding group.

Caretakers are trained, he said, to be on the lookout for any sign that an animal is sick or injured--a discharge from nose or eyes, for instance, or a peculiar gait. To get a good look, the caretakers offer tempting teasers such as Froot Loops, raisins or corn puffs. Babies are often hard to observe, Houser noted because the mothers are protective and hold them close to their bosoms; only a quick and sharp eye can spot a problem.

"Every Monday morning the Gardner (bakery) truck rolls up with lots of whole wheat bread. We spread a mixture of calf milk replacer--a powder--and pancake syrup between two slices, and that's a real treat. Also, we can sneak vitamins or medicine in the sandwiches if needed."

Oranges are very dear to monkeys and are given to animals recovering from surgery or illness. The oranges offer a good way to supply sugar, vitaminc C and minerals, Houser said. Sandwiches and oranges serve as supplements to the monkeys' regular diet of monkey chow.

"When you give one monkey a piece of orange, the others give you dirty looks as if saying 'Where's mine?' They'll even make mournful sounds. But with the price of oranges, we can't often given them out just for treats."

Houser said the animals are attended by 10 caretakers as well as other technicians and supervisors. "Several of the caretakers have been looking after monkeys at UW-Madison 15 or 20 years--some even before the center was established in 1962."

Nineteen-year veteran Earl Duhr said that caretakers get to know the monkeys very well. "It's like looking at your kids--you can tell if something is wrong," he said. "Even when you remove a monkey from its group, you'll notice that the others react differently until the monkey comes back. Then they calm down. Monkeys in a group are very protective of each other."

Jack Haskins has observed thousands of monkeys during his 22 years at the Wisconsin primate facilities. One of his jobs is to keep detailed records, which are sent to the National Institutes of Health, the center's parent agency. "We have all the information on a computer--the research a monkey is involved in, his health status, TB tests, any drugs he receives, monthly weight, ancestry, source, date received, and date of birth," he said.

During a typical year, some monkeys are shipped out to other labs. Others die from natural causes, predominantely still-briths, and the rest are sacrificed at the end of experiments. Last year, 47 monkeys died of natural causes and 72 were sacrificed from the colony of 1,055. "When we have to sacrifice an animal," Houser said, "we do it painlessly by injection. And we use modern anaesthetics for surgery."

Houser said that although animals must be killed during certain biomedical research projects, the experiments must be shown before-hand to be scientifically worthwhile and use the fewest animals possible. "Some of our people become so attached to their animals," he added, "that they take a day off when the time comes to terminate the animal's life."

###

WISCONSIN REGIONAL PRIMATE RESEARCH CENTER
UNIVERSITY OF WISCONSIN

1223 CAPITOL COURT
MADISON 53706

Primate Center

June 14, 1982

Attached is the Wisconsin Primate Center's Policy Statement on Principles for the Ethical Uses of Animals. The document was approved by the Center's Senior Scientific Staff on May 14, 1982.

Because of some unique aspects of this Policy Statement, copies are being distributed to persons who have an interest in animal research or who might otherwise be concerned with the issues dealt with in the document.

The Policy Statement establishes a mechanism by which all research proposals by Center core scientists and by outside investigators conducting experiments at the Center will be reviewed for "necessity, humaneness, and acceptability." In addition to scientific peers, advocates of animal rights will be appointed by the Center Director to take part in this review process. The Center will continue its long-standing policy of separately judging research proposals for scientific merit.

If you have any questions or comments about the Policy Statement, please contact Dr. Robert W. Goy, Director, or Dr. William E. Bridson, Associate Director, (608) 263-3500.

POLICY STATEMENT ON PRINCIPLES FOR THE ETHICAL USES OF ANIMALS AT THE WISCONSIN REGIONAL PRIMATE RESEARCH CENTER

This statement of principles is dedicated to the memory of Dr. Martin Curie-Cohen, whose foresight, sensitivity, and unflinching ethical concern helped to begin the process by which this Center could take a leading role in protecting animal rights while fostering scientific inquiry.

The Wisconsin Regional Primate Research Center is devoted to carrying out meaningful scientific research related to human problems through the use of nonhuman primates and other laboratory animals in accordance with the most humane standards. It is the official policy of the Wisconsin Regional Primate Research Center that all animals under its control are recognized as creatures of great intrinsic value, remarkable complexity, and inherent dignity. All researchers using the facilities of the Primate Center have a professional obligation to avoid infliction of unnecessary pain or distress on these animals. Given this recognition of respect, all investigators who use animals should be guided by Albert Schweitzer's dictum: "It is their duty to ponder in every separate case whether it is really and truly necessary thus to sacrifice an animal for humanity."

1. All animals under the control of the Primate Center must be provided with the most healthful conditions and most humane care practically possible before, during, and after any experimental procedures. However, such maintenance and care standards alone do not constitute adequate protection of the well-being and rights of nonhuman animals. Therefore, controls and protection must extend to judgments on the necessity of each specific experiment and the humaneness of its design.

2. It is recognized that the use of nonhuman animals in research can contribute uniquely to the advancement of scientific knowledge and to the improved health and welfare of humans and nonhuman animals. However, for both ethical and scientific reasons, anyone using animals under the control of this institution has the responsibility to make the following choices when designing experiments:

a) When the research question can be meaningfully pursued using non-animal or *in vitro* models, the researcher must choose these alternatives.

b) When animal experimentation is required, the researcher must seek the least traumatic techniques feasible that would allow the research question to be adequately evaluated. The researcher must also minimize the intensity and duration of any distress to the subjects and minimize the number of subjects involved in an experiment, consistent with rigorous scientific and statistical standards.

c) Nonhuman primates should be used only in projects for which they are the most suitable animal model. When other species are as appropriate for the research problem being investigated, then they should be chosen as alternative models.

3. In all uses of animals in research, there must be a reasonable expectation that the experiment will contribute significantly to knowledge that may eventually lead to improvements in the health and welfare of humans or nonhuman animals. Moreover, there must be a reasonable expectation that the benefits to humans or to nonhuman animals will clearly outweigh any pain and suffering experienced by the experimental animals.

4. If animals under the control of this institution are used for nonresearch purposes, such as instruction in a formal classroom setting or public demonstrations, their use in these contexts will be regulated by the following principles:

a) Any proposed use of animals for instruction must be evaluated according to

the same general principles and guidelines used to evaluate research proposals.

b) Animals under the control of this institution cannot be used in exhibits or conferences for the demonstration of established scientific knowledge when such demonstration involves pain or prolonged stressful confinement.

5. Considerations of time or expense alone may never justify violations of the principles of this Policy Statement.

6. All uses of animals under the control of this institution will be subject to review and approval according to procedures established by the Director. The purpose of this review will be to judge the necessity, humaneness, and acceptability of each proposal. In all cases, the burden for justification of specific research designs and procedures rests with the investigator. Advocates of animal rights, along with scientific peers, will be appointed by the Director to participate with full voice and vote in this review. The standards for this review will be the principles set forth in this Policy Statement.

7. This institution will maintain training procedures in the philosophy and practice of animal handling, with an emphasis on safety and humaneness. Anyone who experiments upon, cares for, or handles animals under the control of this institution will be required to receive relevant training within a reasonable time.

8. Sanctions up to and including dismissal will be exercised, in accordance with due process and University regulations, against anyone who knowingly ignores or violates the principles of this Policy Statement.

9. The Director of the Primate Center will adopt all necessary procedures to implement and enforce this Policy Statement.

uw news

From the University of Wisconsin-Madison / News Service, Bascom Hall, 500 Lincoln Drive, Madison 53706 / Telephone: 608/262-3571

Release: Immediately 5/27/82 sjs

CONTACT: Robert Goy (608) 263-3500

UW-MADISON ANIMAL RESEARCHERS ADOPTS POLICY ON HUMANE TREATMENT

MADISON--Two animal research institutions at University of Wisconsin-Madison have established what may be a first by joining with animal rights activists to set a policy on experimentation that emphasizes humane treatment of research animals.

Robert W. Goy, director of the UW-Madison Primate Research Center, said the new policy is, "to my knowledge, the first example of such interaction between research institutions and the concerned public."

The policy, adopted by the Primate Research Center and the University's Primate Laboratory, insures that all animal research projects will be reviewed by the institution director and by a committee of scientists and animal rights advocates for "necessity, humaneness and acceptability."

Worked out in cooperation with the Madison-based Animal Liberation League, it requires that "test tube" experiments be used in place of animals when possible; that experimenters use the "least traumatic techniques feasible" in their work with animals; and that they use animals only when there is "a reasonable expectation that the benefits to humans or to nonhuman animals will clearly outweigh any pain and suffering experienced by the experimental animals."

Goy said the new rules will not significantly change the center's research, because humane treatment of the animals already is a consideration. But, he

- more -

said, the "protocol" of experimentation will change with the requirement that research be evaluated and judged important enough to justify the use of animals.

Goy said animal rights groups had been exerting growing pressure at the national level against primate research.

"Some primate center had to be thrust into a position of leadership in interaction with these groups," he said. "It is fair to say, also, that I initiated this effort and had the support of my staff in undertaking it."

Representatives of the Animal Liberation League called the agreement "a progressive and forward-looking document that recognizes the rights and dignity of animals that are the subject of experiments." The pact was endorsed by several other animal welfare groups, including the Humane Society of America.

The Primate Center at UW-Madison is one of seven in the country. Together, the center and the Primate Laboratory have about 1,500 monkeys for experiments.

###

uw news

From the University of Wisconsin-Madison / News Service, Bascom Hall, 500 Lincoln Drive, Madison 53706 / Telephone: 608/262-3571

Release: Immediately 3/2/82 jhs

UW-MADISON ASKS OKAY FOR NEW FLOOR IN SPORTS CENTER

MADISON--University of Wisconsin-Madison will seek UW System Board of Regents approval this week to rebuild the floor in the Camp Randall Memorial Sports Center, make ventilation improvements in the Regional Primate Center, and rebuild the parking lot between Memorial Union and the Red Gym.

The present synthetic floor in the Camp Randall "shell" was laid down in 1974 and has had to be repeatedly patched, regents were told in a report mailed in advance of the regents' meeting here Thursday and Friday. Its $425,000 replacement, to be paid for out of revenues, would most likely be made from polyurethane or similar material designed to avoid the peeling that has plagued the present floor.

The Primate Center request would add $292,000 in air conditioning equipment to the existing budget for ventilation improvements at the animal research building. Without the added air conditioning, regents were told, temperatures inside could climb to 84 degrees in the summer, causing human and animal health hazards from the increased growth rate of bacteria. The project would be funded from a combination of state building trust funds, general bonding and energy conservation funds.

The rebuilt parking lot on Langdon Street would hold the same number of cars--87--but add greenery, a walkway to the lake, lighting, improved storm drainage, and better delivery and trash pickup access. The projected $93,000 cost would come from gift funds and program revenues.

In other action, regents will be asked to approve the campus's 1982 transportation plan.

###

uw news

From the University of Wisconsin-Madison / News Service, Bascom Hall, 500 Lincoln Drive, Madison 53706 / Telephone: 608/262-3571

Release: Immediately 11/5/81 sjs

CONTACT: Marcia Gangemi (608) 263-3512 or J. Stephen Gartlan (608) 263-3507

RAINFOREST FILM TO HAVE PREMIERE AT ELVEHJEM MUSEUM

MADISON--"Korup--An African Rainforest," a film based on research by scientists from the Wisconsin Regional Primate Research Center, will have its premiere showing Wednesday (Nov. 11) at the Elvehjem Museum of Art on the University of Wisconsin-Madison campus. The free performance will begin at 8 p.m. in the Phillips Auditorium, Room 160.

The 55-minute color film, chosen by the World Wildlife Fund for its international fundraising efforts in 1982, focuses on the ecologic dynamics of the Korup rainforest in Cameroon, Africa. Spectacular scenes include thunderstorms, flooding rivers and waterfalls. The film also examines activities of four species of primate monkeys and other forest wildlife.

Wisconsin Primate Center Ecologist J. Stephen Gartlan, who has spent most of the past 10 years conducting research in the rainforests of West Africa, was scientific advisor for the film. Gartlan said funds raised by the film will help develop three Cameroon national parks containing 4,000 square miles of rainforest.

"One of the points the film emphasizes is how fragile the rainforests are," Gartlan said. "If they aren't protected, they could easily be destroyed."

Both Gartlan and Philip Agland, a British filmmaker who spent five years shooting footage for the film, will be present at the premiere to answer questions.

More information is available from the primate center, phone (608) 263-3512.

###

research news

From the University of Wisconsin-Madison / News Service, Bascom Hall, 500 Lincoln Drive, Madison 53706 / Telephone: 608/262-3571

Release: Immediately 12/26/79 mm

CONTACT: John Wolf (608) 263-3508

SCIENTIST TO BEGIN WORK ON IN-VITRO FERTILIZATION AT UW-MADISON

MADISON--The birth of Louise Brown, first of the so-called "test tube babies," may have surprised the world, but for Barry Bavister it was a moment of professional interest and personal pride.

Ten years before, Bavister--now a University of Wisconsin-Madison physiologist--developed the culture medium in which the egg taken from Louise's mother was fertilized.

Like most scientists, Bavister dislikes the catchy popular terminology which sometimes describes serious research. Instead of "test tube baby," he prefers "in vitro fertilization": a process by which a ripe egg is removed from a woman's oviducts and fertilized in the laboratory in a glass dish. "In vitro" means "in glass" in Latin.

Bavister developed the culture medium while working on his doctoral dissertation at Cambridge University with R. G. Edwards, who went on to work with Dr. Patrick Steptoe on the Louise Brown case. His dissertation dealt with fertilization of hamster eggs in vitro. Now, after his foray into human reproductive physiology, Bavister has once again returned to animals.

At UW-Madison Wisconsin Regional Primate Center, Bavister plans to conduct in vitro fertilization studies on rhesus monkeys. He believes that more work needs to be done on animal subjects before the procedure gains widespread human use.

- more -

"There is still a lot of basic science to be done. In a sense Edwards and Steptoe were lucky that it worked for them," he noted. "There is no indication from animal studies that this kind of procedure would produce abnormalities, but research needs to be done with non-human primates because they are the closest to humans."

There are three steps in the human procedure. First the ripe female egg is fertilized. In 1969, Bavister and Edwards were the first to demonstrate that this could be done in vitro. The fertilized egg--now called an embryo--is then cultured for several hours and allowed to grow.

As Bavister explains, "The viability of the embryo increases the more it divides. The transplantation of a single celled embryo wouldn't stand much chance of further development."

The final step is reimplanting the embryo into the mother's womb.

The animal procedure Bavister is proposing is exactly the same but adds a fourth step: study of the living offspring to see if any subtle abnormalities have crept in. In this sense, Bavister is in the right place for this kind of research.

"There is an enormous wealth of data acquired by this (primate) center on the post-natal development of rhesus monkeys, and that is invaluable," he observed. "Everything needed for this kind of research is right here."

Bavister believes that his research will have direct application to human reproductive physiology. "We'll build up a data base to give us an educated guess about what will happen in humans."

###

UIR / RESEARCH NEWS

UNIVERSITY OF WISCONSIN-MADISON

UNIVERSITY-INDUSTRY RESEARCH PROGRAM

WARF Office Building
610 Walnut Street, Rm. 1215
Madison, Wisconsin 53706
Telephone: 608/263-2876

UIR SCIENCE WRITING PROGRAM
(Graduate Student Science Writing Division)

Further Information: Wallace Houser (608/263-3551 or 3550)

March 28, 1978

Primate Research Center

RHESUS MONKEYS TO BE IN SHORT SUPPLY

by Cal Pierce
UW Science Writer

Madison, Wis.--Monkey-breeding may be an obscure trade but it's a crucial one for some two dozen scientists at the University of Wisconsin-Madison.

Much of their research depends on monkeys--and outside supplies of the animals are rapidly vanishing. Imports of primates--apes and monkeys--have been dwindling for years.

And on April 1, the government of India will stop all exports of rhesus monkeys, thus cutting off the main source of a favored research animal. The ban was apparently triggered by use of rhesus in weapons-related radiation studies conducted by the U.S. Defense Nuclear Agency.

Rhesus monkeys are widely used for polio vaccine production and safety testing. Many kinds of medical research rely on the animals.

Now, more laboratories will have to breed their own rhesus monkeys--as the scientists at the University of Wisconsin-Madison have succeeded in doing.

-more-

"If supplies are cut," says Dr. Wallace Houser, veterinarian at the university's Regional Primate Research Center, "we can take care of our own in-house needs, assuming the need stays the same and there's no problem with disease."

The university keeps more than 1,600 monkeys, 90 per cent of them rhesus. Two-thirds of the animals belong to the Primate Center, supporting studies ranging from toxicology to reproductive physiology. The latter is the center's strongest research area.

To meet the needs of 20 to 25 scientists, the Primate Center has a breeding colony of 300 monkeys, mostly rhesus. With about 130 live births each year, the center had to buy only 20 monkeys in 1977, says Houser.

The breeders produce infants for replacement monkeys and to serve in infant behavior studies. Some females are the focus of pregnancy studies, Houser explains.

"About 100 of our rhesus breeders are in our behavioral research facility at the Vilas Zoo in Madison," says Houser. "These intermingle as nature intended, with a natural social structure. We let the zoo animals reach the natural population limits of the habitat."

Most of the rest of the university's monkeys belong to the Department of Psychology's Primate Laboratory, founded in the 1930's by Harry Harlow, now retired. His best-known studies involved the effects of surrogate mothers on infant monkeys.

"We produce as many animals as we use," says Stephen J. Suomi, assistant professor of psychology and a researcher at the Primate Laboratory. "We haven't imported an animal directly from the wild for about ten years."

Suomi explains that studies of monkeys' early social experience showed that unless monkeys were raised in natural groups they would not breed in captivity. "Animals housed individually would not be socialized. When put together, they wouldn't breed; they didn't know what to do," he says.

"Not until the last ten years has it been practical to breed rhesus monkeys in the U.S.," says Suomi. Most of the psychology laboratory's breeding monkeys are kept in groups containing several adults, he explains.

If India cuts off rhesus exports, Suomi says the laboratory may increase its breeding program and sell the extra animals.

"It costs $500-600 to produce a new infant and about $450 to maintain an animal for a year," he says. "It's not a cheap business."

That's why so many laboratories have relied on imported monkeys, he explains. "It's been costing about $200 to buy a monkey from the wild," he says.

One advantage of "home-grown" monkeys, explains Suomi, is control over their health. Each animal's history is known, and there is less chance of disease and parasites spreading among the animals.

"The only real disadvantage is the danger of inbreeding," he says. "Occasionally we trade some animals with another colony, but still not on a large scale." He says more trading will have to be done in the future.

To prevent the spread of disease, explains Houser, all monkeys are kept as isolated from humans as possible.

"Monkeys can give diseases to man," says Houser, "but the animals are actually at greater risk of disease spread by humans, especially tuberculosis. Anybody in daily contact with the monkeys gets four TB

tests a year, to protect the animals."

Because of the forthcoming ban on Indian exports, Houser thinks "there's going to be a big problem" at a lot of research centers. He says vaccine producers and drug testers, dependent on large numbers of young animals, will be hard-hit.

"One thing is certain," says Houser, "everyone's going to have to be a lot more selective with how primates are used." He says the Primate Center has a research review committee "to make sure animals are used carefully and humanely used."

With support from the National Institutes of Health, the nation's seven regional primate centers have pioneered in the art of breeding primates in captivity. The need for doing so has been growing for years.

Scientists have long favored the rhesus in research because of its similarities to man, its hardiness, its adaptability to a synthetic diet, and its ability to breed in captivity.

The Rh blood factor was first identified in 1940 in the rhesus, from which the factor takes its name. A rhesus monkey led the way into space in 1959 when it was rocketed 83 miles into the stratosphere. And the polio vaccine was developed in the 1950's based on rhesus experiments.

Today, about six out of ten research primates are rhesus monkeys. They make up about one-third of primate imports in the United States. More than 12,000 rhesus entered the U.S. last year, more than were imported by any other nation.

But the supply is vanishing. Indian exports have shrunk by a factor of ten during the last two decades.

C. H. Southwick, a Wisconsin alumnus, studied the rhesus population in India and found a 50 per cent decline during the 1960's. He reported that agriculture and deforestation were reducing the monkey's natural habitat.

A 1975 report of the National Research Council concluded that because of "political, economic, and ecological forces," domestic breeding was needed to ensure an adequate supply of primates, and that "self-sufficiency for the United States within 15 to 20 years is essential."

But that forecast was made prior to the December, 1977, announcement by the Indian government that rhesus exports are to end April 1, 1978.

Without a new source of monkeys, the Indian embargo "could very seriously affect our vaccine program," James H. Vickers of the U.S. Bureau of Biologics has said.

The situation makes breeding programs such as the University of Wisconsin's particularly crucial. Monkey-breeding is likely to spread in years to come.

As a veterinarian, Houser likes to give the monkeys credit for helping make the breeding program a success. He says it's not really his job to raise monkeys.

"Actually," he observes, "we pretty much let the monkeys raise themselves."

# # #

Primate Center

uw news

From The University of Wisconsin News and Publications Service, Bascom Hall, Madison 53706 • Telephone: (608) 262-3571

Release: Immediately 8/11/66 jb

By JACK BURKE

MADISON, Wis.--The modern, four-story building near the hub of the University of Wisconsin campus in Madison looks like the last place in the world you would find a large collection of monkeys.

But the Wisconsin Regional Primate Research Center is one of seven such centers established in different sections of the country by the National Institutes of Health.

The UW center, administered by the Graduate School, was completed in 1964 and consists of two structures, one a research facility, the other a building at the Madison Zoo which houses newly-acquired monkeys for conducting social studies.

Dr. Harry F. Harlow is center director. He also directs the nearby Primate Laboratory, a unit of the University's psychology department.

The corridors of both the center and laboratory are lined with laboratories and rooms filled with electronic equipment and IBM data processing machines. There are operating rooms, X-ray units, medical treatment rooms, and nurseries. And there are close to 1,000 rhesus monkeys.

Most of them are normal. Some look normal, but turned neurotic or psychotic by maternal or social deprivation, or both. Others are undergoing experiments, some of them in partial isolation, housed in cages where they can see and hear other monkeys but are kept from physical contact with them. Still others are in total isolation, except for the company of little, round-eyed, terry-cloth and wire surrogate (substitute) mothers.

-more-

Add one--primate center

To allow investigators to observe the animals' behavior with their fellows after isolation or while they are undergoing other experiments, there are small playpens and large playrooms where the monkeys mingle in groups of four during a fixed period each day.

"The research being done here," explained Dr. Harlow, internationally heralded for his work in experimental psychology, "is approximately 50 per cent biomedical and 50 per cent psychological. For instance, there are studies being done on the effects of irradiation."

He said that young monkeys about a year old begin engaging in aggressive play.

"They roll and wrestle and get hurt a little. It sounds anti-social but we think it is not--we think that controlled aggression is a normal response in the primate and that it is one of the mechanisms which helps them develop social roles.

"We believe that in social animals social aggression is a very late maturing response--in our monkeys it comes on between nine and 15 months. We believe that if they haven't developed affection for members of their species before aggression matures, if they haven't developed controlled aggression through play, they are going to have great difficulty in adjusting to their environment."

The center director said that "if you look at this in terms of human children, you have a good picture of a typical delinquent child. He is a child who has not had parental affection, and maybe not much affection from friends, so from the time aggression develops, he will have vast trouble ever adjusting socially."

There are limitations, he added, in applying the findings of monkey research to human beings.

"There are many, of course. The monkey has the equivalent of a human intelligence quotient of only about 25. They have no symbolic language. They have a culture, but it is limited. And the role of the father is diffuse if it exists at all.

"But I am unintrigued by any monkey research that I don't think has at least some bearing on the human being.

###

NEWS FROM THE UNIVERSITY OF WISCONSIN
Statewide Communications Service, 10 Bascom Hall, Madison, 53706

RELEASE Immediately

7/13/66 jb

GIFTS AND GRANTS

MADISON, Wis.--The University of Wisconsin regents Wednesday accepted gifts and grants and approved contracts with federal agencies aggregating $8,897,479, including 52 contributions from Wisconsin sources.

The biggest allocation came from the National Institutes of Health which provided $916,487 for continued support of the Wisconsin Regional Primate Research Center in Madison. Other NIH grants included $345,939 to support a training program in cancer research, under direction of the department of oncology, and $159,385 for department of zoology studies in reproductive physiology, both at Madison.

Bringing its allotments for the project to date to $1,685,403, the Office of Education provided $269,400 for operation of the College Work-Study Program, a project designed to provide part-time employment for needy students on all UW campuses.

The office of Education also allocated $147,809 toward construction of a physical education building at the new Waukesha County Center.

Other major grants included $650,000 from the National Aeronautics and Space Administration to continue support of a project titled "Multidisciplinary Research in Space Science and Engineering with Special Emphasis on Theoretical Chemistry." This study will be directed by the Madison campus Theoretical Chemistry Institute and Graduate School.

To support a chair in the department of medicine, the Oscar Rennebohm Foundation, Madison, contributed $21,500, representing the third of five annual gifts for this purpose. Rennebohm, former Wisconsin governor and UW regent, is a frequent donor to University scholarship and academic programs.

-more-

The Wisconsin Canners and Freezers Association, Madison, provided $15,758 to support a research project in the College of Agriculture designed to improve the quality of beets and carrots used in canning.

Other contributions from Wisconsin sources included:

Adolf Gundersen Medical Foundation, La Crosse, $1,000; Paul Uihlein, Milwaukee, $1,120; UW Dames Club, Madison, $25; Rita L. Youmans, Madison, $10; Wisconsin Student Aid Foundation, Madison, $30,000; Cleaver-Brooks Co., Milwaukee, $400;

The Johnson Foundation, Racine, $1,000; Dr. Loron F. Thurwachter, Milwaukee $50; American Cancer Society, Madison, $800; Madison branch, American Association of University Women, $100; Kohler Foundation Inc., Kohler, $4,000;

George K. Tallman Trust, Janesville, $4,000; Pelton Foundation, Milwaukee, $1,100;

Belle City Malleable Iron Co., Racine, $1,600; Lee's Drug Store, Menomonie, $250; A. J. Sweet Inc., Madison, $200; American Dairy Association, Madison, $500; Mrs. Elizabeth B. Clark, Madison, $50; Wisconsin League for Nursing Inc., Milwaukee, $290;

Wisconsin Elks Association, Manitowoc, $1,275; Madison General Hospital, $250; Mr. and Mrs. Lawrence Lauwasser, Milwaukee, $10; Pi Eta chapter of Phi Beta, Madison, $22; Mary P. Bloodgood, Madison, $10;

Friends and relatives of Mr. and Mrs. Herbert Arndt, Plymouth, $31; friends and relatives of Mrs. Ruth Plakias, Madison, $266; Bliedung Foundation, Milwaukee, $200;

Starks Farms, Rhinelander, $3,000; Wisconsin Optometric Research Corp., Madison, $800; State Department of Agriculture, Madison, $9,000; Dr. Ovid Meyer, Madison, $100;

Add two--gifts and grants

Parker Pen Co., Janesville, $3,000; Wisconsin Canners and Freezers' Association, Madison, $300; Wisconsin History Foundation, Madison, $1,600; P/b Scientific Corp., Madison, $50; Midwest Oil and Protein Co., Milwaukee, $3,000; National Agricultural Center for Advanced Study, Madison, $7,038; Wisconsin State Journal, Madison, $40;

Mrs. Carl R. Stoelting, Kiel, $40; Friends of the Arboretum, Madison, $788; Elizabeth McCoy, Madison, $150; Prof. Joseph O. Hirschfelder, Madison, $2,156; Wisconsin Idea Theatre Conference Inc., Evansville, $40; Ziegler Foundation Inc., West Bend, $50;

City of Portage, $550; Dr. Paul K. Morgan, Prairie du Sac, $100; Portage Chamber of Commerce, $50; State Board of Health, Madison, $1,006; School Dist. #4, Shorewood, $20; and U.S. Armed Forces Institute, Madison, $5,744.

##

uw news

From The University of Wisconsin News and Publications Service, Bascom Hall, Madison 53706 • Telephone: (608) 262-3571

Primate Research Center

Release: Sunday, July 3 6/30/66 jos

By: Joy Schaleben

MADISON, Wis.(Advance for Sunday, July 3)--Fear in monkeys is inborn, not learned, a University of Wisconsin scientist has found.

However, this fear is not evident at birth but develops with age. Scientists previously thought all responses not shown soon after birth were learned.

This discovery, made by Prof. Gene P. Sackett of the Wisconsin Primate Center, came out of a major research program at the University designed to determine effects of early rearing experiences on the behavior of rhesus monkeys.

The rhesus monkey is a highly developed primate, both socially and intellectually. In developing motor skills and ability to communicate, it matures about three to four times faster than humans.

Sackett raised infant monkeys from birth in isolation chambers. The tiny monkeys first showed fear at about two months of age when they saw a picture of a threatening monkey.

Fear is a natural response for a monkey when threatened.

"Since these monkeys are raised in total isolation--each in a well-lighted cage with bare metal walls and nothing to push about--they are socially naive. They are deprived of the learning experiences involving rewards and punishments which occur normally with threat stimuli," Sackett explained.

"Therefore, under these laboratory conditions, a response of fear must be an innate response, not learned."

One wall of the isolated monkey's cage is a rear-projection screen. Pictures shown on this screen are the only visual stimuli the isolated monkey receives from the time he is 12 hours old until nine months old. The baby monkeys showed their fear reaction by crouching in a corner, curling up in a ball and rocking when

they saw a color slide or movie of a threatening monkey. Before two months of age they were not afraid of these pictures.

Other slides and movies shown to the young monkeys pictured a variety of typical behavior activities: play, aggression and threat, sex, exploration, withdrawal and passiveness.

"The picture of a threatening monkey--with his teeth in a grimmace, ears flattened back, hair on end, tail up, eyebrows and forehead raised, posture on all fours with stiffened forearms--is an example of a complex visual pattern," Sackett pointed out.

Fear response in such an isolated infant lasts three weeks to a month. Since no punishment follows the visual threat, the young monkey gradually loses his fear of the pictured threat.

In another aspect of the study, Sackett found infants most active when presented with a picture of either another infant or a threatening monkey. This activity, beginning at about one month of age, continues throughout the nine months of isolation.

When taken out of isolation, the monkeys' behavior development was studied by gradually introducing them to stimuli such as toys and other monkeys.

"Pictures alone do not produce normal behavior in monkeys," Sackett concluded. "Social development of these isolated animals is almost totally deficient. The monkeys also appear partially deficient in their curiosity and exploratory behavior."

A national Institution of Mental Health grant supports the work of Sackett.

###

NEWS FROM THE UNIVERSITY OF WISCONSIN

Serving the state through campuses at Madison and Milwaukee, nine University Centers, and a statewide extension system.

RELEASE Immediately

3/4/66 jb

GIFTS, GRANTS, CONTRACTS

MADISON, Wis.--University of Wisconsin regents Friday accepted grants and gifts and approved federal contracts totaling $2,984,081. Fifty-five of the contributions came from Wisconsin sources.

The National Science Foundation (NSF) allocated $474,324 to support 88 graduate student traineeships in a wide range of career fields on the Madison and Milwaukee campuses of the University. NSF allocated $314,900 for a department of meteorology interdisciplinary program in climatology in Madison.

A National Institutes of Health grant of $260,307 was provided for behavioral studies by the University's Primate Laboratory in Madison, and $158,543 for metabolism research by the Madison campus department of medicine.

The Atomic Energy Commission provided $197,146 for general research support in the Madison schools of Pharmacy and Medicine.

The University department of rural sociology in Madison will study health needs in Price County under a $14,978 allocation from the U.S. Bureau of State Services.

A. O. Smith Corp., Milwaukee, provided $17,750 for research on welding automation by the department of mechanical engineering in Madison. Another $10,000 came from the Johnson Foundation Inc., Racine, to support a United Nations seminar in New York for University and State University students next summer.

Other contributions from Wisconsin sources included:

Add one--gifts and grants

Mrs. Winifred Woodmansee, Milwaukee, $300; the Milwaukee Foundation, $7,000; Milwaukee Bar Association Foundation, $250; Beta Alpha Psi, Madison, $409; Badger Bankers Club, Milwaukee, $400; Red Cross Drug Stores, Racine, $300;

Robert E. Wills and Andrew McFarland, Watertown, $250; Wisconsin Pesticide Conference With Industry, Madison, $1,200; Gisholt John A. Johnson Foundation, Madison, $300; Madison General Hospital, $250; UW Foundation, $5,640;

Friends of Lorraine Meythaler, Madison, $75; Platteville Community Chest, $500; Mt. Horeb Community Welfare Association, $1,450; Harry D. Allen, Madison $25;

Wisconsin Pickle Packers' Association, Green Bay, $3,000; Lancaster Community Chest, $395; Portage Area United Fund, $1,500; friends and relatives of Mr. and Mrs. W. J. Steele, Monona, $100; Donald L. Graycarek, Brookfield, $25;

Prof. Robert West, Madison, $250; Badger Meter Mfg. Co., Milwaukee, $4,100; Wisconsin Optometric Research Corp., Madison, $600;

Judge and Mrs. Russell E. Hanson and family, Fond du Lac, $500; National Mutual Benefit, Madison, $500; Daggett Medical Engineering Inc., Madison, $3,684; family and friends of Mrs. Milton H. Kuether, Kiel, $50;

Wisconsin Society for Jewish Learning Inc., Milwaukee, $1,375; the Rebecca B. Tenenbaum Testimonial Committee, Milwaukee, $2,611;

Mr. and Mrs. W. H. Keland, Racine, $5,000; Class of 1929, $187; Friends of the Arboretum Inc., Madison, $713; Dr. Roger L. Heppela, Milwaukee, $100; Wisconsin chapter, National Cystic Fibrosis Research Foundation, Milwaukee, $654;

Kurt Listeman, Neillsville, $2,083; Wisconsin Alumni Research Foundation, Madison, $4,000; and the Louis Allis Co., Milwaukee, $400.

# # #

DAILY CARDINAL

Primate Research Center

"Inborn monkey behavior varies by sex,"
P. 4, 11/11/71

NEWS FROM THE UNIVERSITY OF WISCONSIN

Serving the state through campuses at Madison and Milwaukee, nine University Centers, and a statewide extension system.

8/20/65 jb

RELEASE Immediately

MADISON, Wis.--The University of Wisconsin regents Friday accepted grants and gifts and approved contracts with federal agencies aggregating $16,544,570, including $3,352,770 from the U.S. Office of Education to help defray costs of construction projects on four campuses.

The list--largest and longest in the University's history--also included 105 contributions from Wisconsin sources.

The building projects include the 19-story Charles R. Van Hise (language) Hall in Madison, for which the Office of Education allocated $1,377,821; the nine-story addition to the Chemistry Research Building, Madison, $269,016; History, Music, Art-Art Education, Madison, $331,660; the first segment of the Numerical Analysis-Statistics Building, Madison, $68,500; new library at Milwaukee, $475,766; classroom, laboratory, and library facilities at the new Waukesha Center, $610,677; and the classroom and administration buildings at the new Rock County Center near Janesville, $219,330.

The National Institutes of Health provided $868,221 for continued operation of the Wisconsin Regional Primate Research Center in Madison. National Science Foundation grants included $568,175 for graduate fellowship programs and $550,000 for expansion of facilities at the University Computing Center in Madison.

A half-million dollars was allocated by the Agency for International Development to continue support of the Land Tenure Center at Madison. The Department of Interior Office of Water Resources Research contributed $139,797 for the University's Water Resources Center, newly established at Madison.

-more-

The National Aeronautics and Space Administration provided $900,000 to support space related research in theoretical chemistry, other areas of space science, and engineering under the direction of the Graduate School and the Theoretical Chemistry Institute.

Other allocations include $461,000 from the Ford Foundation for the University of Wisconsin to assist in development of the School of Economics at the University of the Philippines, and $289,468 from the State Conservation Commission to cover cooperative research programs in fishery, wildlife, water, forestry, and related resources.

The contributions from Wisconsin sources included:

The Johnson Foundation, Racine, $1,750; Mrs. Edmund Fitzgerald, Milwaukee, $800; Wisconsin Society for Jewish Learning, Milwaukee, $11,375; A. J. Sweet Inc., Madison, $200;

Mrs. Winifred Woodmansee, Milwaukee, $320; Pelton Foundation, Milwaukee, $1,100; Lee's Drug Store Inc., Menomonie, $250; American Dairy Association of Wisconsin, Madison, $500; Harry J. Grant Foundation, Milwaukee, $4,000; Kohler, Wis., Foundation Inc., $10,000; Wisconsin Valley Traffic Club, $500; Kremers-Urban Co., Milwaukee, $7,500;

Rainbow Lodge Inc., Vilas County, $575; Production Credit Association of Appleton, $400; Fonteine, McCurdy and Co., Milwaukee, $500; National Society of the Colonial Dames of America in Wisconsin, $500; Green Tree Garden Club, Milwaukee, $500; Rock County Bankers' Association, Milton Junction, $400; First National Bank of Ft. Atkinson, $200;

Mr. and Mrs. Thomas A. Ringness, Madison, $250; McKesson and Robbins, Milwaukee, $300; Wisconsin Elks' Association, Green Bay, $1,020; Wisconsin Fertilizer Association, Madison, $200; Wisconsin Rural Rehabilitation Corp., Madison, $2,700; A. O. Smith Corp., Milwaukee, $1,500; American Cancer Society, Wisconsin division, Madison, $800;

Add two--gifts and grants

Oak Electro/Netics Corp., Elkhorn, $15,000; Phi Beta Play Readings, Madison, $700; Wisconsin Canners and Freezers' Association, Madison, $377.50; Reedsburg, Wis., United Fund Inc., $2,000; Wisconsin Dental Association Foundation Inc., Milwaukee, $500; Oscar Mayer and Co., Madison, $4,000; Belle City Malleable Iron Co., Racine, $1,600;

Nekoosa-Edwards Foundation Inc., Port Edwards, $3,500; Sheboygan, Wis., Public Schools, $4,111; Prof. Robert West, Madison, $250; Grafton, Wis., Public Schools, $1,304;

Kraut Foundation Inc., Fond du Lac, $200; Prof. William G. Reeder, Madison, $1,325;

Marathon Electric Mfg. Co., Wausau, $759; Madison Chamber of Commerce, $711; 1965 Senior Class, University of Wisconsin-Milwaukee, $1,936;

Wisconsin Regional Writers' Association Inc., Sheboygan Falls, $1,028; First Wisconsin Trust Co., Milwaukee, $325; Extension Journal Inc., Madison, $5,000; and University Surgical Associates, Madison, $3,000.

##

U.W. NEWS

Primate Research Center

From The University of Wisconsin News and Publications Service, Observatory Hill Office, Madison 53706
Telephone (Area Code 608) 262-3571

Release: Immediately

7/27/65 jb

MADISON, Wis.--Two visiting professors are conducting special studies at the Regional Primate Research Center on the Madison campus of the University of Wisconsin this summer.

Here under grants provided by the U.S. Department of Health, Education, and Welfare are Profs. Henry A. Cross, Texas Technological College, Lubbock, and F. Robert Brush, formerly of the University of Pennsylvania, who will join the staff of the University of Oregon Medical School in September.

Prof. Cross has spent four summers observing rhesus monkeys initially raised under conditions of partial social isolation, with most attention devoted to their aggressiveness, signs of fear, and other response patterns.

Intensive investigation of both young and adult monkeys to determine certain responses keeps Prof. Brush active in the laboratory. Because of his medical interests, he is stressing cardiac, hormone, and endocrine factors as they interact to control behavior.

##

NEWS FROM THE UNIVERSITY OF WISCONSIN

Serving the state through campuses at Madison and Milwaukee, nine University Centers, and a statewide extension system.

2/5/65 jb

Immediately

RELEASE

MILWAUKEE--Grants and gifts totaling $2,234,631, including 75 from Wisconsi sources for scholarships, research, and special services, were accepted by the University of Wisconsin regents Friday.

The largest grant, $222,548, was provided by the National Institutes of Health for comprehensive behavioral studies by the department of psychology's Primate Laboratory.

Emeritus Prof. Harry Steenbock, who brought the University international honor for his pioneering research in nutritional sciences, including discovery of a process for enriching food with Vitamin D, made two gifts. One of $5,000 is a contribution to construction of the Elvejhem Art Center on the Madison campus. The other, of $5,365, insures $500 annually to recipients of these awards:

Steenbock-Alpha Zeta Award, to stimulate scholarship in the College of Agriculture; the Steenbock-Borden Award, to outstanding studentsin the field of dairy and food industries; Henry Steenbock Fellowship in agriculture; and the Christine M. Steenbock Fellowship in home economics.

Carl E. Steiger, University regent from Oshkosh, and his sister, Mrs. Sophie S. Roth, Oshkosh, each presented $620 to be added to the Emil H. Steiger Good Teaching Award, presented annually to an outstanding member of the Wisconsin faculty. The award, established in 1959, honors the memory of their father, pioneer Oshkosh businessman and state assemblyman, who died in 1929.

Each May the University cites selected members of its faculty for excellence in teaching. These awards include the William H. Kiekhofer Awards, the Steiger Memorial Award, and the Johnson Foundation Award for Excellence in Extension Teaching.

-more-

The Wisconsin 4-H Club Foundation donated a duplex residence built at a cost of $34,150, located on University-owned property at Camp Upham Woods near Wisconsin Dells.

To help develop an application for federal support of a proposed University-wide mental retardation center, the Joseph P. Kennedy Jr. Foundation provided $20,000 to the University.

The Johnson Foundation of Racine contributed $7,500 for continued support of the Institute for World Affairs Education at the University of Wisconsin-Milwaukee and $225 for a UWM fellowship. The U.S. Office of Juvenile Delinquency and Youth Development allocated $43,373 to support a training program in the University Extension division's Institute of Governmental Affairs.

Victor Music Inc., Madison, made a gift of $500 to help defray costs of renting 26 one-half hour films of the Boston Symphony Orchestra for use on WHA-TV, the University station in Madison.

Other gifts and grants from Wisconsin sources included:

United Cerebral Palsy of Dane County, Madison, $1,500; Godfrey Foundation, Milwaukee, $100; Oscar Mayer Foundation Inc., Madison and Chicago, $400;

Wood County Bankers' Association, Wisconsin Rapids, $66.67; Weisel Foundation Inc., Milwaukee, $4,000; Wisconsin Road Builders' Association, Madison, $500; Milwaukee Foundation, $3,400; Allen J. Shafer, Madison, $898; Dr. and Mrs. T.A. Leonard, Madison, $100; Walker Mfg. Co., Racine, $1,000;

Badger Bankers' Club, Milwaukee, $400; Humiston-Keeling Co. Inc., Madison, $500; Dane County Pharmaceutical Society Inc., Madison, $300; Tuttle's Drug Store, Fort Atkinson, $150; Siegman's Turf Nursery, Milwaukee, $100; Mr. and Mrs. Richard V. Allen, Appleton, $300; Community and War Chest of Columbus, $200; Alpha Phi sorority, Madison campus, $691; Dr. William P. Young, Madison, $1,081; James P. Bigley, Viroqua, $100; Edward E. Miller, Madison, $150;

Add two--gifts and grants

Nettie E. and Gilbert A. Karcher, Burlington, $100; Rahr Foundation, Manitowoc, $200; Dairy Maid Products Cooperative, Eau Claire, $13,000; State of Wisconsin Real Estate Brokers' Board, Milwaukee, $12,000; Kremers-Urban Co., Milwaukee, $2,700; Oshkosh Area United Fund Inc., $500;

Lancaster Community Chest, $380; Wisconsin Canners and Freezers' Association, Madison, $10,000; Dr. Neal H. Baker, Madison, $50; Wisconsin Society of Landscape Architects, Madison, $25; Research Products Corp., Madison, $160; Prof. George B. Strother, Madison, $100; Extension Journal Inc., Madison, $5,000; Neenah Foundry Foundation Inc., $100; Wisconsin Association of Fairs Special Projects, Madison, $500; Arthur MacArthur, Janesville, $600.

##

U. W. NEWS FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

9/6/63 rt

RELEASE: Immediately

MADISON--Contracts for construction of the Wisconsin Regional Primate Holding Facility in Madison's Vilas Park totaling $180,951 were approved Friday by University of Wisconsin regents.

The facility will provide space for monkeys for use in connection with the Wisconsin Regional Primate Research Center, now under construction at the corner of North Orchard and Spring Streets, just west of the University Primate Laboratory.

The two new structures are being financed with a $1,297,000 grant from the National Institutes of Health.

Contracts on the Holding Facility went to Jenness Construction Co., Madison, $146,253 for general construction; Monona Plumbing Service, Madison, $16,998 for plumbing; Carl H. Behrnd, Inc., Madison, $10,270 for heating and ventilating; and to Badger Electric Construction Co., Madison, $7,430 for electrical work.

In other actions on Madison campus buildings and grounds, recommended by Vice Pres. A. W. Peterson, the regents:

1. Delayed work on the Memorial Union terrace because only a single bid for the work was received;

2. Leased 9,000 square feet of space at 2201 University Ave. from Betabak, Inc., for use by the speech department;

3. Leased 2,000 square feet at 52 N. Randall Ave. from Cooperative Services of Dane County, 1,600 square feet at 406 N. Frances St. from Herman E. Postweiler, and 1,170 square feet at 502 State St. from George J. Leonhard, all for the School of Education;

-more-

4. Approved purchase of five parcels of land in the Southeast Dormitory and Recreational Area for a total cost of $84,800.

The land purchases included real estate at 601 W. Dayton St. for $14,400 from Misses Angeline and Rosalie Koeppel; 141 N. Lake St. for $26,000 from Mrs. Ida H. Winn; 619 W. Dayton St. for $12,500 from Miss Louise Enders; 621 W. Dayton St. for $17,900 from Kermit C. Ison; and 603 W. Dayton St. for $14,000 from Alfred Fries.

###

FEATURE STORY

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

7/31/63 jb

RELEASE: Immediately

By JACK BURKE

MADISON, Wis.--Just like human babies, infant monkeys suck their thumbs and fingers.

And the better the young primates learn to suck during early feeding, the more likely they are to seek further experience along this line in thumbsucking, too.

This is the conclusion reached by Dr. Lorna S. Benjamin, research associate at the Wisconsin Psychiatric Institute in the University of Wisconsin Medical Center. Her investigations were carried out at the UW Primate Laboratory in Madison.

"Our findings show that greater amounts of sucking during feeding will be followed by greater amounts of thumbsucking," Dr. Benjamin said. "Baby monkeys which were required to suck a great deal in order to obtain their milk ultimately suck their thumbs far more than others allowed to obtain their milk with little or no sucking."

She said that her investigations upset the previous contention that thumbsucking is a result of too little opportunity for the expression of the sucking drive during nursing. On the basis of this contention, many mothers were advised to make certain their infants suck extensively during this period.

"We observed that monkeys showed no interest in a nipple which offered them the opportunity to express sucking needs or drives, but which gave no pay-off in milk," Dr. Benjamin explained. "But feeding history is by no means the whole story of thumbsucking--for example, monkeys with similar feeding histories ultimately established their own unique levels of thumbsucking.

-more-

Add one--thumbsucking

"These differences among individual monkeys were traced in part to factors independent of feeding, such as the amount of rocking their surrogate-laboratory mothers provided for them. In other words, more rocking (by the substitute mothers), more thumbsucking.

"As baby monkeys become hungrier, thumbsucking increases. It also increases when the infants are frustrated by being made to wait a few minutes for a favorite fruit. Further, when these babies are confronted with sights and sounds frightening to them, the sucking increases up to a point. And when the situation becomes too intense, the thumbsucking increases as the monkeys turn to some other activity, such as hiding their heads between their knees and rocking back and forth."

It appears, the researcher stated, that thumbsucking can begin for one reason and be sustained for others. She found that thumb and finger sucking is clearly associated with malocclusion (improper fitting together of upper and lower rows of teeth) in the baby monkey's first teeth, but the effect seems less important than disposition to malocclusion present at birth.

There are strong indications, too, Dr. Benjamin said, that sucking in infancy, if not stopped before permanent teeth arrive, will lead to malocclusion.

Laboratory-raised monkeys, unlike humans, often persist in thumbsucking through adolescence and even into adulthood, she added.

Her research was conducted while she was a National Institute of Mental Health (NIMH) Fellow, collaborating with Dr. Harry F. Harlow, director of the Primate Laboratory; Dr. William A. Mason, formerly a member of the UW faculty and now assistant director of the Yorkes Laboratory of Primate Biology at Orange Park, Fla.; and Dr. Ben L. Herzberg, Chicago orthodontist.

The experiments were supported by funds received by Dr. Harlow from the UW Graduate School, the Ford Foundation, and the NIMH.

###

WISCONSIN
Newspaper Service
235 Washington Building
MADISON 3, WISCONSIN
Clipping Bureau Division

Wisconsin State Journal
APR 27 1963

Needs of Monkeys Parallel Children's, Conference Told

Little monkeys — like human toddlers — need mother love and the companionship of contemporary "playmates" if they're to develop into well-adjusted adult monkeys.

Dr. Harold Fletcher, assistant professor of psychology at the University of Wisconsin and research associate of Dr. Harry Harlow at the university's famed primate laboratory, gave an illustrated talk on what controlled factors can do in shaping the personalities and emotional make-up of monkeys Friday night at the Wisconsin Center.

Banquet Speaker

Dr. Fletcher was the principal speaker at the banquet of the Middle States conference of the International Childbirth Education Assn., which is concluding its two-day meeting here today.

Using colored movies and slides, Dr. Fletcher, reporting on the latest developments in Dr. Harlow's experiemental psychology with rhesus monkeys, showed what neurotic, "mixed up," maladjusted creatures monkeys become when deprived of affection and normal social contacts.

The conference participants, many of them registered nurses, physical therapists, doctors, and "just interested mothers," will tour the primate laboratory this morning and attend a concluding series of workshop meetings.

Dr. George C. Hank, Madison obstetrician and a member of the original medical advisory board of the Association for Childbirth Education, will be the luncheon speaker at the Memorial Union. He will talk on "Madison Doctors and the ACE—Their Working Relationships."

Panel Discussion

Panel discussions will be held on "Post Partum Adjustment," "Breathing Techniques in the First Stage of Labor," and "Encouragement of Breast Feeding."

Dr. Edward Burdulis, psychologist at the Dane County Guidance center, and his wife, a past officer of the Madison branch of the ACE, will conclude the conference with "A Couple Views Childbirth Education for the Individual."

file - Primate Lab
or Harlow

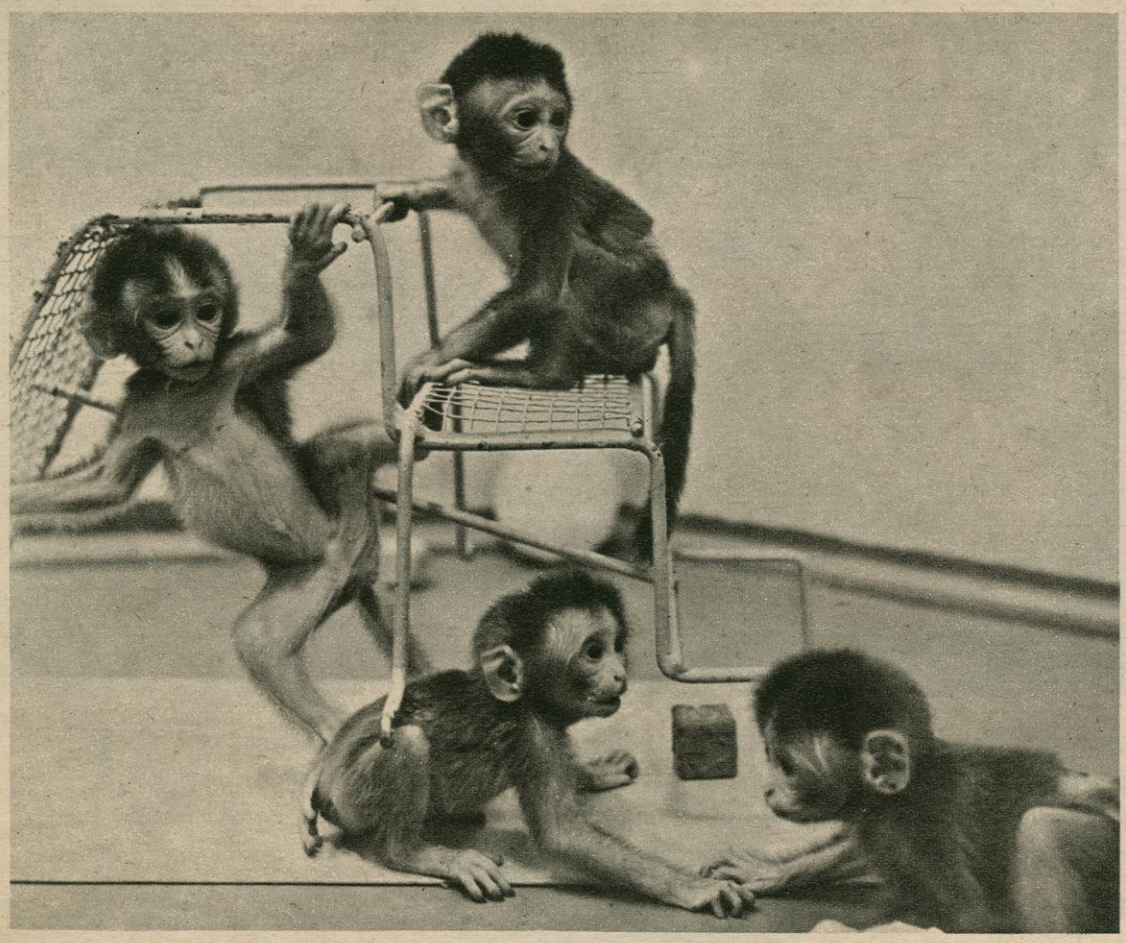
This Week
MAGAZINE

Dr. Harlow and two stars of his experiment

What Monkeys Are Teaching Science About Children

From a top animal research center comes amazing new light on child-raising. Playmates may actually be as important as parents in the development of normal, healthy individuals. Here's a report on a remarkable long-range experiment

By JOHN KORD LAGEMANN



IMPORTANT FRIENDS: *Little monkeys who play together tend to grow up psychologically healthy adults*

MADISON, WIS.

WHAT IS LOVE?

Since humans have failed so far to come up with a satisfactory answer, two University of Wisconsin psychologists, Dr. Harry F. Harlow and his wife, Dr. Margaret K. Harlow, have put the question to our next of kin, the monkeys. At the Primate Laboratory, which Dr. Harry Harlow directs, several hundred rhesus monkeys are taking part in psychology's first attempt to put the study of love on a purely experimental basis. Results show that love really does make the world go 'round.

"If the monkeys tell us anything," says Dr. Harlow, "it's that you've got to learn how to love before you can learn how to live."

By showing us how early love experiences affect later personality development and social adjustment, the research may help us bring up happier children and prevent a great deal of mental illness.

The most significant specific finding points to a surprising conclusion: it's as important for a youngster to form healthy relationships with others his own age as it is for him to have a good relationship with his parents.

Tommy broke up the lab

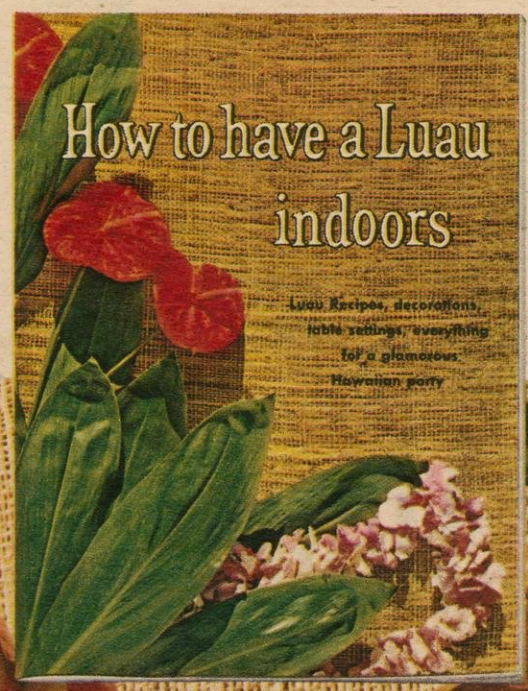
Dr. Harlow's animal experimentation began in 1930 when he came to the University of Wisconsin as a young psychology professor, fresh out of graduate school.

"Where's the animal lab?" he asked.

"We tore it down last summer," the department head told him. Undaunted, young Harlow started conducting experiments with animals in the basement of the monkey house at the local Vilas Park Zoo. His first subjects were Maggie and Jiggs, an elderly orangutan couple who could never agree on which peg to put in which hole, and Tommy, an enormous yellow baboon, who smashed the test equipment whenever he made a mistake.

The Primate Laboratory came into being a couple of years later when Harlow persuaded the University to assign him a small abandoned build-

Have a LUAU PARTY!



SEND FOR FREE BOOKLET

Please send me your free booklet, "How to have a Luau indoors."

LUAU PARTY BOOKLET
BOX 888, HINSDALE, ILLINOIS

NAME _____

ADDRESS _____

CITY _____ STATE _____

It's easy to bring the glamorous atmosphere of a Hawaiian Luau right into your own home. Make the Outrigger Rice, Sweet Sour Pork, Island Burgers, Shrimp Kabobs and Sunny Isle Sundae you see here. The recipes for these and many other easy-to-fix Luau dishes are in the eight-page booklet shown above—along with planning and decorating ideas that will help you give a Hawaiian Party your guests will never forget! Use the address blank above—send it in today!

DOLE PINEAPPLE gives your Luau the fresh-fruit taste of Hawaiian pineapple.
KRAFT BARBECUE SAUCE adds the subtle touch of 19 herbs and spices.
REYNOLDS WRAP makes it easy to cook and serve the Hawaiian way.

Photos by Sponholz

FLESH AND BLOOD MOTHER *monkey is her baby's source of food, comfort and defense — but Dr. Harlow's research shows he still needs playmates for normal growth*

TERRY-CLOTH COVERED MANIKIN *was produced in varying models. She provided what "her baby" seems to need most — something to cling to when he's afraid*

ing. Contributing labor and part of his salary, he built a laboratory with cages for 16 monkeys.

Today the Primate Laboratory is one of the nation's leading animal research centers with 600 monkeys, including a breeding colony that produces about 80 infant monkeys a year. The monkeys take part in various research programs, the most revolutionary of which is an investigation into the development of affection in monkeys from birth to maturity.

Between man and monkey there is much similarity in the way love and affection develop in the infant, first in clinging to its mother, then after a time in venturing out to make friends his own age.

How do these early contacts with mother and playmates influence his personality? The surest way to find out would be to bring up babies from birth under controlled laboratory conditions, denying some of them mothers and playmates and then measuring the damage to their personalities. That's what the Harlows do — with monkeys instead of humans.

A modern nursery had already been built to care for the newborns. At birth infants were removed from their mothers and raised in separate wire cages with heating pads covered with soft gauze diapers. Nurses fed them a standard baby formula. Since the first step was to test the effects of isolation, the greatest care was taken to keep the little ones completely apart not only from their mothers, but from one another.

This wasn't always so easy. Evening care was assigned to Kathy, who worked at the Lab while studying to become an elementary school teacher.

Science gets a setback

Checking on his wards one night about 10 o'clock, one of the Harlows' colleagues, Dr. W. A. Mason, found Kathy sitting on the floor surrounded by seven baby monkeys, all playing happily together. Before the scientist could express his outrage, Kathy rose to her full height of five feet two.

"Dr. Mason," she shook her finger in his face, "it is immoral to blight the social development of young children!"

"One year's time and $5,000 forever lost," says Dr. Harlow. "I was angry but I had to admit Kathy had the right maternal instincts."

Later, other monkeys were brought up in complete isolation for periods up to two years. When they were placed together in pairs for the first time, they fought with each other and showed no evidence of play. In repeated exposures, they failed to show any affection for each other and they never learned to live together. Complete isolation showed that newborns could stand no more than three months without companionship and still grow up normally. Six months or more of isolation produced severely disturbed monkeys, completely incapable of forming social or sexual relationships.

"Learning to love, like learning to walk or talk, can't be put off too long without crippling effects," Dr. Harlow told me.

With the effects of isolation known, the next step was to pin down the factors in mothering and companionship which do most to assure normal development. The Harlows tackled maternal attributes first. Besides raising monkeys with their own mothers they raised still — *continued on page 18*

THE PLUNGE: *Judy belts her song into the camera*

Photos by Bob Willoughby

THE TRIUMPH: *On-set audience breaks into cheers*

Judy Does it Again!

A courageous movie comeback hits its dramatic climax on the bare stage of London's famed Palladium

HAPPY AFTERMATH: *Producer, director approve*

LONDON

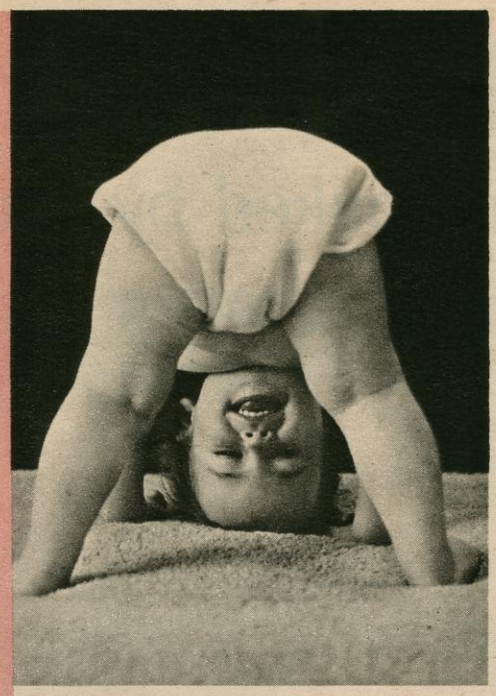
THE SCENE was the Palladium, London's world-famed music hall, ordinarily jam-packed. But this time the audience consisted only of stagehands, electricians and actors who were making the movie "I Could Go On Singing." The usually glamorous Palladium stage was now an empty set — bare except for a tall, white-painted stool and a solitary performer — Judy Garland.

It was the climactic moment for Judy's gallant comeback from a series of misfortunes which have kept her off the musical screen for nine years and threatened to end her career. After a successful personal-appearance tour and a couple of straight dramatic movie roles she was taking the big plunge — starring again in a singing picture.

This was a moment she had worked hard for, slimming down to her old 102 pounds. The question was, could Judy still bring to a movie that magical combination of zest and poignancy that was her special trademark? As the shirt-sleeved and sweatered audience silenced all activity and stood watching, somebody called, "You can do it, Judy!"

Judy started singing. The song was, "It Never Was Anywhere You," an old, lonely-mood number. As soon as it was over, everybody, including Judy, knew Judy could still do it. —— **ROBERTA ASHLEY**

The livin' end



for diapers and bath...

ARM & HAMMER SODA BICARBONATE

Use pure* Arm & Hammer SODA (baking soda) to help safeguard baby against troublesome rashes. SODA in bath (2 tbs.) soothes and wards off irritation. SODA for diapers (3 tbs. to soak . . . ½ cup with suds . . . ½ cup in first rinse) helps purify, sweeten, boost cleaning action and rinse away irritating soap or detergent residue.

FREE: IF BABY COULD TALK . . . sprightly, helpful picture booklet, yours for the asking. Send name and address today to CHURCH & DWIGHT CO., INC., Dept. TH-27, Box 2266, Grand Central Station, New York 17, N.Y.

*Meets all U. S. Pharmacopoeia purity requirements.
The same high quality product sells in Canada as COW BRAND BAKING SODA.

ARM & HAMMER PURE HOUSEHOLD AIDS INCLUDE SODA BICARBONATE · SAL SODA CONCENTRATED · BORAX

©1963, CHURCH & DWIGHT CO., INC.

NEW VITAMIN TABLET WITH BLOOD-STRENGTHENING IRON DOES MORE FOR YOU

— than the 5 other leading vitamin tablets!

Here's a remarkable new vitamin tablet that can do *more* for you because there's blood-strengthening iron in it. It's called BREAKFAST VITAMINS.

Just one BREAKFAST VITAMINS tablet gives you the Vitamin B_1 of a pound of cooked ham, the Vitamin D of a full quart of milk, the Vitamin B_{12} of 3½ ounces of round steak and *seven other vitamins* your meals may lack. In addition each BREAKFAST VITAMINS tablet contains blood-strengthening iron — as much iron as you get in four ounces of beef liver.

You no longer have to worry about vitamin-skimpy breakfasts when you start the day with BREAKFAST VITAMINS. Start the day *right*—with *Vitamin Power plus* blood-strengthening iron. Get BREAKFAST VITAMINS today.

Breakfast Vitamins

BUY U.S. SAVINGS BONDS

Where you work or where you bank

DON'T HIDE BEHIND PSORIASIS

Embarrassed to go places? Has psoriasis made meeting people a living nightmare? Then you should know about SIROIL. SIROIL tends to remove crusts and scales of psoriasis on arms, legs, scalp and other portions of the body. Millions of bottles have been sold on a 2 weeks satisfaction or money back guarantee. Use before going to bed; won't stain bedding or clothing. Get SIROIL today—face life with renewed confidence.

SIROIL

AT ALL DRUG STORES

for FREE booklet on psoriasis, written by a doctor, write to: Siroil Laboratories, Dept. TW-20, Santa Monica, California.

Like Walking on Pillows!

Dr Scholl's AIR-PILLO INSOLES Give Luxurious Walking Ease

Air-Cushion your shoes for only... 60¢

This modern miracle of walking ease gratefully pillows, ventilates your feet from toe to heel. Relieves painful callouses . . . gives mild support . . . eases pressure on nerves of feet . . . helps lessen strain of standing, walking. Insulates feet against heat, cold. Sizes for men, women. At Drug, Shoe, Dept., 5-10¢ Stores.

P. S. AIR-PILLO Insoles worn in any loose-fitting, worn or misshapen shoes make them *look better, fit better, feel better, wear better!*

Dr Scholl's AIR-PILLO Insoles

Continued from page 5

Humans and monkeys: not so far apart

HOME TO MAMA: *She's a dummy, but she's there*

others — 90 altogether — with the famous "manikin mothers."

These were made from wire and cloth and featured different combinations of maternal attributes — milk from a nursing bottle protruding through the chest, a heating pad for body warmth, rocking motion from a built-in motor and a soft, terry-cloth "skin." It was the comfort of clinging to the terry cloth which counted most in binding an infant to a particular "mother." In frightening situations, clinging to a terry-cloth dummy seemed to provide as much reassurance as clinging to a real mother.

Did manikin mothering give these infants what they needed to grow up normally? It seemed so — until their children reached the age to find mates and become parents themselves. In these normal, natural roles they failed dismally. The males, despite a strong sex drive, bungled courtship so badly not one became a father. The females resisted every advance, and only thanks to the patience and firmness of two prize breeding males did four of them eventually become mothers. But these four alternately ignored and abused their infants and in six months of living together never showed affection toward their young.

Name the neurosis maker

Why were these monkeys so neurotic? Were the dummy mothers to blame? Maybe. But there was another possibility. These animals had been raised in separate cages where they could see, hear and chatter with others, but couldn't play together as babies normally do. Was this what went wrong? Was play really that important?

To find out, a play pen was built and stocked with appealing toys. This play pen became the center of the most complex experiment of the series. Again infants were raised from birth under various conditions — with manikin mothers, with their own mothers, with no mothers at all. Some monkeys in each group were cut off from playmates. Others were allowed to romp with other infants at varying intervals.

Rhesus monkeys take four years to reach maturity and some of the subjects are still growing up. Enough results are in, however, to draw some conclusions:

Regardless of mothering or lack of it, infants who have a chance to play with other little monkeys for periods as short as 20 minutes a day became socially normal monkeys. Even the offspring of the brutal mothers from the manikin experiment show no serious maladjustment. Manikin-reared infants have fared as well as those reared by their own mothers, except for a slight lag in the rate of social development.

On the other hand, all of the monkeys who were cut off from contact with playmates were unable to interact normally with other monkeys, socially or sexually.

"Our experiments suggest that the chance to play freely with other children is as important as mothering," says Dr. Harlow.

Children must play

How much of this applies to human beings? Quite a lot, the Harlows believe. The behavior patterns and emotional reactions of monkeys are very human indeed. "It's doubtful," says Dr. Harlow, "if man has any basic intellectual process, except language, which isn't present in monkeys."

At birth a monkey is more mature than a six-month-old baby. A year-old monkey can solve many problems that are too hard for a year-old child. But the child catches up in a few years and keeps going, while the monkey remains — a monkey.

The full-grown monkey isn't stupid. He works at puzzles for minutes on end. He solves many problems that challenge a kindergartner. And he becomes an expert in outwitting his keepers. Number 130, for instance, is remembered in the Lab as a female Houdini. She would bide her time during tests and at the chosen moment the scientist would find himself inside a locked cage with Number 130 on the outside.

They're rough youngsters

Monkeys, like humans, are highly competitive and with adolescence they get pretty rough as they fight it out to see who's boss. But by then they've normally learned affection through mothering and play companionship and they stop short of serious injury. "Without this solid basis of affection," says Dr. Harlow, "the society through which they meet their needs of food, sex and protection would fall apart."

Much of modern psychology has given us a picture of man as a bundle of aggressive impulses barely restrained by social tabus. But the "beast" in man as he emerges from the Harlow study is a basically affectionate creature who is motivated more strongly by love than by lust. We humans may turn out to be nicer than we thought — almost as nice, in fact, as monkeys. ——THE END

Yours any time...Fresh, hot dinner rolls

Refrigerated by Pillsbury...home-baked by you!

new!

Quick Sesame Twist Dinner Rolls
Bake into pinwheels, bowknots, twists or other shapes. 10 rolls in 12 minutes.

Quick Butterflake Dinner Rolls
Bursting with buttery flavor! Makes 6 double rolls or 12 party size—in 12 minutes.

Quick Crescent Dinner Rolls
Fancy! 8 tender, feather-light rolls with crispy, flaky crust. Bake in 10 minutes.

Pillsbury
BEST
XXXX

Pillsbury's fresh dough... for fresh home baking

Refrigerated...in the dairy case

FREE RECIPE IDEAS! 14 new ideas with Refrigerated Foods. Write to The Pillsbury Co., Box 355A, Minneapolis 60, Minn.

U. W. NEWS FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

10/29/62 jl RELEASE: Immediately

MADISON, Wis.--Youngsters possessing normal mothers have an excellent chance of developing normally themselves, but an absence of maternal affection may not necessarily be serious if there are plenty of other youngsters around--and if the rules governing monkey behavior also apply to human behavior.

This is one of the Primate Laboratory findings reported by University of Wisconsin psychologists Harry and Margaret Kuenne Harlow in the issue of Scientific American published Monday. (Oct. 29). The laboratory's studies of normal and abnormal development in monkeys may have begun to shed light on certain mysteries of human psychology.

Normal mothering alone isn't enough to insure normal development, the Harlows add. Young monkeys, as a matter of fact, need plenty of opportunity to play with other youngsters. Those reared alone with their mothers under isolated conditions do not subsequently develop normal interactions with their age mates when the opportunity arises.

Next to infants raised in complete isolation, the Harlows report, these were the most socially retarded of the infant monkeys tested.

The experiments with infant monkeys under total isolation during the first two to six months of life have "bracketed what may be the critical period of development during which social experience is necessary for normal behavior in later life," they write.

-more-

LAND GRANT COLLEGES 1862 1962 STATE UNIVERSITIES

Add one--Harlows

Since the rhesus monkey is more mature than the human infant at birth and grows four times more rapidly, six months is equivalent to two years for the human child. Effects of short periods of early isolation, perhaps 60 to 90 days or even longer, appear quite reversible, but six months is destructive.

"Case studies of children reared in impersonal institutions or in homes with indifferent mothers or nurses show a frightening comparability," the Harlows point out.

"The child may remain relatively unharmed through the first six months of life. But from this time on the damage is progressive and cumulative. By one year of age he may sustain enduring emotional scars and by two years many children have reached the point of no return."

Studies of groups of motherless monkeys, in each of which four infants were raised in close association with one another, indicate that their affectional relationships with each other may compensate for lack of mothering, the Harlows disclose.

These experiments are still incomplete, but the monkeys give every indication of being socially and sexually on a par with infants raised by their own mothers and also given opportunity to associate with other young monkeys.

"Of course research on nonhuman animals, even monkeys, will never resolve the bafflingly complex roles of various kinds of early experience in the development of human personality," the Harlows report.

"The close behavioral resemblance of our disturbed infants to disturbed human beings gives us the confidence that we are working with significant variables and the hope that we can point the way to reducing the toll of psychosocial trauma in human society," they add.

###

U. W. NEWS FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

10/23/62 jeb RELEASE: Immediately

By JANE BRODY

MADISON, Wis.--University of Wisconsin scientists have developed a chemical means of protecting monkeys against lethal doses of radiation. Since the monkey is man's nearest ancestor, this method may someday be applied to humans, the researchers believe.

At the UW Primate Laboratory, pathologist Julian L. Van Lancker, physiologist Richard C. Wolf, both associate professors at the UW Medical School, and Jay B. Mowbray, associate director of the laboratory, found that monkeys who receive the chemical treatment beforehand can survive doses of radiation that would otherwise kill them--and man.

The chemicals, two sulfhydryl-containing compounds, protect the animals against 800 roentgents is of radiation. (A roentgen is a radiation unit.) A dose of 400 roentgens is known to be lethal to man.

How do the drugs work? "When a man or animal receives radiation," Prof. Wolf explains, "poisonous hydrogen peroxide is produced in the tissues. Sulfhydryl compounds neutralize the effect of this poison."

The researchers speculate that this technique of chemical protection might someday help save men who are subjected to high radiation doses. If, for example, a population is caught in a fallout area or if people must be sent into such areas to save others, chemicals may shield them from death. Even space travelers might be protected chemically against effects of prolonged radiation exposure.

LAND GRANT COLLEGES 1862 1962 STATE UNIVERSITIES

-more-

But, the scientists emphasize, before we could use this method of protection in man, we would have to find drugs which are less toxic and easier to administer than those presently being used.

As Dr. Van Lancker explains, the two sulfhydryl drugs, aminoethylisothiouronium (AET) and cysteine, must be given intravenously and accompanied by an injection of epinephrine to keep the animals' blood pressure from collapsing.

Using simultaneous doses of the drugs, over 80 per cent of the monkeys were protected, the researchers report. Protective doses of either compound alone are so large that they are toxic to the animals. But, since AET and cysteine affect different organs, protection without toxicity is afforded when smaller, non-toxic doses of each chemical are administered together.

The researchers note that there are many species differences involved in radio-protective drugs. Beta mercaptoethylamine, for example, will protect rats and mice, but is only about 40 per cent effective in monkeys. Therefore, they warn against assuming that results obtained in other animals will also apply to primates--and that results in lower primates necessarily apply to man.

###

U.W. NEWS

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

9/14/62 jb

RELEASE: Immediately

MADISON, Wis.--Contracts for construction of a new Psychology Building and a research building for the University of Wisconsin's internationally-known Primate Laboratory were formally awarded as the UW Board of Regents confirmed previous action by its Executive Committee Friday.

Both buildings will be erected on the Madison campus. The regent action is subject to approval of Gov. Gaylord Nelson and the director of the State Bureau of Engineering.

The new Psychology Building, to cost $3,045,000, will be erected on North Charter Street, between University Avenue and West Johnson Street. It will consist of a six-story research and administration tower and a one-story lecture room wing, a total of 111,000 square feet of area.

Construction is expected to start in the next six weeks, and be completed before March, 1964.

A low bid of $1,219,400 for general construction of the Psychology Building was submitted by Siesel Construction Co., Milwaukee. Other contracts awarded:

Heating, ventilating, and air conditioning--C.A. Hooper, Madison, $495,537; plumbing--Wenzel and Henoch Inc., Milwaukee, $104,500; elevator--Otis Elevator Co., Chicago, $52,138; landscaping --Four Lakes Landscaping, Middleton, $9,550; anechoic acoustical chamber--Eckel Corp., Cambridge, Mass., $39,227; and sewer and water mains--J. K. Walsh, Inc., Madison, $7,930.

LAND GRANT COLLEGES 1862 1962 STATE UNIVERSITIES

-more-

Add one--construction contracts

Siesel also submitted the low bid, $392,089, for general construction on the Primate Research Center, which will be located at the corner of North Orchard Street and Capital Court and augment the present laboratory building at nearby 22 N. Charter St.

To cost $1,217,000, the new center will be one of a series of regional facilities planned by the National Institutes of Health (NIH). Dr. Harry F. Harlow, laboratory director, said plans call for broadening the scope of research at the center to make it interdisciplinary, covering other departments at the University as developments warrant.

Other contracts awarded on the Primate Research Center project:

Heating--Pharo Heating Co. Inc., Madison, $175,994; electrical--Robert J. Nickles Inc., Madison, $66,595; plumbing--Welch Plumbing Co., Madison, $63,370.

The UW Planning and Construction office plans to break ground on this project within the next month, with completion set for January, 1964. Other than UW expenditures for land and utility extensions, the entire cost of the new center will be borne by NIH. Plans for the structure were drawn by Herbst, Jacoby and Herbst, Milwaukee architects.

NIH is also providing $400,000 toward the new Psychology Building, with another $350,000 coming from the National Science Foundation. This building was designed by Shattuch, Siewert and Associates Inc., Neenah architects, and is to be used mainly for research purposes, with some classrooms and offices.

###

New Building Planned

Monkey Watching Due To Improve at Vilas Zoo

There's going to be better monkey watching at the Vilas park zoo.

And that takes some doing, for watching the monkeys of monkey island—as provided each year by the University of Wisconsin—has been a fascinating pastime.

To Cost $80,000

The better monkey watching will stem from the university plan to build, with federal funds, a new building for monkeys at the zoo.

The building will cost $80,000, and it will permit the university to increase its holdings of monkeys at the zoo from about 50 to 200.

The university hopes to start preliminary work this fall and finish the building in time for the new spring influx of monkeys.

Monkey island will be continued as a summer attraction. But the new building will permit seeing the monkeys in the winter.

Bask in Sun

"We hope to have heated slabs in the outside areas," said Jay B. Mowbray, associate director of the Primate Research Center at the university.

"On sunny winter days, we feel that the monkeys will venture outside and bask in the sun, so that they can be seen by the public."

Gratitude and practicality are mixed in the choice of the holding facility for the Vilas park zoo, Dr. Mowbray said.

Back in the early days of primate research at the university—when no one dreamed that the center would be a leader in the world in such research—Dr. Harry Harlow found that the city and the zoo were willing to help him get started in his work.

He brought tests, in the form of simple problems, to the monkey house and pushed them up to the cages. The monkeys soon learned that lifting the proper block, or blocks, or blocks in sequence brought them a bit of food.

Dr. Harlow began to compile new facts on learning, adding to the store of basic knowledge.

As the university began to buy its own monkeys, an arrangement was made so that the new stocks of monkeys coming in from India, for the most part, could be held at the zoo.

This gave time for diseases to show up, before they might infect the larger population of monkeys at the university, and it gave the monkeys a chance to see and become used to people.

Proof of Recognition

During the years, the primate work here received national recognition. A proof of that is the money given for the new primate study building.

Another $1.2 million has been granted by the National Heart Institute of the National Institutes of Health (NIH) for a new building in an area bounded by Coyne ct., Orchard st., Capitol ct., and a new street to be cut through between Capitol ct. and Regent st. The office section of the building will be two stories high and the reserch portion four stories. It is hoped that the building will be put out for bid in July.

The building is one of six research centers planned for this country, each to specialize in one or more phases of primate research. The Wisconsin facility will specialize in primate psychology, physiology, and biochemistry.

450 Monkeys in Colony

Work with monkeys on the campus began in the 1930s with a few cages behind the psychology building. Next came an old temporary building back of the railroad tracks, near University ave., and then the shift, in 1953, to an old cheese factory on Capitol ct., refurbished with Wisconsin Alumni Research Foundation (WARF) funds. A few years ago, a large addition was made with WARF and NIH funds.

There are some 450 monkeys in the colony now. Working with them are some 60 civil service employes and research people.

The researchers are split about evenly between Medical School and letters and science people as they engage in studies of monkeys which give information on disease, psychology, and learning patterns.

In dimly lit rooms, for instance, a researcher faces a cage containing a monkey. He drops a shield, so that the monkey can't see what he's doing, and places a bit of food under one of several blocks of wood on a tray.

Makes His Choice

He moves the tray to the cage. He drops a shield between him and the monkey so that the monkey can't be diverted by the human or catch a clue as to where the food is by an incautious glance at the right block.

He raises the shielding device before the monkey, and the monkey makes his choice. The problem may be to find how long it takes a monkey to learn that the food is always under a square block, rather than a round one.

Through the monkeys' reactions to this, and other more complicated problems, more is added to our knowledge of learning from an animal which comes closest to the human being.

When the new buildings are completed, the colony of monkeys will be more than doubled—to about 1,000—and the staff also will be doubled.

Information gained from the tests with monkeys is being used in the eduation of our children. More will be used in years to come as still other basic knowledge is gained and put to work.

The Monkeys of the Vilas Park Zoo—on Monkey Island

"...Did you hear about it? We're going to have some pretty fancy winter quarters, too..."

Open Monday & Thursday

#%+&!!"

Why not buy Summer Slacks you can swear by ?

. . . with so many synthetic fibers

WIRE NEWS

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

4/19/62 jb

RELEASE: Immediately

MADISON, Wis.--Wisconsin visitors to the World's Fair in Seattle will find six delegates from the University of Wisconsin ready to greet them.

Two mother monkeys and four infants from the internationally-known UW Primate Laboratory are the star attractions of a display set up this week in the United States-sponsored Science Hall exhibit section.

The display describes and illustrates the much-cited studies of Dr. Harry F. Harlow, director of the laboratory. These stress maternal-infant affection in primates.

In keeping with the hall's theme of portraying how scientists work, the UW presentation, covering 40 feet of floor space, compares the relationship between infant monkeys raised with surrogate (substitute) mothers with those raised by their own mothers.

The techniques of research, the types of affection shown, limitations of an inanimate mother and other pertinent knowledge gained in this field of specialized study are clearly shown by the primates, by photographs, film and a story-board.

Details of the display were worked out by Fred Sponholz, project supervisor for the laboratory. It will remain in Seattle until the fair closes Oct. 21.

###

WISCONSIN
Newspaper Service
235 Washington Building
MADISON 3, WISCONSIN
Clipping Bureau Division

Appleton Post-Crescent

APR 10 1962

Monkey Research

Primate lab

Scientists at the University of Wisconsin were embarrassed recently when some of the learned members of the United States Senate began poking fun at a research project looking into a baby monkey's love for its mother. Somehow the senators seemed to find the idea amusing.

The question was before the Senate because an appropriation was needed to continue the work. If by any chance the senators had made the idea look ridiculous the appropriation might have been out the window for good since no senator would want to justify appropriating money for an idea which would look ridiculous to his constituents.

Even more recently the matter came up in the House of Representatives and there Rep. Laird of Marshfield took the opportunity to justify the expenditure as worthwhile. The study is being carried on by Dr. Harry Harlow, psychology professor at the university, who is described as one of the best in the business. Others must have taken a serious look at the matter for more than a million dollars has been spent on the project since 1954. Rep. Laird says previous publicity given to the subject has been unfortunate because the study of monkey behavior under Dr. Harlow has been helping scientists to learn a great deal about people.

Rep. Laird said, "This is one of the best grants and one of the most successful grants made by the National Institute of Health. The work that is going on at the University of Wisconsin is not monkey business. It is real serious work."

Here is a case where a few careless words might have delayed or ended an important study at the university. The obviously humorous aspects of the study need not be repeated here. Everyone knows that monkeys and other animals are used to learn about physical characteristics of human beings and also to study the effects of various medicines before using them on human beings. Dr. Harlow is proving that he can learn about human emotions from monkeys and that is a most important field to investigate in the interests of human happiness.

WISCONSIN
Newspaper Service
235 Washington Building
MADISON 3, WISCONSIN
Clipping Bureau Division

Madison Capital Times
Private Lab
FEB 8 1962

Washington Notes

Chit-Chat From The Potomac

BY RICHARD RESTON
(Capital Times
Washington Correspondent)

WASHINGTON — The affairs of Congress get a bit confusing at times, but what could be more simple than a situation involving Sen. Harry Byrd (D-Va.), infant monkeys, mothers of infant monkeys and the University of Wisconsin.

Reston

The problem is as follows: with federal deficits running into billions of dollars a year and a national debt of $300 billion the government plans to spend $1,201,925 in six years to study the "affectional relationship of an infant monkey and his mother."

Byrd has asked for more information and proposes further inquiry into the six-year grant from the national institute of mental health to a psychology professor at the University of Wisconsin.

"It is difficult to be critical of health research," Byrd said, "but it seems to me that much more care should be exercised in the expenditure of taxpayers money even in this important area."

* * *

● **ECONOMIC EXPERTS** are a little miffed by the problem. They're not quite sure whether the financing or monkeys ought to be private or public.

If such appropriations were cut from the federal budget, the

(Continued on Page 5, Col. 1)

Primate Lab

The Proper Study of Mankind

That basic research is important and that free-wheeling investigation of whatever interests the researcher is the only way to conduct basic research are concepts difficult to convey to nonscientists. Ten or 20 years ago what congressman would not have been critical of the use of public funds for research on the genetics of bacteria and viruses? One can imagine the headlines: "Microbe Sex-life Research Grants Irks Senator Fish." Of course no one could have told the senator with absolute assurance that investigations of this kind would lead to the grand generalization about the universal similarity in hereditary mechanisms (DNA and RNA) that we have now attained. Researchers know that all living things are related and that what is true of one form may be true of another, but that if it is not, "Vive la difference!" Comparative study teaches us much that we can learn in no other way.

A case in point is the recent attack by Represenative Harsha and Senator Byrd on the research grant of $1.2 million to Dr. Harry Harlow of the University of Wisconsin for a 6-year program of primate research. Subhuman primates, as the congressmen should know, offer unusual advantages for research. Interesting in their own right and fully worthy of scientific investigation, they occupy the unique position of being the animals most similar to man in physiology and in mental capacity. Their bodies and brains are far more like ours than are those of any other animals. Hence, they react to physical stresses, to disease, to psychic disturbances, in much the same way that we do. It was not caprice that led us to use a chimpanzee for our first suborbital test shots. The brilliant achievement of Colonel Glenn last week owes something to what was learned from Ham's flight. Nor was it an indifferent choice that led to the use of monkey kidney for the cultivation of the polio virus: The virus will grow in monkey kidney. Of course, it will also grow in human kidney, but that is a tissue hard to come by. Prior to the work of Professor Harlow and others hunger, thirst, pain, and so on were thought to be the primary motivations of behavior. Harlow has shown experimentally that monkeys have--as had long been suspected for man--motivations not reducible to these primary ones: drives to explore, to manipulate, to see, to hear, and to experience affection. Furthermore, his work has had an effect on learning theory: monkeys learn how to learn; they have an accretion of learning.

To give another example, monkeys reared in isolation are emotionally crippled; those brought up by artificial "substitute mothers" seem for a time to be normal, but when adult they are unable to act like mothers toward their offspring. Monkeys have still another advantage as research subjects. They can be studied throughout their lives--they grow up in 2 to 3 years--and can be kept in a controlled environment and subjected to planned experiments. Studies of this kind provide new insights into human behavior that could be attained in no other way. Would the congressmen suggest that we carry out such studies on human beings? Or do they perhaps think it unimportant to try to understand behavior? dangerous to study motivation? --G.DuS.

--Science magazine, 2 March 1962

WISCONSIN
CLIPPING BUREAU
235 Washington Building
MADISON, WISCONSIN

Clark Co. Press, Neillsville

FEB 22 1962

Editorials . . .

What You Can Do

"Ask not what your country can do for you; but what you can do for your country."

These were, in effect, the idealistic words of John F. Kennedy as he took the oath of office as president of the United States a little more than a year ago. They were exciting words.

So let's see:

You can study the affectional ties of mother monkeys and baby monkeys. The federal government has given a grant of $1.2 million to the University of Wisconsin for that purpose.

You can, at the same time, applaud such things as a study of butterflies at the federal government expense.

We're probably going to get some information that will be of real value to humanity through these projects—and a list of similar ones as long as one's arm.

What you're supposed to do about it is work hard, save—and pay the bill.

FEATURE STORY

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

6/13/61 gmb

RELEASE: Immediately

By GAIL McBRIDE

MADISON, Wis.--Observations that damage to an infant brain produces less disturbance than equivalent damage to an adult brain are the subject of a cooperative research venture by University of Wisconsin scientists from four different fields.

Evidence has been derived from work with humans. Now tests are being conducted on animals.

At present, work is concentrated on rhesus monkeys raised in the psychology department's Primate Laboratory directed by Dr. Harry F. Harlow, professor of psychology. Previous research in this general area was done by Dr. Robert F. Benjamin, assistant professor of physiology, of the neurophysiology laboratory of the Medical School.

Dr. Benjamin worked with four groups of animals: normal kittens, kittens on whom brain operations were performed at four days of age, normal adult cats, and adult cats subjected to the same operation as the kittens.

In the operations, somatic sensory areas I and II of the brain were removed. These are the areas of the cortex or outer layer of the brain which received most of the touch impulses from the body. After the operation, the animals were allowed to rest for six months.

Then they were trained to learn a roughness discrimination task--a fairly simple one in which they had to distinguish between smooth and rough grades of sandpaper on the floor of a maze. When the animals moved down the side with rough sandpaper, they were rewarded with food.

-more-

The normal adult cats could learn to solve this problem successfully. But the adult cats which had undergone operations could not.

Amazingly enough, however, there was no difference between normal and altered kittens. They performed equally well on the task. Only on the most complicated problems was there a difference.

Brain cells don't grow back after the operations, so the startling results must be explained by something else. Scientists use the vague term "plasticity" to describe the immature brain. They suggest that perhaps the connections are not as firmly established as in older brains, and other parts can take over when something is damaged or removed.

Dr. Harlow has been tracing the development of learning in rhesus monkeys for about seven years. He has found that their ability to solve what is called a "delayed response" problem begins, or "matures," at about 125 days of age and improves subsequently.

An example of a delayed response problem is the placing of a piece of food in one of two identical containers in full view of an animal. The containers are then removed from his view for a short while. When they are again shown to him, he must remember where the food is in order to obtain it.

Dr. Harlow has found that discrimination learning set, which essentially means the transfer of information learned in solving one problem to another similar problem, matures in the monkey at about six months of age--considerably later.

When the lateral or outer surfaces of the two frontal lobes of the cortex are surgically damaged--a "lesion" is made--the ability to solve delayed response problems is destroyed in normal adult monkeys but discrimination learning set remains.

On the other hand, if large lesions are made in the two temporal lobes of the cortex, which are important visual associative areas, discrimination learning set is seriously impaired but not delayed response learning. This phenomenon is called a double dissociated syndrome by neurologists and psychologists.

The theory is that there should be little noticeable effect from brain injuries or lesions made before the function matures--before 125 days in the delayed response problem solving or before six months in the set discrimination learning. Apparently, this theory holds true.

Dr. Konrad Akert, professor of anatomy at UW Medical School, performs the brain operations. At first, there was a problem with anesthesia dosage in the baby monkeys. So Dr. O. Sidney Orth, professor of anesthesiology in the Medical School, volunteered to personally administer the anesthesia in the first two of the delicate, five-hour operations.

Lateral lesions on each frontal lobe were made when the monkeys were five days old. Six months later the animals were tested.

Again the amazing results: Normal and altered monkeys showed no differences on the basis of delayed response problem solving. They have not been tested on very complicated problems, but so far, no difference has been detected on any test.

This experiment was reported in the Dec. 30, 1960, issue of Science magazine.

Two other baby monkeys were operated on at 150 days of age. This is roughly comparable to a lesion in a one-year-old human child. They also showed no loss of ability. Dr. Harlow says, however, that this is still an early lesion--just slightly after the delayed response problem solving ability begins to mature.

In an effort to find a "critical" time at which the young brain loses its "plasticity"--when the functions become set and irreversible as seen in adults--lesions were recently made in 18-month-old monkeys. This is comparable to a human child of eight years.

This time there was a change. These monkeys apparently cannot learn. The "critical" time is passed. Experiments with surgical lesions induced at other ages are now in progress.

Restless, circling behavior is usually seen in adult monkeys that have had the frontal lobe operation. This is not seen in the five-day or 150-day operates, again suggesting that the operation has little effect at this early age, but is seen in the 18-month operates.

Surgical operations on both temporal lobes have been done on two monkeys. These monkeys, compared to normal ones of the same age, apparently showed no loss in discrimination learning set ability or on any other test.

Currently, temporal lobe operations are being extended to older animals. As yet, there is no information.

If the monkeys are followed long enough and given various tests, it may be that eventually they will be found deficient in some respects. Perhaps personalities have been altered. Dr. Harlow says that there is some evidence that temporal lesions adversely affect play and other behavior in the monkeys.

Successful surgery like this opens up an entirely new area--that of showing how the functions and structures of the brain mature and what the capabilities of rehabilitation are in the infant.

Such research suggests that brain damaged or retarded human children who need brain operations should be operated upon early in life because less permanent damage might occur.

Eventually the sections of brain removed will be looked at microscopically to determine the amount of brain actually removed, and damaged nerve pathways will be studied. Researchers would like to bracket brain functions within narrow age limits and correlate it with the developing anatomy of the brain.

##

Milwaukee Journal
DEC 23 1961

Primate Lab

Report on Your Health

Unmothered Monkeys Emotionally Disturbed

UW Primate Studies Serve as Guides for Psychologists in Probing Man

By JAMES C. SPAULDING
Of The Journal Staff

If monkey behavior has its human parallel, as psychologists believe, then studies at the University of Wisconsin's primate laboratory are helping answer fundamental questions about man's emotional life. Among them are these:

What is the basis of the infant's love for its mother?

Can a substitute mother, made from inanimate materials, provide "normal" mothering?

Is the protective behavior of mothers toward their infants inborn; can it be destroyed by abnormal environment in the mother's early life?

Can an emotionally sick mother rear an emotionally normal infant?

How important is play among the young in development of normal adult behavior?

Receives Funds

The monkey breeding colony was established eight years ago at the primate laboratory to supply infant monkeys for studies in learning and intellectual development.

The university recently received funds from the national institutes of health to build a $1,000,000 Wisconsin regional primate research center.

The monkey research has been directed by Prof. Harry F. Harlow of the UW psychology department, who is director of the primate laboratory and of the regional center.

To provide a uniform environment for the monkeys to be studied and to eliminate certain hazards of natural mothering, Harlow and his colleagues removed the infants 6 to 12 hours after birth. The animals were raised in individual cages, where they could see each other but not establish body contact. They were bottle fed.

55 Are Tested

Fifty-five of these unmothered monkeys were tested in the learning studies. They were strong and healthy. As they grew older, it was planned to breed them to increase the size of the colony. This proved difficult and often impossible. They did not develop normal heterosexual behavior.

Researchers elsewhere had reported that infant monkeys raised in cages become attached to diaper pads. Harlow and his co-workers decided to study the importance of bodily contact with soft materials in the formation of the infant's love for its mother.

This study showed, as Harlow reported previously, that monkey infants develop love for a substitute dummy "mother" covered with soft toweling. They do not become emotionally attached, however, to a wire frame mother substitute, even when a nursing bottle is mounted in it for feeding.

The study demonstrated that contact comfort was the crucial factor in development of the infant's attachment to its mother, rather than satisfaction of hunger or some mystical force.

It became apparent, as time went on, that although the cage raised motherless monkeys were physically healthy, they were far from normal psychologically. To a lesser extent, this also was true of the monkeys raised by substitute mothers.

Bit Themselves

The emotionally disturbed animals resembled children suffering from what is called childhood schizophrenia or infantile autism. They sat in their cages, staring into space, seemingly uninterested in monkeys in cages near by. Some wrung their hands and clasped their heads or bodies in their arms. They rocked back and forth.

When threatened, they bit themselves or tore at their own flesh, instead of showing normal aggression toward those menacing them.

They avoided all social contact with other monkeys. Breeding did not occur.

Research in the past has emphasized the system of affections between the infant and mother in development of personality. Harlow and his colleagues began studying both this infant-mother affectional system and the effects on personality development of interactions between infants. The latter is the infant-infant affectional system.

Tell of Experiments

The primate researchers knew they had produced, unintentionally, monkeys that were distinctly abnormal in behavior. But they did not know which aspects of the abnormality stemmed from lack of normal mothering and which from isolation from other infant monkeys.

Additional experiments now have shown that if an infant monkey is motherless and isolated from close contact with other monkeys for six months, its capability for developing normal monkey behavior will be greatly damaged and may be permanently destroyed.

But if the infant is isolated for 60 days, and then is permitted to play 20 minutes daily with other young monkeys, the emotional damage is mostly reversible.

The laboratory now is experimenting to distinguish the emotional defects caused by lack of mothering from those caused by lack of play with other infants. In one experiment, infant monkeys are being raised by their own mothers, but are isolated from other infants.

The earliest affectional system to develop in monkeys—and in man—is of the infant's attachment to its mother, or the infant-mother relationship.

Studies at the primate laboratory have shown that when two infants are taken from their mothers shortly after birth and housed in the same cage, they will cling together face to face.

Personality development in this "together-together" behavior, as Harlow calls it, becomes fixed at the early attachment stage. The infants fail to progress to the second level of infant-infant affectional development.

In the second (infant-infant) level, the young animals first explore their surroundings and each other, then engage in rough and tumble play, followed by a stage of chasing and finally by aggressive action that determines position in the social order.

Observations Preliminary

The third affectional system, heterosexual behavior, includes mutual grooming and mating.

"motherless" females was bred with a normally raised male.

When this motherless mother's infant was born, she ignored it and sat staring vacantly. The infant clung to her, struggling to establish normal body contact. She brushed the infant away as if it were an insect.

When the little monkey persisted, the mother would crush it against the cage floor with her hand or foot.

Similar Behavior Shown

Three other female monkeys, raised with substitute mothers, showed similar behavior toward their infants.

It remains to be learned, Harlow said, whether the behavior of the motherless mothers toward their infants arises wholly from their own inadequately mothered infancy, or whether lack of social experience with other monkeys in their first year of life plays a part.

"We only know," he said, "that these monkeys without normal mothering have behaved toward their infants in a manner completely outside the range of even the least adequate of normal mothers.

"They constitute the most dramatic discovery to date in the production of abnormal affectional behavior, and we wait with eagerness to trace their subsequent personality development and the personality development of their unlucky babies as they grow mature and, in the case of the females, become mothers themselves."

—American Museum of Natural History

An emotionally disturbed monkey at the University of Wisconsin primate laboratory.

Harlow Examines Importance Of Primate Infant Behavior

OCT 4

By JEFFREY BOGART

Prof. Harry F. Harlow of the University of Wisconsin Primate Laboratories examined infant-infant play patterns in monkeys in the second lecture of the Messenger Series in Alice Statler Auditorium at 8:15 p.m. yesterday.

He suggested that the responses developed by this infant play may be just as important in the future social behavior of an animal as the social responses learned by the infant through contact with his mother.

The infant-infant affectual system, Professor Harlow explained, develops in the period from birth to puberty. The first year is devoted to the maturation of the animals' play habits. Then there is a period of aggression and finally one of harmonious living.

During their first month four monkeys when placed in a play area will stay close to each other. Professor Harlow interpreted this as a reflex response based on sight. The monkeys next will explore their surroundings and exhibit a definite pattern of grasping and mouthing newly-found objects. They then engage in active play with their toys.

Soon one monkey attempts to start contact play with another. The first such play Professor Harlow calls "rough and tumble" play. A characteristic feature of this play is that no participant is hurt. The second type of play he calls "approach-withdrawal" behavior in which the monkeys take turns chasing each other. At this time no contact occurs between them. With further maturation there is an overlap of the two types of play.

After the first year the play patterns of the monkeys become aggressive, when the animals, biting and grasping actions bring blood and tufts of hair. Professor Harlow finds this period correlates with the beginning of dominance relations and social order. He points out that the monkeys quickly learn to live in peace.

Professor Harlow pointed out that play behavior is produced under different conditions than produce infants' responses to their mothers. The stimulus between the infant and the mother is contact.

Harlow believes the play behavior may be due to the size of the room and the objects in the room in which the monkeys are permitted to play.

Harlow Refutes Conceptions About Beautiful Motherhood

Oct 16

By JOSEPH B. THOR

The traditional concept that motherhood "is sweet, beautiful and true" is not so, Prof. Harry F. Harlow of the University of Wisconsin Primate Laboratory said last night.

Mother love is a "rough game," he went on in a lecture titled "The Maternal Affectional System," the fourth of six Messenger lectures.

"Maternal affection is a system with high variance," he said. Each mother differs in affection according to four variables which he listed as the hormones present, the patterns of femininity, the extent of feedback to the mother by the infant during the nursing and contact period and the long-term experience of the mother. Mothers often get better after having more babies, Harlow explained.

Harlow presented some of the observations gained through use of a playpen situation—four cages with a mother and infant, each with a small opening so that only infants can enter a central cage.

As the infants began to move towards the central cage, the mothers became agonized and in most cases would not let them go out. When the infants did go into the central cage and engaged in rough and tumble play, the mothers would sit and worry and then punish their young when they came back.

The infants failed to respond to their mothers' calls to return as they grew older, Harlow continued. Then the mothers resorted to lurking and deception to bring them back for punishment.

During these experiments three stages in the development of maternal responses were observed, Harlow said. The first stage consists of protection and security and increases for 60 days after birth and then declines.

The second is one of ambivalence where the baby gets a chance to go out into the central cage and form infant-infant experiences. The third is separation and rejection which is very slight at birth but increases four months later.

In one experiment, he said, four female monkeys were raised with cloth surrogate mothers. They were then inpregnated and after birth showed little maternal response to their infants.

Professor Employs Movies in Fifth Talk To Support Theory of Contact Comfort

OCT 11

By ELLEN J. RAUSEN

Prof. Harry Harlow of the University of Wisconsin illustrated three kinds of affectional development in monkeys by movies taken at the Primate Laboratory. The lecture, held in Alice Statler Auditorium last night, was fifth in the series of Messenger lectures entitled "Love and Affection in Primates."

The first movie presented strong evidence for Professor Harlow's theory that contact comfort is a key factor in monkey security. Monkeys raised on a cloth surrogate showed only momentary anxiety when placed in a new situation with the dummy mother present.

After clinging to the cloth mother for awhile, the monkey began to show interest in his surroundings, but returned to the mother often, as if for reassurance.

Monkey infants raised on wire dummies showed extreme terror in the same situation, even if their "mothers" were with them. They tried to shut out the frightening new environment by clasping themselves and rocking back and forth, behavior similar to that of a disturbed child.

Other variable factors such as acess to the cloth mother, plane versus upright figures and rocking versus stationary figures all seemed to show that the monkeys derive maximum security and satisfaction from body contacts which allow them to cling.

There is a tremendous drive to reach the cloth mother. After being separated from her, the monkey loses all his carefully-reinforced mechanical skill in his eagerness to get to the surrogate.

Some shots of a human exploring a surrogate mother led Dr. Harlow to comment that "climbing in primates is innate and instinctive. In monkey's it's physical and in humans, social."

The second reel showed the development of infant play patterns as young monkeys mature. Four monkeys gradually went from individual to group play in a series of steps. These included exploration of physical objects, and each other, imitative solitary play, rough and tumble play, attempted initiation of group play by a slightly older monkey and finally approach-withdrawal group play.

Monkeys raised in pairs showed together-together behavior, which meant excessive clasping and an absolute refusal to be physically separated. This behavior is naturally destructive of normal play patterns, since individual exploration is hampered.

Early experiences have a great effect on monkey behavior. Monkeys who have inadequate mothers show more insecurity in play behavior than do monkeys with "loving mothers." In monkeys raised in the laboratory as controls, rough and tumble harmless play was replaced by aggressive behavior in which the monkeys do actually get hurt.

Monkeys which were raised in complete social isolation show terror when exposed to a control monkey. They are utterly at the mercy of animals half their size, and cower in a corner of the cage in obvious distress.

Cornell Daily Sun
Ithaca, N.Y.

Primate Lab

Messenger Lecturer Talks On Monkeys' Sex Behavior

By BARTON A. MILLS

Heterosexual behavior in monkeys was the topic of Prof. Harry F. Harlow's third Messenger Lecture yesterday.

Professor Harlow, who heads the Primate Laboratory at the University of Wisconsin, has observed three periods in the development of heterosexual behavior in monkeys: the infant, pre-adolescent, and mature.

The year-long infant period is characterized by disoriented and fragmentary sexual behavior. Mounting begins with preadolescence; however, it is not until the third or fourth year that monkeys are sexually mature. There is no period of preadolescent latency as in humans.

The different behavior patterns of male and female determine their sexual behavior, Professor Harlow said. Male and female bodily orientation brings on sex behavior. For example, the female characteristic of turning the back on the male and the male pattern of aggressiveness are normal overtures to sexual intercourse.

Traits common to females are withdrawal, passivity, and rigidity, according to Professor Harlow, while males are characterized by threatening and aggressiveness.

Observations by Professor Harlow of young monkeys under playroom conditions show that males most often initiate play. Males engage in rough-and-tumble play, he said, while females most often sit passively. "There is no great difference between boys and girls in a Madison park and young monkeys in the laboratory," he commented.

Professor Harlow also discussed the sexual behavior of monkeys who had been separated soon after birth from their mothers. These monkeys seldom engage in normal sexual behavior even if they have lived since infancy in the same cage with another monkey of opposite sex.

This abnormality may be attributed to a lack of contact with a mother or with other inafnts, Professor Harlow said. Even when these monkeys are placed together at maturity, they do not develop normal sex habits. No males have been educated in normal patterns, but some females have been taught by mature males.

Plus 15 to Helen Neal Acting Information Officer
Div. of Research Facilities and Resources
National Institutes of Health Dept. of Health, Education, and Welfare
Bethesda, Maryland 20014

Private Personnel file

MAILING LIST FOR ANNOUNCEMENT OF U. OF WISC. PRIMATE CENTER

ADA NEWS LETTER
Amer. Dental Assn.
222 E. Superior St.
Chicago 11, Ill.

AMERICAN HEART JOURNAL
3207 Wash. Blvd.
St. Louis 3, Missouri

AMERICAN JOURNAL OF HYGIENE
615 N. Wolfe St.
Balto. 5, Md.

AMER. JOURNAL OF MEDICINE
466 Lexington Ave.
NY, 17, NY

AMER. J. OF MENTAL DEFICIENCY
Laconia State School
Laconia, New Hampshire

AMA ARCHIVES OF NEUROLOGY & PSYCHIATRY
535 N. Dearborn St.
Chicago 10, Ill.

AMER. J. OF PSYCHOTHERAPY
16 W. 77th St.
NY 24, NY

AMER. J. OF PUBLIC HEALTH
1790 Broadway
NY 19, NY

AMER. MED. ASSN. NEWS
535 N. Dearborn St.
Chicago 10, Ill.

AMER. MED. ASSN. WASHINGTON LETTER
One Farragut Sq. South
Wash. 6, D.C.

AMER. PSYCHOLOGIST
1333 16th St., N.W.
Wash. 6, D.C.

ANNALS OF INTERNAL MEDICINE
c/o Amer. College of Physicians
4200 Pine St.
Phila. 4, Penna.

AMER. SOROPTOMIST
975 S. West Temple
Salt Lake City, Utah

BULLETIN FOR MED. RESEARCH, NSMR
920 S. Mich. Blvd.
Chicago 5, Ill.

CANCER NEWS
521 W. 57th St.
NY 19, NY

CONFERENCE, Science Information Bureau
34 E. 51st St.
NY 22, NY

THE CONVEYOR
Winthrop Labs.
Myerstown, Penna.

DENTAL HEALTH HIGHLIGHTS
222 E. Superior St.
Chicago 11, Ill.

DISEASES OF THE NERVOUS SYSTEM
Univ. of Texas Schl. of Med.
800 Ave. B
Galveston, Texas

DRUG RESEARCH REPORTS
Mr. Ron Grandon
1152 Natl. Press Bldg.
Wash. 4, D.C.

EDUCATIONAL RECORD
Amer. Council on Education
1785 Mass. Ave., N.W.
Wash. 6, D.C.

EDUCATIONAL TV & RADIO CENTER
1590 Coliseum Bldg
10 Columbus Circle
NY, NY.

FOUNDATION NEWS, NATL. FOUNDATION
301 E. 42nd. ~~Ave.~~ St.
NY 17, NY

(return this list to Burke)

JOURNAL OF THE AMER. DENTAL ASSN.
222 E. Superior St.
Chicago 11, Ill.

JOURNAL OF AMER. MED. ASSN.
535 N. Dearborn St.
Chicago 10, Ill.

JOURNAL OF THE AMER. OSTEOPATHIC ASSN.
212 East Ohio St.
Chicago 11, Ill.

JOURNAL OF AMER. VETERINARY MED. ASSN.
600 S. Mich. Ave.
Chicago 5, Ill.

JOURNAL OF CLINICAL INVESTIGATIONS
333 Cedar St.
New Haven 11, Conn.

JOURNAL OF HEALTH & HUMAN BEHAVIOR
Texas Christian Univ.
Fort Worth 29, Tex.

JOURNAL OF MED. EDUCATION
2530 Ridge Ave.
Evanston, Ill.

JOURNAL OF ORAL SURGERY
222 E. Superior St.
Chicago 11, Ill.

LAB WORLDS
672 S. Lafayette Park Place
Los Angeles 57, Calif.

MD MAGAZINE
30 E. 60th St.
NY 22, NY

MED. ECONOMICS
Kinderkamack Rd.
Oradell, N.J.

MED. EXAMINER
Metropolitan Life Ins. Co.
1 Madison Ave.
NY, NY

MEDICAL NEWS
80 Fifth Ave.
NY, NY

MED. PRESS, INC.
130 E. 59th St.
NY 22, NY

MED. TIMES
1447 Northern Blvd.
Manhasset, NY

MEDICINE IN THE NEWS
Schering Corp.
Bloomfield, N.J.

MED. WORLD NEWS
30 Rockefeller Plaza West
NY 20, NY

MODERN MEDICINE
~~84 S. 10th St.~~ 64th at Valley View Rd
Minneapolis 3, Minn.

NATL. KIDNEY DISEASE FOUNDATION
342 Madison Ave.
NY, NY

NEW ENGLAND JOURNAL OF MEDICINE
The Fenway
Boston 15, Mass.

NORTH AMER. NEWSPAPER ALLIANCE
Tom Henry, Sci. Ed.
Natl. Press Bldg.
Wash., D.C.

NURSING OUTLOOK
10 Columbus Circle
NY 19, NY

OSTEOPATHIC NEWS
3 W. 57th St.
NY 19, NY

PATTERNS OF DISEASE
Parke, Davis & Co.
Foot of Joseph Campau Ave.
Detroit 32, Mich.

PEDIATRICS
301-327 E. Lawrence Ave.
Springfield, Ill.

PSYCHIATRIC QUARTERLY
Utica State Hosp.
Utica, NY

PSYCHIATRY
1610 New Hampshire Ave., N.W.
Wash. 9, D.C.

SCIENCE
AAAS
1515 Mass. Ave.
Wash., D.C. 20005

SCIENCE SERVICE
Watson Davis, Direc.
1719 N St., N.W.
Wash. 6, D.C.

SCIENTIFIC AMERICAN
415 Madison Ave.
NY 36, NY

SCIENTIFIC INFORMATION NOTES
Natl. Science Foundation
Wash.25, D.C.

SCRIPPS HOWARD NEWSPAPER ALLIANCE
John Troan, Sci. Ed.
1013 13th St., N.W.
Wash. 5, D.C.

SOUTHERN MED. JOURNAL
1020 Empire Bldg.
Birmingham 3, ALa.

SPECTRUM - PFIZER LABS
630 Flushing Ave.
Brooklyn 6, N.Y.

Jean Franklin
TIME MAGAZINE
1120 Conn. Ave., N.W.
Wash., D.C.

US NEWS & WORLD REPORT
Marvin Stone
24th & H Sts., N.W.
Wash., D.C.

WASHINGTON REPORT ON THE MED. SCIENCES
Gerald G. Gross, Ed.
1308 19th St., N.W.
Wash. 6, D.C.

WINTHROP NEWS
Winthrop Labs.
Rensselaer, N.Y.

WORLD WIDE MED. NEWS
~~624 Madison Ave.~~
NY 22, NY

1. Atlanta, Ga.

1. Constitution
Eugene Patterson, Editor
10 Forsythe St.
Atlanta, Ga.

2. Journal
Jack Spalding, Editor
10 Forsythe St.
Atlanta, Ga.

2. New Orleans, La.

1. States-Item
Carl M. Corbin, Editor
615 North St.
New Orleans, La.

2. Times-Picayune
George W. Healy, Jr., Editor
615 North St.
New Orleans, La.

3. Seattle, Wash.

1. Post-Intelligencer
C. B. Lindeman
P.O. Box 1909
Seattle, Wash.

2. Times
Fairview Ave. No. and John St.
Seattle, Wash.

4. Boston, Mass.

1. Record American
5 Winthrop Square
Boston, Mass

2. Globe
L. L. Winship, Editor
135 Morrissey Blvd.
Boston, Mass.

3. Herald
George Minot, Editor
300 Harrison Ave.
Boston, Mass.

5. San Francisco, Calif

1. Chronicle
Charles Thieriot, Editor
901 Mission St.
San Francisco, Calif.

2. Examiner
Lee Ettelson, Editor
Third and Market Sts.
San Francisco, Calif.

3. News-Call Bulletin
C.H. Schneider, Editor
Howard St. and Holland Court
San Francisco, Calif.

6. Madison, Wisc.

1. Capital Times
William T. Evjne, Editor
S. Carroll and W. Doty Sts.
Madison, Wisc.

2. Wisconsin State Journal
Don Anderson, Editor
S. Carroll and W. Doty Sts.
Madison, Wisconsin

7. Portland, Oregon

1. Oregon Journal
Arden X. Pangborn, Editor
1320 S. W. Broadway
Portland, Oregon

2. Oregonian
1320 S. W. Broadway
Portland, Oregon

New York Times
John B. Oakes, Editor
229 W. 43rd St.
New York, N. Y.

Wall Street Journal
Warren H. Phillips, Editor
44 Broad St.
New York, N. Y.

Herald Tribune
John Denson, Editor
230 W. 41st Street
New York, N. Y,

HHS-1553
REV. 12-63

File

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
National Institutes of Health
Bethesda 14, Maryland

DATE May 28, 1964

NOTIFICATION AND STATEMENT OF GRANT AWARD

Mr. George F. Everson
Director of Contracts - Fiscal Administration
The University of Wisconsin
Administration Building
Madison, Wisconsin

In reply refer to our: 5 P06 FR 00167-04

P.I.: Dr. Harry F. Harlow, Director
Wisconsin Regional Primate Research Ctr.
22 North Charter Street
Madison 6, Wisconsin

Upon recommendation of the appropriate National Advisory Council, the Surgeon General has approved the Public Health Service grant described below.

The attached explanation outlines Public Health Service policy relative to the payment and management of grant funds, as well as to the scientific and budget freedom afforded grantees in their work.

STATEMENT OF GRANT AWARD MADE UNDER THE PUBLIC HEALTH SERVICE ACT

SECTION OF ACT	TYPE OF AWARD	NATIONAL ADVISORY COUNCIL
301(d)	Research	National Advisory Research Resources Committee

GRANT PERIOD
6/1/64 - 5/31/65

GRANTEE INSTITUTION
The University of Wisconsin

PAYEE (CHECK WILL BE DRAWN AS FOLLOWS) 04-043987
Director of Contracts - Fiscal Admin.
The University of Wisconsin
Administration Building
Madison, Wisconsin 909600

ABBREVIATED TITLE OF PROJECT OR PROGRAM
FR 00167-04 - Operation of the Wisconsin Regional Primate Research Center

PRINCIPAL INVESTIGATOR(S) OR PROJECT DIRECTOR(S)
Dr. Harry F. Harlow

FUTURE SUPPORT (Provided Funds Are Appropriated—See Attached Sheet Concerning Continuation) DIRECT COSTS ONLY - APPROPRIATE INDIRECT COSTS WILL BE ADDED.

1st Additional Year	(05)	$784,500
2nd Additional Year	(06)	$812,000
3rd Additional Year	(07)	$842,250
4th Additional Year	(08)	$875,525
5th Add'l. Yr.	(09)	$912,127
6th Add'l. Yr.	(10)	$952,390

☐ Approved for Support for _____ Additional Years Ending _____, the Amounts to be Determined Annually.

BUDGET ALLOCATION	AMOUNT
DIRECT COSTS (EXCLUSIVE OF TRAINEE STIPENDS)	$749,500
TRAINEE STIPENDS	
INDIRECT COST ALLOWANCE (OVERHEAD) @ 20%	146,032
TOTAL GRANT	$895,532 1/
AMOUNT OF FIRST PAYMENT	$223,883
BALANCE DUE	$671,649

LIST NUMBER FR-P06-6-64
ALLOTMENT NUMBER 348-40203-55

Signature: Willard H. Eyestone

Name and Title: Willard H. Eyestone, D.V.M., Ph. D.
Chief, Animal Resources Branch
Division of Research Facilities and Resources

cc: Principal Investigator
Financial Officer
Public Relations Officer

REMARKS

1/ The expenditure of these funds shall be consistent with the terms on the attached sheet.

Date: May 28, 1964

TERMS OF THE AWARD FOR FR 00167-04
(6/1/64 - 5/31/65)

1. The funds awarded under FR 00167-04 may not be rebudgeted between the budget categories shown on the budget page of the application without prior approval of the Public Health Service. This statement supplements the conditions on the attached sheet entitled, "Items Identified for Special Attention in Connection with the Administration of a Public Health Service Research Grant".

2. Funds in the amount of $25,000 which have been especially designated for support of visiting scientists activities may not be used for other purposes without prior approval of the Public Health Service.

3. The Indirect Cost Allowance is subject to reduction if the Institution's substantiated indirect cost rate is determined to be less than 20%.

4. None of the funds awarded under FR 00167-04 may be carried over into the next grant year (FR 00167-05; 6/1/65 - 5/31/66) without prior approval of the Public Health Service.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE

ITEMS IDENTIFIED FOR SPECIAL ATTENTION IN CONNECTION WITH THE ADMINISTRATION OF A PUBLIC HEALTH SERVICE RESEARCH GRANT

November 1, 1962

I. PUBLIC HEALTH SERVICE POLICY REQUIREMENTS: The institution to which the grant is awarded and the principal investigator or program director whose research is being supported have joint responsibility for the proper and prudent utilization of the funds awarded. The grantee institution is obligated to administer any Public Health Service grant or award in accordance with the policies of the Public Health Service. The institution and the principal investigator or program director have joint responsibility for abiding by Public Health Service patent policy and for reporting any conflicting commitment or obligation entered into by the institution, principal investigator, or other professional personnel engaged in the project. Early reporting of inventions resulting from research grant support is required; that is, no later than at the time a manuscript is prepared for publication.

II. PERIOD OF GRANT: The Notification and Statement of Grant Award indicates the period for which the grant is being made. Funds may be obligated or expended within the period shown and for an additional period not to exceed twelve (12) months, if approval by the Public Health Service is obtained prior to the end of the original period. FUNDS MAY NOT BE OBLIGATED OR EXPENDED PRIOR TO THE ESTABLISHED BEGINNING DATE SHOWN ON THE NOTIFICATION AND STATEMENT OF GRANT AWARD, OR SUBSEQUENT TO THE TERMINATION DATE SHOWN ON THE NOTIFICATION AND STATEMENT OF GRANT AWARD OR OF THE ADDITIONAL EXTENDED PERIOD, IF ANY, APPROVED BY THE PUBLIC HEALTH SERVICE.

III. PAYMENT OF GRANT: Payment of the grant will be made in full if the total approved amount is $5,000 or less. If it is in excess of $5,000, it will normally be paid in four installments. If Public Health Service support for this project is continued, any unexpended balance up to $5,000 or one half of the amount of the continuation grant, whichever is less, will be transferred to and remain available for expenditure during the period of the continuation grant. Subject to the decision of the Public Health Service, any unexpended funds in excess of the allowable amount, will be available as partial payment of the amount approved for that year except where an approved request makes these funds available as additional funds. DEFICITS MAY NOT BE TRANSFERRED to the continuation grant or to any other Public Health Service grant account.

IV. USE OF FUNDS: Expenditures for direct costs must be initiated by the principal investigator and approved by the appropriate administrative official of the grantee institution. These expenditures must be made within the regulations and policies of the Public Health Service and the grantee institution. Funds may not be transferred from other categories and used for the following purposes without prior approval of the Public Health Service:

1. Alterations and renovations.
2. Patient costs (hospitalization or outpatients).
3. Publication of books, monographs, or pamphlets.
4. Travel.
5. Fixed equipment.
6. Items of movable equipment costing in excess of $1,000 each.
7. Equipping and furnishing of offices, conference rooms, reception rooms, or similar space.

V. EQUIPMENT PURCHASED WITH GRANT FUNDS: Title to equipment purchased with research grant funds resides with the grantee institution during and after the termination of a grant project, without further obligation to the Public Health Service, except that the Public Health Service reserves the right to transfer any such equipment in those cases where the principal investigator transfers to a different institution and receives Public Health Service grant support there.

Special provisions apply to equipment purchased from grants awarded to individuals and to institutions located outside the United States and its posessions.

VI. FUTURE SUPPORT: The Notification and Statement of Grant Award indicates in the column entitled "FUTURE SUPPORT" the amounts recommended for the future years of support for this project. Actual amounts to be paid will be negotiated annually. In addition to the actual amount determined annually for direct costs, an allowance for indirect costs can be negotiated within the prevailing policy. The annual amounts thus determined will be awarded provided the Congress appropriates the necessary funds. If no future support is indicated, an application for continuation support must compete with other applications for available funds. In either instance the necessary application forms and instructions will be sent to the grantee institution at the appropriate time.

PHS-1533 (Reverse)
Rev.12-58

U. W. NEWS FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

9/6/63 rt

RELEASE: Immediately

MADISON--Contracts for construction of the Wisconsin Regional Primate Holding Facility in Madison's Vilas Park totaling $180,951 were approved Friday by University of Wisconsin regents.

The facility will provide space for monkeys for use in connection with the Wisconsin Regional Primate Research Center, now under construction at the corner of North Orchard and Spring Streets, just west of the University Primate Laboratory.

The two new structures are being financed with a $1,297,000 grant from the National Institutes of Health.

Contracts on the Holding Facility went to Jenness Construction Co., Madison, $146,253 for general construction; Monona Plumbing Service, Madison, $16,998 for plumbing; Carl H. Behrnd, Inc., Madison, $10,270 for heating and ventilating; and to Badger Electric Construction Co., Madison, $7,430 for electrical work.

In other actions on Madison campus buildings and grounds, recommended by Vice Pres. A. W. Peterson, the regents:

1. Delayed work on the Memorial Union terrace because only a single bid for the work was received;

2. Leased 9,000 square feet of space at 2201 University Ave. from Betabak, Inc., for use by the speech department;

3. Leased 2,000 square feet at 52 N. Randall Ave. from Cooperative Services of Dane County, 1,600 square feet at 406 N. Frances St. from Herman E. Postweiler, and 1,170 square feet at 502 State St. from George J. Leonhard, all for the School of Education;

-more-

Add one--primate contracts

4. Approved purchase of five parcels of land in the Southeast Dormitory and Recreational Area for a total cost of $84,800.

The land purchases included real estate at 601 W. Dayton St. for $14,400 from Misses Angeline and Rosalie Koeppel; 141 N. Lake St. for $26,000 from Mrs. Ida H. Winn; 619 W. Dayton St. for $12,500 from Miss Louise Enders; 621 W. Dayton St. for $17,900 from Kermit C. Ison; and 603 W. Dayton St. for $14,000 from Alfred Fries.

###

Primate Res. Ctr

WIRE NEWS

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

7/12/63 jb

RELEASE: Immediately

MADISON, Wis.--The University of Wisconsin regents Friday accepted gifts and grants totaling $2,734,036, including $417,720 from the National Institutes of Health (NIH) for operation of the Regional Primate Research Center being constructed on the Madison campus.

The various projects specified by the donors for University use included $1,497,149 for research, $1,076,223 for specialized instructional programs, $75,942 for student scholarships, $912 for libraries, $29,985 for gifts-in-kind, and $39,725 for other purposes.

The allocations brought the grand total for the past 13 months to $30,889,325, compared with $25,657,731 for the previous corresponding period.

The July grants included:

From the U.S. Department of Health, Education, and Welfare Bureau of State Services, $77,259, to support a UW department of civil engineering graduate training program in water supply and pollution control.

From NIH, $100,000, to support a postdoctoral training program in enzyme chemistry, and $827,327 for 15 specific graduate study projects in the departments of medicine, zoology, pathology, biochemistry, physiological chemistry, physiology, pediatrics, preventive medicine, neurophysiology, genetics, medical genetics, veterinary science, anatomy, physics, bacteriology, and school of nursing.

From the Ford Foundation, $27,966, to support its program in economic development and administration, with fellowships in economics and business administration.

From the Wisconsin Heart Association, $107,802, for 16 research projects and three fellowships in the departments of medicine, pathology, and pediatrics.

###

Primate Research Center

MADISON NEWS

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

6/10/63 jb

Immediately

MADISON, Wis.--Final plans and specifications for a University of Wisconsin Primate Laboratory monkey retention center, to be located on grounds of the Madison Vilas Park Zoo, were approved by UW regents Monday.

To be erected with an $80,000 grant from the National Institutes of Health, the one-story concrete building will serve as a temporary housing facility for small, hardy types of primates. Experiments will continue to be conducted only at the laboratory on North Charter Street.

Circular in design, the structure will consist of handling areas, a moat, and inside and outdoor cages. Construction is expected to get underway in August and be completed by Feb. 1, 1964. Bids will be taken July 16.

City and University officials completed negotiations recently for a site on the zoo grounds. The project has the approval of the Madison Park Commission, and a lease was approved by the Madison City Council and the regents.

Work also started on the Madison campus several months ago on a new regional primate center, one of a series of such structures planned around the country by NIH. Expected to be finished by next January, this will be a four-story windowless brick research tower and a two-story glass and precast decorative concrete panel administration wing. Once completed, it will serve to broaden the scope of research to make it interdisciplinary, covering other departments at the University as developments warrant.

###

WISCONSIN
Newspaper Service
235 Washington Building
MADISON 3, WISCONSIN
Clipping Bureau Division

Madison Capital Times
JUL 14 1962

Primate Lab Building Plans Are Approved

Construction plans for a new Primate Laboratory have been approved by the University of Wisconsin.

Costing $1.2 million, the new center will be located at the corner of North Orchard Street and Capital Court.

In other building actions, the Regents approved preliminary plans for a $6.3 million student housing project — the second of the Southeast Dormitories, to be located in the block bounded by Johnson, Frances, Dayton, and Lake Streets.

The board also approved a proposal calling for plans for a $4 million Biotron building for botanical research, to be located on Observatry Drive, just east of the present Greenhouse.

In other actions the board also approved appointment of Dr. Donald W. Kerst, to the faculty as Earle Terry Professor of Physics. Jesse E. Boell, associate professor and director of archives at the University since 1959, was named professor and University archivist, replacing Dr. Gilbert Doane, who retired July 1.

WISCONSIN
CLIPPING BUREAU
235 Washington Building
MADISON, WISCONSIN

Shawano Leader
JUL 17 1962

U.W. Research Plan Approved

MADISON, Wis. — Final plans for construction of a research building for the University of Wisconsin's internationally-known Primate Laboratory were approved by UW regents Friday.

The new structure will be one of a series of regional primate centers planned by the National Institute of Health. Dr. Harry F. Harlow, laboratory director, said plans call for broadening the scope of research to make it interdisciplinary, covering other departments at the University as developments warrant.

To cost $1,217,000, the new center will be located at the corner of North Orchard Street and Capital Court, and augment the present laboratory building located nearby at 22 North Charter St.

THE PLANS, drawn by Herbst, Jacoby and Herbst, Milwaukee architects, provide 31,200 square feet of space in a four-story windowless brick research tower and a two-story glass and pre-cast decorative concrete panel administration wing.

The University Planning and Construction office plans to break ground in early September, with completion set for January, 1964.

Outside of University expenditures for land and utility extensions, the entire cost of the new center, $1,123,500, will be borne by NIH.

A spokesman for the laboratory said the rhesus monkey population is now 450. Once the new building is completed the total will be raised to 600 or 700, with most of them housed in the present lab for behavioral studies under psychology department direction. A Vilas Park facility also is in the works, and when this is completed in the summer of 1964, the primate population is expected to reach 1,000.

WIRE NEWS FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

6/5/62 gr RELEASE: Immediately

MADISON, Wis.--A total of $3,675,141.64 in gifts and grants, including two sums over a million dollars, was accepted by University of Wisconsin regents Tuesday.

The Wisconsin Alumni Research Foundation granted $1,578,559 for research and related activities, and the National Institutes of Health granted $1,274,960 for 37 medical related projects.

The grand total for the 1961-62 fiscal year was $23,474,010.54. The previous year's total was $25,187,065.59.

The monthly total was second highest of the fiscal year, topped only by September's nearly four and one-half million.

This month's total included $1,609,797 from federal agencies. In addition to the large NIH grant, the National Science Foundation granted $233,025 for 10 natural science projects, and other agencies contributed smaller amounts. The NIH total included a grant of $451,375 to help support the Primate Research Center of the psychology department for one year.

The American Cancer Society granted $142,504 for four cancer research projects.

Other large grants included $80,000 in additional funds from the Brookings Institution of Washington,D.C., for the income tax data project of the Social Systems Research Institute.

The largest gift from an individual was $1,500 from Lewis E. Phillips of Eau Claire for three medical scholarships.

MADISON NEWS

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

2/9/62 rt

Immediately

MADISON--Purchase of five parcels of land for $113,675 for new building sites south of University Avenue in Madison was voted by University of Wisconsin regents Friday.

All the purchases are subject to approval of the governor.

Two parcels at 25 N. Orchard St. will be bought for $71,000 from Kenneth F. Sullivan Co. as a site for the new Wisconsin Regional Primate Research Center, and paid for from a National Institutes of Health grant.

The other three are in the area needed for future dormitory sites and will be purchased by the Wisconsin University Building Corp. with funds transferred from Residence Halls. They include property at 115 N. Park St., bought for $11,000 from Wesley M. Farnsworth; at 618 Clymer Pl., for $17,900 from Reuben Gooderum; and at 307 N. Lake St., bought for $13,500 from Jack Heifitz.

In other property actions the regents extended for an additional 90 days an option to the U.S. Postmaster General to purchase a lot in University Hill Farms, and named University architect Donald L. Sites to serve on the land use and building type control group for the University Hill Farms commercial reserve addition. He replaces Leo Jakobson in this position.

###

Primate Research Center

U. W. NEWS

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

3/9/62 jb

RELEASE: Immediately

MADISON, Wis.--Preliminary plans and specifications for the Wisconsin Regional Primate Research Center on the University of Wisconsin campus were approved by the regents Friday.

The UW Planning and Construction Office said final plans would be ready for regent action next July and if all goes well, the facility will be ready for occupancy in November, 1963.

The estimated cost, $1,123,500, will be met by the National Institutes of Health. The center, one of several federal-supported regional primate facilities around the country, will be built at the corner of North Orchard and Spring Streets, just west of the existing UW Primate Laboratory on North Charter Street. The federal grant requires no matching funds from the State of Wisconsin.

To be constructed of brick with stone trim and reinforced concrete exposed columns, the center will consist of four floor levels plus a basement, and have 31,000 gross square feet of space.

In addition to 10 offices, the center will serve as an animal storage and test facility, and include breeding, crib, nursing, holding, medication, surgery and washing rooms for the primates. It will not be connected to the present laboratory.

Herbst, Jacoby and Herbst, Milwaukee architects, designed the center.

###

LAND GRANT COLLEGES 1862 1962 STATE UNIVERSITIES

Regional Primate Research Center

Title of Center and Center Director

Resource:
Wisconsin Regional Primate Research Center

The center occupies a four-story, 30,000-square-foot building on the University of Wisconsin-Madison campus as well as space in three nearby annexes. In addition, the center maintains a 5,000-square-foot breeding research facility at the Vilas Park Zoo in another part of the city. The university administers the center and provides its academic setting.

Center Director:
Robert W. Goy, Ph.D.
Wisconsin Regional Primate Research Center
1223 Capitol Court
Madison, Wisconsin 53715-1299
(608) 263-3500

Principal Investigator:
Robert M. Bock, Ph.D.
Dean
Graduate School
University of Wisconsin

Emphases of Core Research Units

- *Basic Research Mission:* Primate behavior, reproduction, and neurosciences.

Current Research

- *Reproductive Physiology:* Hormonal control of implantation and maintenance of pregnancy; factors regulating development of ovarian follicles; mechanisms involved in initiation of puberty; in vitro fertilization in nonhuman primates.
- *Neurochemistry:* Effects of female sex hormones on brain chemistry and behavior.
- *Gonadotropic Physiology:* Developmental changes in the synthesis and release of pituitary hormones related to reproduction.
- *Neurophysiology:* Control mechanisms of gonadotropin secretion, especially the role of the hypothalamus and limbic structures in reproductive cycles.
- *Aging:* Changes in hormonal and nervous systems associated with aging in nonhuman primates.
- *Behavior of Group-Living Primates:* Social behavior, especially behaviors serving the regulation and reduction of aggression and tensions in primate groups.
- *Behavioral Endocrinology:* Endocrinological regulation of reproductive and social behavior in monkeys and rodents; social and experimental factors that modify hormonal influences; studies of the interaction of social and hormonal factors that mediate the development and expression of individual differences in the display of sexual and aggressive behavior in rhesus monkeys.
- *Experimental Pathology:* Structural studies of the pituitary-hypothalamic axis and of sensory and autonomic nerves in primates.
- *Primate Ecology:* Survey and census of primates in Cameroon, West Central Africa.
- *Feeding Behavior:* Identification of variables that influence feeding behavior and body weight regulation in the rhesus.
- *Contact Person:* Robert W. Goy, Ph.D., center director, (608) 263-3500.

Resources Provided

To Outside Investigators

- *Specimens:* Tissue specimens, organs, and other biological materials are provided when available. Costs are normally assumed by the individual requesting the specimens.

To Collaborating Scientists

- *Eligibility:* The center actively encourages researchers from the midwest region to use its facilities and services and to conduct collaborative studies. Scientists wishing to conduct research at the center must have projects reviewed and approved by the center director and his advisory review committees and must have independent funding to cover costs of the research.
- *Services:* The center's services are available to collaborating scientists on varying bases. Some are provided without charge, some on a fee (chargeback) basis. They include:

  —*Bioservices:* Clinical laboratory tests, including assay procedures for adrenal, gonadal, and pituitary hormones; surgery; breeding colony; baseline data service on reproductive behavior.

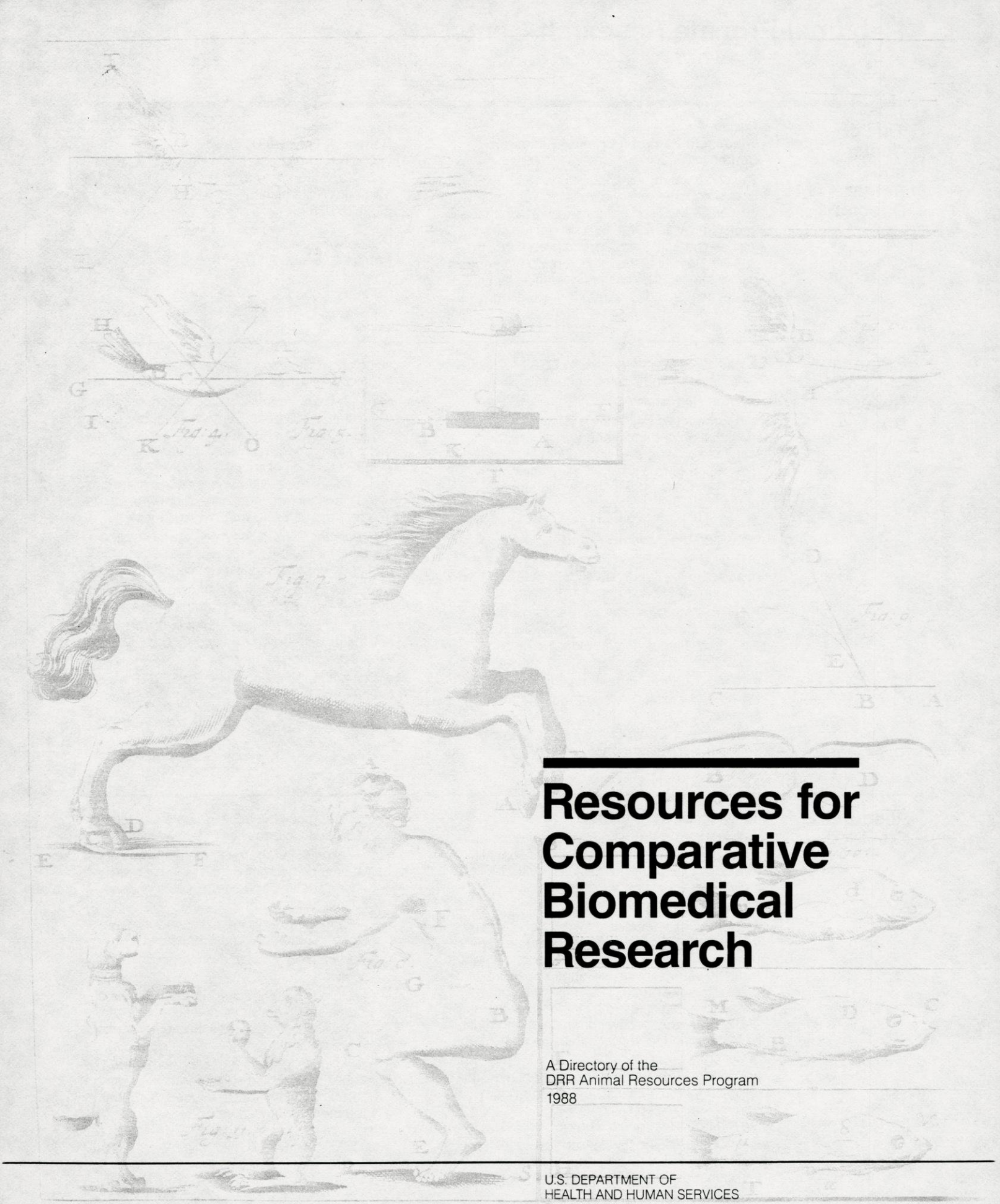
  —*Colony Management:* Maintenance and veterinary medicine; assistance in drug administration, specimen collection, and animal handling.

  —*Computer Services:* Colony record system and research data processing.

  —*Photomedia:* Art and photographic services.

  —*Library:* 6,000 books; 10,000 volumes of journals; 300 active journal subscriptions; 3,200 slides, videotapes, and other audiovisual materials.

  —*Animals: Macaca mulatta* (more than 1,000), *M. arctoides*. The center maintains a breeding colony that produces more than 100 rhesus infants a year.



Resources for Comparative Biomedical Research

A Directory of the
DRR Animal Resources Program
1988

U.S. DEPARTMENT OF
HEALTH AND HUMAN SERVICES
Public Health Service
National Institutes of Health

Primate Center

Animals for UW Research Staffs Are Costlier, Harder to Obtain

CT 4/15/76 Story Idea from UW-Madison Audio News Service (R. Mahler)

By JOHN WELTER
Of The Capital Times Staff

Breakdowns in American foreign relations have made it more difficult for researchers at the University of Wisconsin's Regional Primate Center to obtain monkeys on which to perform their experiments.

About 90 per cent of the center's monkeys are Rhesus monkeys bought from suppliers in India. But American relations with India have cooled, said director Robert Goy, and the price of monkeys has jumped from $35 to $250 in the past few years.

The second largest group of monkeys, the scraggly-furred stumptails which can be seen in the monkey house at the Vilas Park Zoo, are native to southeast Asia.

But military activity in North and South Vietnam, Cambodia and Laos have "pretty much bombed out their natural habitat, we think," said John Wolf, a primate center research specialist.

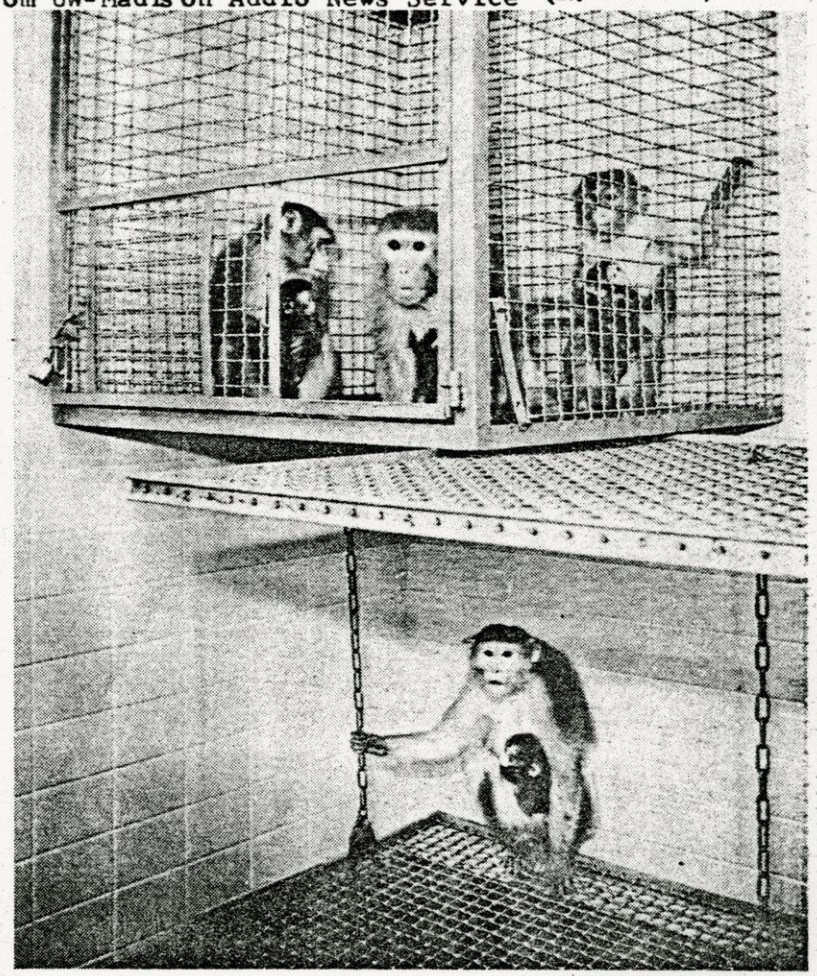
The Primate Center needs about 200 animals a year for research, Wolf said, and its own breeding colonies of Rhesus and stumptail monkeys produce about that number.

A male Rhesus breeder can cost as much as $400, another Primate Center worker said, and prices like that provide incentive for the center's staff to produce their own.

In some cases, experimenters who may have done away with their animals after the experiments have had their requests for animals turned down.

The Center-bred animals, Goy said, satisfy a moral feeling among researchers that "we ought to produce our own animals for our own purposes and let Mother Nature produce her own for her purposes."

Besides, he said, "wild-caught" animals aren't as "standardized" in their physical features, and the researchers would rather compare physically consistent animals.



Staff Photo by Tom Kelly

A group of Rhesus monkeys at the UW's Primate Lab.

In the next few years, Goy expects demand for monkeys to increase to the point where the Center will need about 800 a year.

Increased costs have hit other departments which use animals for research or for classroom teaching, but not because of deteriorating foreign relations.

Many small animal supply companies have gone out of business in the past few years, said Robert Peterson in the UW Zoology Department. That has forced the department to buy from large suppliers, often in larger quantities and at inflated prices, or to breed its own animals.

Peterson and his associates bred about 4,000 white rats last year to avoid paying up to a dollar apiece for them. "That's up from 40 cents not too long ago," he said.

Three-fourths of the rats went to researchers, one-fourth to classrooms.

uw news

TEMPORARY NEWS SERVICE LOCATION:
115 Science Hall
550 North Park Street

From The University of Wisconsin-Madison / University News and Publications Service, Bascom Hall, Madison 53706 / Telephone: (608) 262-3571

Release: Immediately 4/22/76 rm

CONTACT: Dr. Robert Goy (608) 263-3500

POLITICS AND MORALITY ARE FACTORS IN SOARING MONKEY PRICES

MADISON--Strained relations between the United States and India, moral questions over the use of endangered species in laboratories, and an unprecedented research demand have combined to create a crisis for scientists who use monkeys in their investigations.

Dr. Robert Goy, director of the Wisconsin Regional Primate Research Center at the University of Wisconsin-Madison, says researchers have shifted from reliance on imported primates, mainly from India, for several reasons:

"India no longer wishes to support our research, at the expense of her own dwindling wild monkey population. More importantly, primate researchers have learned through experience that wild monkeys cannot be standardized. The result has been too much variation for good results."

Goy says that when the nation's seven regional primate centers were established by a Congressional action 15 years ago, it was believed wild monkeys could be easily quarantined and adapted for laboratory use. "That plan," he says, "proved wrong.

"Besides the changing political climate in India and Southeast Asia, where most of our animals are from, the undreamed of increase in utilization of these animals would doom them to extinction if we were to rely only on the wild population. Besides that, we've discovered too many genetic differences among wild animals for standardization.

- more -

"About 40 per cent of the requests for animals we receive can't be accommodated. Even on our own campus, we can't comply with more than about 60 per cent of the requests. We must either refer the scientists to other centers or simply deny the request."

The Wisconsin Primate Center has a current colony of 1,200 rhesus monkeys, and Dr. Goy would like to expand that number by about two-thirds. "Within the next five years," he says, "I think our center must be able to produce about 200 offspring per year and have facilities for the rearing and maintenance of another 800 primates."

Current purchase costs for a new specimen average $200, compared with $35 a few years ago. "When you add another $100 to that for quarantine and medication," Goy explains, "you are rapidly approaching the cost of breeding and rearing your own monkey."

A significant indirect "benefit" of the high cost of importing wild nonhuman primates construed by Dr. Goy is the fact that it has made it easier to live within the "moral code" Goy believes most primate researchers subscribe to:

"Primatologists don't believe they should participate in the extinction of these species. They want means to be developed for replacing specimens that were previously taken from wild populations."

The escalating demand for primates for research purposes is based on the premise that studies undertaken with the animals have maximum relevance to similar situations in human beings. Many primates are used by private industry in the production of polio vaccines and the testing of drugs intended for human use. A recent survey showed that 70,000 of 80,000 rhesus monkeys being used in U.S. laboratories were being used by commercial agencies, mainly drug companies.

Dr. Goy is not optimistic about the likelihood of obtaining funds for expanding the breeding and monkey-raising facilities for the UW-Madison facility. He notes that "research funds tend to be curtailed when economic conditions worsen." However, the Center has recently leased temporary office space in order to convert part of its permanent building into breeding quarters. Goy says future solutions to the problem may include collaboration with the industries most affected by the primate shortage.

"Researchers have to face the very difficult task," Goy concludes, "of either reducing the number of monkeys on which they carry out research, or using the same animals in several different studies. The problem with conservation measures, such as repeated use of monkeys, is that the answers you get in your investigations are not up to the highest scientific standards."

###

research news

From the University of Wisconsin-Madison / University News and Publications Service, Bascom Hall, Madison 53706 / Telephone (608) 262-3571

Primate Center

Release: NOON, FRIDAY, APRIL 18

For more information, call John Wolf
Wisconsin Primate Center
(608) 263-3506

PCB'S REDUCE MONKEY PREGNANCIES

MADISON, Wis.--The ability of female monkeys to achieve and maintain a pregnancy is greatly reduced after six months on a diet containing PCB's at levels the same as or lower than allowed in some human food.

This finding resulted from a study by Deborah Barsotti and Dr. James Allen of the University of Wisconsin-Madison pathology department and was reported today (Friday) at the annual meeting of the Federation of American Societies for Experimental Biology in Atlantic City, N. J.

Barsotti and Allen gave one group of eight adult female rhesus monkeys a diet containing PCB's at half the level (2.5 parts per million) deemed safe in some food products. (The Food and Drug Administration currently considers certain foods--such as fish and poultry--with less than five parts per million of PCB as safe for humans.) After six months on the diet, only three of these eight females became pregnant following three matings with normal, untreated male monkeys. In another group of eight females receiving PCB's at levels accepted for certain foods (5 parts per million), only one was impregnated. In a similar group of untreated females, on the other hand, nine out of 10 conceived after three matings with normal males.

The effect of PCB's on male reproductive capability was not so drastic, the Wisconsin researchers noted. In fact, male rhesus monkeys receiving the higher PCB dose of five parts per million continued to father offspring by normal females at the usual rate after one year of exposure.

- more -

Add one--PCB's and conception

Female rhesus monkeys have a 27-day menstrual cycle and are similar to human females in many other regards. Consequently, they are ideally suited as "models" for human females in studies on reproduction.

In this study, the PCB diet lengthened the period of menstrual flow and increased menstrual bleeding. Exposure to PCB's also increased the metabolism of steroid hormones in the female monkeys, and these altered hormone levels may have been responsible for the reduced rate of successful pregnancies, Barsotti and Allen explained.

Previous studies by Dr. Allen's research unit had shown that monkeys display pathological symptoms such as hair loss, acne, and enlarged livers when fed diets with high levels (25 to 300 parts per million) of PCB's. The present work is the first indication that levels of PCB's permissible in certain human foods have profound consequences when consumed by nonhuman primates.

It is not known whether prolonged daily intake of PCB's at low levels would have similar upsetting effects on human reproduction.

PCB's are extremely stable chemicals that have been used in industry for the last 40 years. During this time they have entered the environment, have accumulated because of their long life, and have become contaminants. PCB's, which are stored in body fat, are found in many food items and have been detected in 30 per cent of randomly sampled inhabitants of the United States.

This research was financed by the UW-Madison Sea Grant College Program and was conducted at the Wisconsin Regional Primate Research Center and the Biotron. The Wisconsin Primate Center--one of seven such research facilities funded by the Division of Research Resources, National Institutes of Health--conducts biomedical research aimed at human health needs.

###

UIR / RESEARCH NEWS

UNIVERSITY OF WISCONSIN-MADISON

UNIVERSITY-INDUSTRY RESEARCH PROGRAM

WARF Office Building
610 Walnut Street, Rm. 1215
Madison, Wisconsin 53706
Telephone: 608/263-2876

UIR SCIENCE WRITING DIVISION
(Graduate Student Science Writing Program)

Further Information: Stephen J. Suomi (608/263-3553)

June 25, 1974

Primate Research Center

by Hannah Pavlik
UW Science Writer

Madison, Wis.--Parental love and attention go a long way in making an infant prefer its own mother and father over other persons.

Not unusual? In humans, perhaps not. But if you are talking about young rhesus monkeys between one month and four years old you could be a little surprised, according to Stephen Suomi, University of Wisconsin-Madison psychologist.

Suomi has studied the social preferences of monkeys reared in a family environment at the Primate Laboratory.

The results of four studies indicated that maternal preference did not decline sharply with age, as might be expected, and no strong ties were found between siblings.

Even more surprising, the preference that young monkeys showed for their fathers was as strong as, and even more stable than, the preference exhibited for mothers.

The monkeys were raised in family units each consisting of four housing cages which enclosed a central play area. Every housing cage contained an adult male, female, and up to three of their offspring.

(more)

add one--monkeys

The monkeys had continuous access to parents and siblings. But only limited interaction was allowed with other monkeys residing in the remaining three cages of each unit.

Rhesus monkey females are possessive mothers who reluctantly permit their infants to interact with other adult females, Suomi explains. Consequently, most early monkey experiences with adults involve their own mothers. Other social activity is directed toward peers. As monkeys mature, interactions with their mother generally decline rapidly after one year of age.

Offspring did not show a significantly greater preference for mothers over fathers--despite the fact that they directed four times as much activity toward mothers.

The relatively high father preference was largely caused by the artifically created family environment, admits Suomi. Most studies have demonstrated a very low incidence of rhesus father-infant interaction in the natural environment.

Nevertheless, the results suggest that in monkeys, like humans, early experiences can affect behavior.

Measuring an individual's attachment to another is a complicated process, Suomi says. Affection grows from many types of behavior and a wide variety of social stimuli.

Truly dominant adult rhesus males rarely display aggressive behavior to maintain their social stature, he adds. But when they do, younger monkeys quickly learn who's boss.

"With respect to father prefence, we suspect the same is true--a little attention goes a long way," he says.

######

uw news

From The University of Wisconsin-Madison / University News and Publications Service, Bascom Hall, Madison 53706 / Telephone (608) 262-3571

Primate Lab

Release: Immediately 5/7/74 jw

For further information, contact John Wolf, Wisconsin Primate Center, (608) 263-3508

UNDERGRADS AGAIN TO INVESTIGATE NOISE EFFECTS ON MONKEYS

MADISON, Wis.--For the fourth consecutive year, the National Science Foundation has funded a Student-Originated (SOS) Summer project to be conducted at the Wisconsin Regional Primate Research Center on the University of Wisconsin-Madison campus.

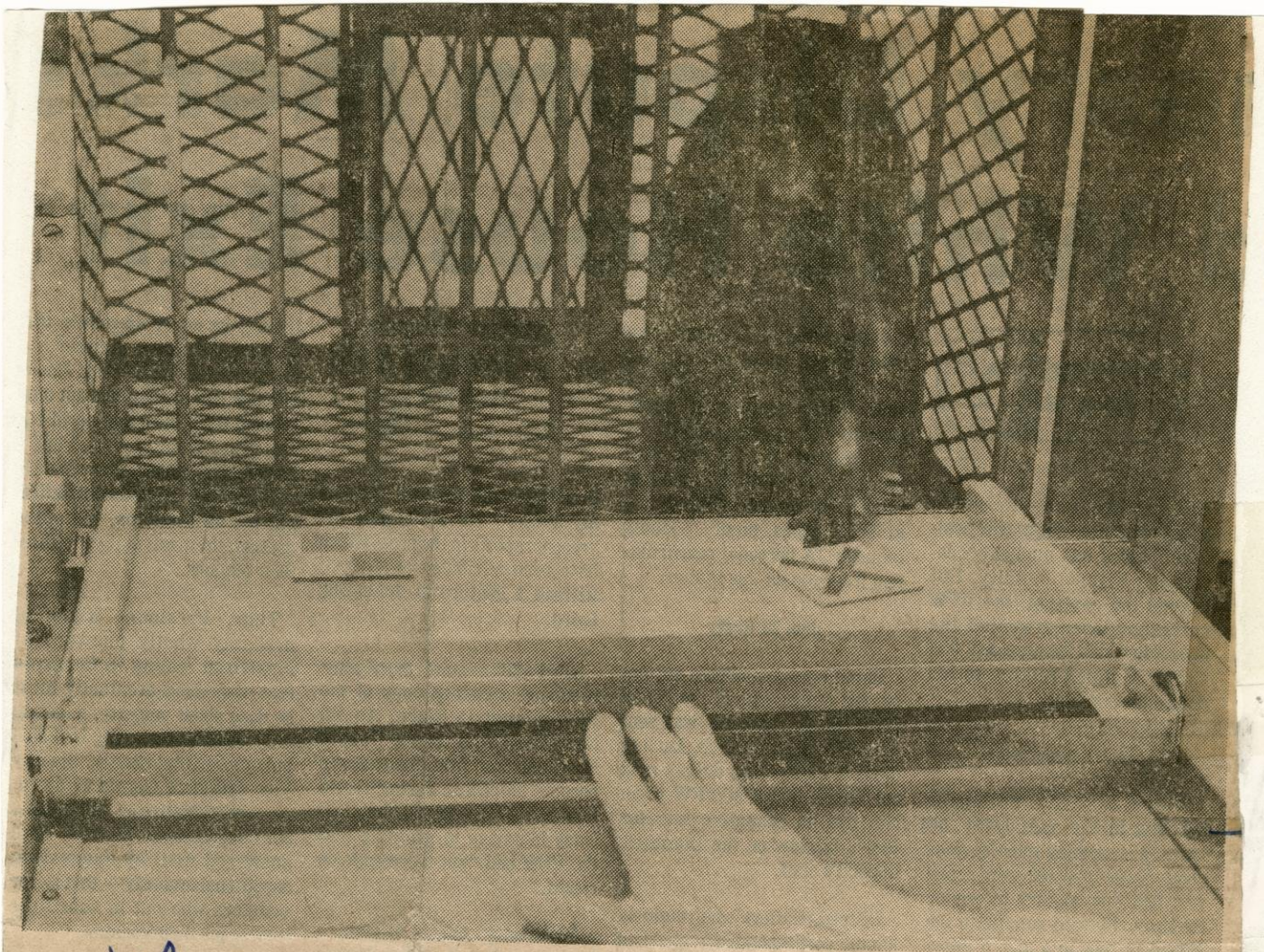
Ten undergraduates will investigate "The Effects of High-Intensity Noise and the Degree of Perceived Control on Social Behavior, Preferences, and Cortisol Levels in Rhesus Monkeys" with the aid of the $17,000 NSF grant for stipends and research expenses.

This will be the third summer of research on the effects of noxious noise on the behavior and physiology of monkeys. Projects the last two summers have shown that monkeys become lethargic when exposed to more than three hours of 100-decibel noise but that some of these ill effects of noise exposure can be reduced by administering tranquilizers to the monkeys.

Participating in this summer's SOS project will be John Mikesell and John Cotton, Beloit; Melanie Ignjatovic, Kenosha; Charles Juno, Brillion; Mark Larson, Manitowoc; Michele Peters, Detroit; Hannah Wu, Hong Kong; Stanley Urban, Waukesha; Larry Wasserman and Misao Kusuda, both of Madison. The group's faculty adviser is Dr. Charles Snowdon, professor of psychology.

The Wisconsin Regional Primate Research Center, funded by the National Institutes of Health, is one of seven such centers throughout the country equipped to use nonhuman primates in health research.

###



Primate Research Lab

Madison, Wisconsin State Journal
JAN 31 1974

12A

The monkey's made the right choice, and there's his food.

—UW Photo

Learning Speedup Eyed

By JOHN NEWHOUSE
Of The State Journal Staff

Under the stimulus of certain drugs, monkeys can learn problems more than three times as fast as normal.

A test group of four monkeys made 55 errors on the average before they learned problems difficult for monkeys to understand at the University of Wisconsin-Madison Regional Primate Research Center.

But, injected with a drug called Metrazol, they learned with only 15 errors as an average.

More Work

It's still too early to tell the significance of these findings, says Dr. Robert Bowman, research center scientist.

More trials must be made to learn more of the learning process. More work must be done to establish the safety of the drug.

But there is the possibility that someday the knowledge may be used to stimulate learning in hopelessly retarded persons and — ultimately — in persons not retarded.

The first report that drugs could improve learning came in 1918 when Karl S. Lashley, a leading American psychologist, announced that strychnine, a deadly poison to humans, could enhance learning in rats.

Repetition Difficult

Other investigators had difficulty in repeating his work, however, and the search for chemicals to enhance learning languished.

In the 1960s, a psychobiologist, James L. McGaugh, worked with various drugs — including amphetamines and strychnine — on mice and found enhancement of learning. At Wisconsin, Dr. Harry F. Harlow and Dr. Bowman were interested, and began work on monkeys.

Safe levels of Metrazol, a stimulant which can be a convulsant above certain levels, were chosen. A test difficult for monkeys was devised.

This involved symbols drawn on paper, such as a circle or a square, more difficult for the monkey to differentiate between than colors or three-dimensional objects.

Improvement Noted

Food was placed under the same symbol each time, and the monkey had to pick the correct symbol nine times out of 10 to "solve" the problem. Three trials were made each day and the appropriate doseage was administered after the third trial.

The theory was that, if he did better the next day, something would have happened within his brain that improved the learning process.

And it was found that the most improvement to learning came with the administration of 10 milligrams of Metrazol per kilogram of body weight.

Sleep Aids

Two things could have happened in the brain, says Dr. Bowman.

One is that the electrical activity of some of the cells of the brain — as many as 100 billion in a human — might have changed, but that was not likely.

"Experimenters have cooled down the brain of hybernating animals to the point where electrical activity has ceased, yet the brain has functioned as well, with no loss in learning capability or memory, when it was warmed up again," says Dr. Bowman.

This argues, he says, that there is a structural change in the brain, which is enhanced by Metrazol.

Other researchers he says, have found that learning is enhanced by sleep following the learning process.

"You could guess that sleep stops the input of interfering information which would slow up consolidation of the learned fact," says Dr. Bowman.

"Consolidation" is the term used to describe the changes in the brain during which the learning is transcribed in the memory.

research news

From the University of Wisconsin-Madison / University News and Publications Service, Bascom Hall, Madison 53706 / Telephone (608) 262-3571

Release: Immediately 5/25/73

UIR SCIENCE WRITING DIVISION
University-Industry Research Program
(608-263-2876)

ISOLATED MONKEYS RETURN TO NORMAL WITH AID OF MONKEY "THERAPISTS" AT UW-MADISON

By HANNAH PAVLIK
UW Science Writer

Madison, Wis., --Can six month old rhesus monkeys raised in total isolatio ever be normal again?

Yes, but with the help of monkey "therapists," says Stephen J. Suomi, research associate in the Primate Laboratories at the University of Wisconsin-Madison.

Suomi is referring to a recent study conducted with Harry F. Harlow and William T. McKinney Jr. in which monkeys deprived of all early visual and physical contact with fellow monkeys later recovered normal social behavior.

Behavioral abnormalities caused by isolation rearing are still considered irreversible by many scientists. So far, efforts to rehabilitate isolated monkeys by exposing them to their socially normal peers have been largely unsuccessful.

In the Wisconsin study, four male monkeys housed in total isolation for six months after birth were allowed contact with four normal females. The females were three months younger -- too young to be aggressive as peers, or to show behavior more complex than clinging and simple playing.

The prediction, as later confirmed, was that exposing the males to "therapist" monkeys who would provide acceptance rather than aggressive attack might reverse the effects of social isolation.

-more-

Add one--Monkeys

The monkeys were allowed to interact in pairs for two hours, three days a week, within specially designed cages. Also included in the "therapy" were meetings in groups of four for two days a week in a playroom.

At first, the males showed typical disturbance behavior: frequent self-clasping, self-mouthing, huddling and rocking. The therapists' first response was to approach and cling to the isolates.

After a week in the cages and two weeks in the playroom, the isolates began to return the clinging. They later copied the therapists' elementary playing and began to initiate play behavior themselves. Disturbance activities gradually decreased to the point where the isolates could no longer be easily distinguished from the therapists.

The isolates, now two years old, show virtually complete recovery. The early playing has led to more mature social activities such as grooming and sexual mounting. They cannot, however, be considered completely normal until they become old enough to mate.

The research finding suggests the intellectual capability for learning social tasks is not restricted to limited time periods during early development. If adult social performance is affected by early social experiences, the potential for recovery remains as long as an appropriately designed teaching method is available to tap this potential.

# # #

research news

From the University of Wisconsin-Madison / University News and Publications Service, Bascom Hall, Madison 53706 / Telephone (608) 262-3571

Release: **Immediately** **4/3/73**

SCIENCE WRITING DIVISION
University-Industry Research Program (608) 263-2876)

Additional Information: Dr. Allen (608) 262-1979 and (608) 262-3844

By JAMES J. NAPOLI
UW Science Writer

INDUSTRIAL POLLUTANTS POSSIBLE CANCER LINK UW RESEARCHERS REPORT

MADISON, Wis.--Two industrial pollutants commonly found in human tissue can cause abnormalities in a monkey's stomach lining that might lead to cancer, two University of Wisconsin-Madison researchers report.

J. R. Allen and D. H. Norback, pathologists at the UW Medical School and Regional Primate Research Center, have found that stomach linings of twelve monkeys became five or six times thicker than normal when the animals were kept on a diet that included high concentrations of PCBs and PCTs for three months.

Although the potential of these environmental contaminants for causing cancer has not yet been established, the researchers point out that the association between chronic irritations of the stomach and cancer is well documented.

PCBs (polychlorinated biphenyls) and PCTs (polychlorinated triphenyls) are commonly used in industry as plasticizers, flame retardants and insulating materials.

They get into the environment in a variety of ways, including emissions from smokestacks, industrial wastes dumped into rivers and lakes, and even the particles added to air as automobile tires wear down.

Besides a thickening of the stomach walls, the twelve monkeys also suffered swollen eyelids and lips, acne, hair loss, weight loss, and discharges of pus from their eyes.

- more -

Allen notes that these symptoms are similar to the effects PCBs have on people, as evidenced by a thousand Japanese who had eaten food contaminated by rice oil containing high levels of PCBs. The rice oil contained concentrations of about two or three thousand parts per million (ppm) of PCBs as a result of an industrial accident.

The diets of six test monkeys contained only 300 ppm of PCBs, while the other six had diets containing 5,000 ppm of PCTs. Both groups showed the same symptoms.

According to Allen, later experiments appear to show that monkeys suffer serious effects from PCBs at 25 ppm and probably even lower concentrations.

The long-term effects of PCBs and PCTs--including possible cancer formation, and changes in glandular functions, reproduction, and growth--are now being studied by the scientists in 40 more monkeys.

The purpose of the research, funded by the National Institutes of Health and the UW Sea Grant Program of the National Oceanic and Atmospheric Administration, is to determine at what point PCBs and PCTs have no effect on monkeys, Allen explains.

"This would be a good lead to determine what is the no-effect level for humans," he adds.

Thirty percent of the people in this country have at least one ppm of PCBs in their fatty tissue. Allen warns that once PCBs get into human tissue, they accumulate and are flushed out only at a very slow rate.

The U.S. Food and Drug Administration has set a limit of five ppm of PCBs in human food, but the contaminant has been detected at much higher concentrations in such foods as poultry, eggs, milk and fish.

In 1971, Wisconsin's Governor Patrick Lucey ordered a halt to commercial fishing of some Lake Michigan fish species because they contained high levels of PCBs.

PCBs and PCTs are chlorinated hydrocarbons, like the banned insecticide DDT. And like the insecticide, they also cause eggshell thinning among wild bird species.

###

research news

From the University of Wisconsin-Madison / University News and Publications Service, Bascom Hall, Madison 53706 / Telephone (608) 262-3571

Primate Center

Release: Immediately 7/31/73 jw

For further information, contact John Wolf, Wisconsin Primate Center, (608) 263-3508

EFFECT OF NOISE POLLUTION AND TRANQUILIZERS UNDER STUDY BY UW UNDERGRADUATES

MADISON, Wis.--The effects of loud noises and tranquilizers on monkeys are being examined by eight undergraduates from the University of Wisconsin-Madison this summer.

The students, participating in the National Science Foundation's Student-Originated Studies, (SOS), Program, are conducting their project at the Wisconsin Regional Primate Research Center here. They are seeing how monkeys react to intense sound after they have been injected with tranquilizers commonly used by humans.

Previous studies at other laboratories have suggested that some animals become stressed when they are given tranquilizing drugs and are then subjected to certain loud sounds, according to Jean Klann, student supervisor of the group.

An SOS project last summer at the Center showed that undrugged monkeys are stressed during the first hour of exposure to loud noises. They become lethargic if the noise continues for three hours or more, however.

The monkeys being used in the noise research are among man's closest relatives and therefore should serve as excellent models for human reactions to noise and tranquilizers.

Participating in the SOS study this summer are Ms. Klann, Oconomowoc; John Cotton, Beloit; Vicki Schuknecht-Hanson, Madison; Misao Kusuda, Madison; John Mikesell, Beloit; Paul Rossmeissl, Green Bay; Hannah Wu, Hong Kong; and Peggy Zaks, Milwaukee. Ms. Klann is a chemistry major; the other students are psychology majors.

- more -

The NSF grant provides some $15,000 for stipends and research expenses. The group's faculty adviser is Prof. Robert E. Bowman, chairman of the psychology department at UW-Madison and head of the psychochemistry unit at the Primate Center.

The Wisconsin Regional Primate Research Center, funded by the National Institutes of Health, is one of seven such centers throughout the country equipped to use nonhuman primates in health research.

###

research news

From the University of Wisconsin-Madison / University News and Publications Service, Bascom Hall, Madison 53706 / Telephone (608) 262-3571

Primate Center

Release: Immediately 2/26/73 dh

EDITORS: For further information, contact David Haskin (608-262-3571)

MADISON, Wis.--Monkeys may provide the key for better treatment of an extremely wide-spread human condition--depression.

Researchers at the University of Wisconsin-Madison cause depression in rhesus monkeys and then study the mental and physical effects, Dr. William T. McKinney, a psychiatrist who has done much of the research, explains.

"By understanding what goes on in the heads of depressed monkeys, there is hope of better rehabilitation methods for humans. Our goal is to improve understanding of depression and provide better treatment techniques."

Studies have been completed here which separated an infant monkey from its mother or peers. The result was depression of the infant.

"In human infants, this separation is called anaclitic depression," says McKinney. "This occurs first between six and 12 months of age. A major theory says people who have undergone separation early in life are more prone to become depressed later when subjected to separation."

Not all infants separated from their mothers go through anaclitic depression, according to McKinney. Other factors are the relationship between mother and child and the conditions and length of the separation.

This depression comes in two stages. The first stage is protest, in which the animal or human infant is hyperactive and very vocal. This is followed by withdrawal characterized by decreased activity and self-huddling.

"We have found, however, that if there is a good substitute for the mother, the chances of producing this syndrome are greatly reduced," McKinney says.

- more -

Separation is just one way of causing depression in monkeys. Other social and chemical methods are also used. Researcher Stephen J. Suomi explains two other methods:

"We have a device that produces social deprivation. We put the animal inside. The monkey can move around, but it soon finds out that it doesn't do him any good because there is nothing happening in there. In humans, depression is often said to be feelings of helplessness and hopelessness sunken in a well of despair.

"We try to create such a well, physically as well as psychologically, in our experiment. When the animals are first put in there, there is a lot of activity. But after a day or so, they go into a corner and huddle and assume a posture such as we saw in anaclitic depression.

"When we take the animals out, they are socially withdrawn, and they maintain this behavior even in social situations."

Suomi notes that depression can be caused by chemicals, too. Humans suffering from high blood pressure are often given a drug, reserpine, which is known to cause depression in both humans and monkeys. Both Suomi and McKinney note that depression has been found to physically affect the brain and adrenal glands of monkeys no matter how the depression is caused.

The three-year-old study will continue as long as there are funds. McKinney points to what has been learned and what is hoped to be discovered.

"It seems quite clear now that social behavior can be altered by child-rearing conditions. These studies have shown the importance of the separation experience in humans. Hopefully, more of our research can be tried out on humans.

"In the last 10 years there have been great advances in treatment of depression. There isn't any panacea, though. People get depressed for a lot of reasons. We can correct some of them.

"But there are broader social causes that make people get depressed. And until some of those change, people will continue to get depressed."

###

research news

From the University of Wisconsin-Madison / University News and Publications Service, Bascom Hall, Madison 53706 / Telephone (608) 262-3571

Release: Immediately 2/7/73 jw

(For further information, contact Wisconsin Regional Primate Research Center, 608--263-3508)

MADISON, Wis.--Learning handicaps caused by thyroid deficiency, called cretinism in its extreme form, can be partially offset by a stimulating environment.

This is the finding of Dr. John Davenport and Louis Gonzalez of the Wisconsin Regional Primate Research Center on the University of Wisconsin-Madison campus.

Retarded laboratory animals which were provided abundant sensory and social stimulation and then placed in a variety of learning situations did surprisingly well when tested on new tasks. By performing tasks at which they normally would be expected to fail, these thyroid-deficient animals demonstrated "trainability."

Psychologist Davenport believes, on the basis of rat and monkey studies, that insufficient production of hormones by the thyroid gland need not lead to totally irreversible retardation--a finding that hopefully can be applied to people with the same affliction.

Cretinism in human infants is becoming rare because most mothers-to-be now receive adequate dietary iodine, necessary for synthesis of thyroid hormone. Reduced hormone production by the thyroid gland, caused by inborn errors of metabolism, still occurs in infants, however. In cases where hormone replacement therapy is not begun promptly, the brain fails to develop normally.

The research by Dr. Davenport and his colleagues suggests the value of varied experience and early education in reducing the effects of retardation in children with underactive thyroid glands.

###

research news

From the University of Wisconsin-Madison / University News and Publications Service, Bascom Hall, Madison 53706 / Telephone (608) 262-3571

Primate Research Center

Release: Immediately 10/5/72

SCIENCE WRITING DIVISION
University-Industry Research Program
(608-263-2811, 2876)

By HELY JANIS
UW Science Writer

MADISON, Wis.--Mothers play an unconscious but important role in assuring that male offspring will be capable of normal sexual behavior when they become adults.

This is the finding of researchers working with monkeys at the University of Wisconsin-Madison Primate Research Center.

Adequate adult sexual performance--at least in monkeys--is strongly related to normal childhood development with mother in close attendance.

According to researchers Robert W. Goy, Kim Wallen, and David Goldfoot, male monkeys reared by their mothers in social groups show a developmental progression of sexual behavior well before puberty. Initially most sexual behavior consists of immature mounts, followed, during the first year of life, by mounts very similar to those typical of adult males.

In contrast, young male monkeys separated from their mothers after three months of age, and allowed only one-half hour per day of play with other young monkeys, show much less adult type sexual behavior as juveniles. At maturity, only one-third of these animals copulate successfully.

The presence of the mother during early rearing also affects the males' sex preference in a mounting partner. Males reared with only limited exposure to other monkeys show no real preference between males and females as mounting partners during the first year of life, but males reared by their mothers show a marked preference for a female partner.

- more -

Although the mother-reared males have not yet reached adulthood--this takes four years--the psychologists believe that the general pattern of sexual behavior displayed in young mother-reared males indicates they will become successful copulators. If these animals are successful, the researchers feel it will be due in large part to the influence of mothers during the critical early development period.

Goldfoot emphasizes that this knowledge of sexual behavior was obtained from observing monkeys--and so it applies only to monkeys. Since monkeys and humans are both primates, however, the work may lead to studies that will have important applications to human medicine and behavioral psychology.

###

research news

From the University of Wisconsin-Madison / University News and Publications Service, Bascom Hall, Madison 53706 / Telephone (608) 262-3571

Primate Research Center

Release: P.M. WEDNESDAY, AUG. 30 - 1972

(For further information, contact Wisconsin Regional Primate Research Center--608--262-3844)

By JOHN WOLF

NEW YORK--(Advance for P.M. Wednesday, Aug. 30)--The livers of some animals are able to temporarily compensate for large doses of chlorinated hydrocarbons--including DDT--by altering their physical and chemical makeup.

Laboratory rats which were tested on diets containing up to one per cent chlorinated hydrocarbons developed large livers within 24 hours. Furthermore, the livers of these animals continued to enlarge until they nearly doubled in size after the first two weeks of the test period.

These results were presented at the American Chemical Society meeting Wednesday in New York by experimental pathologists James R. Allen and Lois J. Abrahamson of the University of Wisconsin-Madison pathology department and the Wisconsin Regional Primate Research Center.

According to the two researchers, much of this increased size is due to proliferation of those areas within liver cells which help the body isolate, break down, and secrete chlorinated hydrocarbons.

High levels of chlorinated hydrocarbons induce increased production of liver enzymes--including N-demethylase, nitroreductase, and esterases--which in turn increase the metabolism of chlorinated hydrocarbons. Some other liver enzymes--aromatic hydroxylase and glucose-6-phosphatase--show decreased activity.

Another change produced by high doses of chlorinated hydrocarbons is development of "concentric membrane arrays" within the liver cells themselves. Large numbers of these chemically active membranes probably increases the cells' ability to break down chlorinated hydrocarbons.

- more -

There is also an increase in the amount of lipid material within the affected liver cells. Since chlorinated hydrocarbons are soluble in lipids, these extra lipids could enhance the liver's ability to isolate chlorinated hydrocarbons and store them for later secretion, Allen and Abrahamson noted.

Long-term exposure to high doses of chlorinated hydrocarbons leads to inability of the liver to sustain these changes, thus eventually causing the death of affected liver cells. All the rats in the study died after several weeks on diets with high levels of chlorinated hydrocarbons.

Chlorinated hydrocarbons are used extensively for medical, agricultural, and industrial purposes. Many of these compounds have been incriminated as environmental contaminants. DDT--probably the best known chlorinated hydrocarbon--has recently been banned for nearly all applications by the Environmental Protection Agency.

This research is sponsored by the U.S. Public Health Service.

###

feature story

Primate Research Center

From The University of Wisconsin-Madison / University News and Publications Service, Bascom Hall, Madison 53706 / Telephone: (608) 262-3571

Release: Immediately 8/25/72

by MARK P. McELREATH

MADISON--Listening to hours of hard rock music and constant machine noise makes monkeys lethargic and quiet--and psychologists observing this are concerned about what it means for humans.

It could mean factory workers exposed to a day's worth of industrial clatter-bang will drive home less alert to dangers on the road.

It could mean the volume of rock concerts will have to be controlled by community health officers.

It could mean Americans either recognize the health hazards involved or continue to be the victims of one of the noisiest nations in the world.

Those opinions come from the director of a group of students at the University of Wisconsin-Madison who received a special $16,000 grant from the National Science Foundation to study the impact of noise pollution. They found there's more to this type pollution than what simply meets the ears.

"The effects depend not only on the composition and duration of sounds but also on the physical and psychological makeup of the listener," explained Perry M. Nealis, 25, senior psychology student directing eight other students involved in one of the two noise pollution studies financed this year as part of NSF's $1.2 million Student Originated Studies program.

They used more than $2,000 worth of sound equipment, including a big speaker like those used by rock groups, and exposed monkeys to one, three, and five hour sessions of hard rock music, constant machine noises like power saws and pneumatic hammers, and random gunfire recorded for the experiment with the cooperation of the Madison Police Department.

- more -

By measuring the monkey's plasma cortisol levels--a hormal index which increases with stress-the researchers learned how the animals react to noises played at the constant loudness of 100 decibels. Ordinary speech is about 60 decibels greater than sounds barely audible. At 120 decibels, people experience pain, and permanent damage is possible.

They found the greater the exposure to random noises, the more stress was indicated by the monkeys' cortisol levels. For the first hour of occasionally hearing pistol shots, machine gun bursts, and shotgun blasts, the monkeys indicated no stress; but after five hours, their hormonal index showed an increase of about 70 per cent.

Nealis noted "hard rock music is not that much different from industrial noises," explaining that in the experiment the monkeys were registering an average 60 per cent increase in cortisol levels after one hour exposure to either sound. But after three hours, they were less stressed. And after five hours, they were not stressed at all, as measured by the cortisol index.

"The more they were exposed to these sounds, the more they adapted to them. In this sense, an hour of this type noise is worse than five hours of it."

But after five hours of hard rock or machine noises, the monkeys did show withdrawal symptoms. They played less and had vacant stares--displaying quiet, lethargic behavior as if fatigued.

"We do not know what the monkeys thought while being exposed to the noises. We do not know what meaning they attached to the noises."

Nealis noted that a person wanting to hear rock music might not react to the sounds in the same way as monkeys without human motivations.

He also said: "We don't know how stable the quieting effect of the lengthy exposures may be. As an analogy, we don't know if the workers affected by a day's exposure to industrial noises won't return home quiet, but explode in anger at a moment's notice. In other words, noise pollution may lower tolerance for frustration."

Add two--monkeys

Nealis commented that many rock bands expose audiences to sounds louder than 100 decibels, and that possibly "people involved in community noise management should control the volume of such concerts to protect the health of the public."

The students, who received $960 stipends for 12 weeks of work, may continue aspects of the research this fall, making a full report to the American Association for the Advancement of Science in December. Equipment will continue to be used at the UW Primate Laboratory and the Wisconsin Regional Primate Research Center where the experiments were conducted in Madison.

The students had primary responsibility for planning and implementing the study. Their faculty advisor was Prof. Robert E. Bowman, chairman of the UW psychology department.

The students involved in the project were: Nealis, from Marshfield; Peggy L. O'Neill, Madison; Paul D. Lehninger, Wauwatosa; Jean P. Klann, Oconomowoc; Elizabeth J. Hoffman, New York, N.Y.; Robert A. Goldschmidt, Whitefish Bay; Michael H. Levinson, Evanston, Ill.; Michele Walker, Brookfield; and Charles A. Polnaszek, Thorp.

###

uw news

From The University of Wisconsin-Madison / University News and Publications Service, Bascom Hall, Madison 53706 / Telephone: (608) 262-3571

Release: 12 NOON, THURSDAY, APRIL 13 4/5/72

UIR SCIENCE WRITING DIVISION
University-Industry Research Program (608--263-2811/2876)

By HARRY LESLIE
UW Science Writer

ATLANTIC CITY, N.J.--(Advance for 12 noon Thursday, April 13)--University of Wisconsin-Madison researchers announced Thursday they have discovered that baby monkeys immunize their mothers in a manner similar to the way in which human Rh babies do.

While such immunization in humans is dangerous to children born later to the same mother, it appears to have no effect in the monkeys.

The difference between the two systems, notes Prof. William H. Stone, Wisconsin geneticist, may provide the key to understanding more about how blood genetics affects reproduction and how the spleen acts in destroying blood cells.

In humans, an Rh-negative mother who gives birth to an Rh-positive baby can have problems. Red blood cells from the baby get into the mother's blood stream around the time of birth and cause her immune system to produce antibodies.

A subsequent Rh-positive baby born to the same mother would normally be severely anemic because the mother's antibodies cross the placenta, get into the child's blood stream, and then attack the child' Rh-positive blood cells, explained Stone.

The antibodies coat the baby's red cells, the child's spleen destroys them and the baby dies of anemia. One hypothesis to explain this chain of events is that the spleen recognizes the antibody-coated red cells as foreign and consequently destroys them.

- more -

This problem only occurs about once in every 200 human births and it is easy to prevent. Techniques now exist to protect Rh-positive infants; mothers can be innoculated to stop their immune system from producing the antibodies that endanger the newborn.

Dr. Christine Duggleby, graduate student Paul Sullivan and technician Charles D. Blystad who worked in Stone's research group found that baby monkeys immunize their mothers about once in every five births.

However, even though the red cells of the baby monkey are often coated with antibodies it received from its mother, nothing happens to them, said Stone. For some reason the monkey's spleen does not destroy the cells and the babies thrive without showing any anemia.

Stone noted several areas where study of the differences between the human and the monkey systems could prove beneficial.

(1)--If the differences between the spleen action of the monkeys and humans could be explained, this could help understand how they work normally. This may also help understand such diseases as sickle cell anemia.

(2)--It will help in understanding how blood differences causing immunity affect reproduction. Some possible off-shoots would be the development of antibodies against sperm for birth control or perhaps antibodies against sperm carrying male or female chromosomes to enable control over the sex of an unborn child.

(3)--A thorough understanding of the monkey's blood group systems is necessary because monkeys are growing in importance as laboratory animals for biomedical research. They are the best model for studying human physiology since they are so closely related to humans.

The work of Prof. Stone's group was supported by grants from the National Institutes of Health and the Atomic Energy Commission. Stone credited the University of Wisconsin Regional Primate Research Center with valuable support.

###

uw news

From The University of Wisconsin-Madison / University News and Publications Service, Bascom Hall, Madison 53706 / Telephone: (608) 262-3571

Primate Research Lab

Release: ADVANCE FOR TUESDAY, DEC. 28, PM's 12/23/71

By JOHN WOLF

PHILADELPHIA, Pa.--(Advance for Tuesday, Dec. 28, pm's)--Aggression is a trait that primates, probably including humans, do not need to learn--it is inborn.

This is the conclusion reached after years of experiments on monkeys raised in isolation at the Wisconsin Regional Primate Research Center on the Madison campus of the University of Wisconsin.

Reviewing the results of these experiments at the 138th meeting of the American Association for the Advancement of Science in Philadelphia this week, Prof. Harry F. Harlow and Allyn C. Deets concluded, "Aggression most likely remains in man as a solid component of his biological heritage as a primate."

Harlow and Deets cautioned, however, that the nature of primate aggression is modified by learning and other life experiences.

Harlow is a psychology professor at Wisconsin. Deets is now at the University of Pittsburgh Laboratory of Clinical Science.

The two researchers theorize that aggression toward members of the same species may be an important factor in allowing some primates to adapt to changing environments. "The relatively aggressive rhesus monkey has been able to adapt to environments ranging from remote forest areas to overcrowded urban ghettos," they point out.

Gorillas, however, which display little aggression toward one another, "are now threatened with extinction, being unable to cope with man's encroachment upon their traditional habitat."

- more -

Add one--primates

In one of the aggression experiments at the Wisconsin primate facility, monkeys were raised from birth under conditions that allowed them to see and hear other monkeys but did not allow any contact with other animals.

When these isolated monkeys were "threatened" by experimenters waving black gloves, the young primates first were frightened. Later the same monkeys began showing hostility toward the humans, and finally they showed physical aggression toward the only available targets--their own bodies--by biting themselves and throwing themselves against their cages.

Thus, these isolated monkeys, which never had a chance to be "taught" aggression, nevertheless displayed strange but definite aggression, Harlow and Deets noted.

In another experiment, young monkeys were raised normally until they had developed a natural fear of strange objects but before they had shown any aggression. Then they were placed in isolation. When released six months later, these monkeys were not fearful of other monkeys but were very aggressive toward their peers.

Harlow and Deets believe that if aggression develops while a young monkey does not have contact with other monkeys of his age, he does not learn to control his newly found aggression. As a result he becomes outwardly more aggressive than normal.

The fact that emotions like fear and aggression develop in definite stages plays a vital role in preventing normal primate group structures from breaking apart, Harlow and Deets feel.

###

uw news

From The University of Wisconsin-Madison / University News and Publications Service, Bascom Hall, Madison 53706 / Telephone: (608) 262-3571

Primate Research Lab

Release: Advance for Wednesday, Dec. 29, am's 12/23/71

By JOHN WOLF

PHILADELPHIA, Pa.--(Advance for Wednesday, Dec. 29, AM's)--Monkeys forced to live in crowded cages with several other strange monkeys become alarmingly more aggressive than usual. Is it strange, then, that human prisoners, kept in crowded conditions with unfamiliar fellows, should show the same tendency?

Nine undergraduate students at the University of Wisconsin-Madison are completing a study of monkeys caged under various degrees of crowding and are convinced that their results should be carefully considered by monkeys' close relatives--men.

Jake Emmerick, a senior psychology major from Pittsville and student leader of the monkey-crowding study, presented his group's preliminary findings at a symposium during the 138th meeting of the American Association for the Advancement of Science this week in Philadelphia.

The other student researchers were Robert Anderegg, Fond du Lac; Clarence Chou, Bayside; Mary Donkle, Fort Atkinson; Barbara Loevinger, Washington, D.C.; Ruth Niebojewski, Brookfield; Scott Rode, Waukesha; Ann Schutts, Marshfield; and James Swinehart, Brookfield. Their majors include psychology, biochemistry, medical technology, nursing, and chemistry.

The study was conducted at the Wisconsin Regional Primate Research Center, one of seven such facilities around the country. Dr. Robert E. Bowman of the Center's psychochemistry unit has been the group's faculty adviser.

Nationally, it was one of 103 undergraduate research projects funded by the National Science Foundation's Student-Originated Studies (SOS) Program. The SOS projects focused on environmental problems.

- more -

Emmerick explained that the SOS program is designed to give undergraduates a preview of the world of research and to allow the students a chance to express their concern that scientific research be used to meet human needs.

Actual research for the crowding study was conducted this summer at the Primate Center. The nine students are now completing analysis of their data.

They already know that when four monkeys are kept in a cage that normally is used to house one animal, the rates of aggressive behavior skyrocket. During the study, one group of four monkeys had to be replaced when it became apparent that one of the four would be killed by its cagemates.

Additional biochemical measurements indicated that these crowded monkeys were under a high degree of stress.

Four monkeys kept together in larger cages showed much less inclination toward aggression against their fellows. Even when aggression did occur, the victim had a better chance to escape because of the greater room for flight.

When only two monkeys were kept in close quarters, they showed a tendency to tolerate each other after a few days of hostility.

Prisons are similar to overcrowded cages of monkeys in this study, Emmerick feels. As long as human prisoners are kept in highly crowded facilities, there is little chance that they will learn to adjust to living outside prison, he noted.

Many have argued against the overcrowded situation in prisons for humans. Now nine students have seen for themselves that at least some primate prisoners held in crowded captivity have no chance of behaving "normally."

###

FILE

May 15, 1961

Information on the National Institutes of Health grant of funds for construction and operation of the Wisconsin Regional Primate Research Center

WHAT IS A PRIMATE RESEARCH CENTER?

The Surgeon General of the United States through the National Heart Institute and in cooperation with the National Advisory Heart Council has been authorized by Congress to award funds for the construction and maintenance of regional primate research centers. The National Institutes of Health considers a primate research center to be an organizational entity providing an optimal environment wherein resident and visiting scientists, representing a breadth of scientific fields may pursue research in order to advance all possible areas of knowledge relating to the biological characteristics of the primate throughout its entire life span. These centers must be major research resource facilities to meet regional and national needs. The centers, with a stated mission to carry out research using sub-human primates, may operate independently or as a semi-autonomous part of an university or medical school. A center is required to have a director with clear responsibility and authority for administration of the center and its scientific program; a basic scientific, technical and administrative staff of such character and of sufficient numbers for the successful accomplishment of its stated mission; and a scientific committee or board to advise the director regarding the research program of the center and its scientific standards.

WHY ARE REGIONAL PRIMATE RESEARCH CENTERS BEING ESTABLISHED?

There is a growing interest in and a need for long term research studies using infrahuman primates as research subjects. All biological and psychological sciences concerned with mental and physical disorders in man require facilities for study of the same conditions in monkeys and apes. Maintenance and use of monkey colonies for research purposes is expensive and demands special apparatus, facilities and techniques. Regional primate centers are being established to provide primate facilities and as well as training in primatology to resident and nonresident scientists who wish to make use of the center. Along with the growing interest in sub-human primate research is a dwindling supply of these animals from the jungle areas of the world. The National Institutes of Health considers it necessary to insure a continuous supply of the various species of primates by establishing permanent colonies in the regional research centers.

HAVE OTHER REGIONAL PRIMATE RESEARCH CENTERS BEEN ESTABLISHED?

A Grant for the establishment of a Regional Primate Research Center at the Medical Research Foundation of the University of Oregon was awarded last year. Other regional centers will probably be established this year. 6 or 8 maximum

WHAT WILL BE THE MISSION OF THE WISCONSIN REGIONAL PRIMATE RESEARCH CENTER?

The Wisconsin Center initially will provide a facility to conduct major integrated research programs in the fields of neuro-anatomy, physiology, biochemistry and psychology with special emphasis on problems that can be investigated in newly born and infantile rhesus monkeys. Additional programs will be

developed as other interests arise for experimentation with sub-human primates. An extensive breeding program will be undertaken to provide a constant supply of young animals. Long term holding facilities will be built to permit study of the more than twenty-five year life span of the rhesus monkey.

WHY WAS THE UNIVERSITY OF WISCONSIN SELECTED?

For many years, the University of Wisconsin has been interested in and supported primate research. The Primate Laboratory of the Department of Psychology is one of the largest laboratories in the U.S. designed to study psychological and physiological problems of primates. Dr. Harry F. Harlow, director of the Primate Laboratory has spent over thirty years, as a faculty member of the University, conducting researches with sub-human primates. Many of the techniques now used in primate maintenance and research, particularly research with infants, were developed at the Wisconsin Primate Laboratory. Dr. Harlow and a group of senior faculty members from the College of Letters and Science, the Graduate School and the School of Medicine requested the establishment of a Primate Research Center in Madison so that facilities for primate research could be made available to all divisions of the University and neighboring institutions. Primate Research Centers are awarded on a regional basis and the University of Wisconsin was selected over the other universities in this region that applied for a Center.

WHAT WILL BE THE RELATION OF THE WISCONSIN REGIONAL PRIMATE RESEARCH CENTER TO OTHER UNIVERSITIES?

The Center, in spirit and fact, will be an integrated scientific community without geographical limitations. As host institution, the University of Wisconsin will encourage scientists from other institutions to cooperate with the Center in so far as their research interests will pertain. A Regional Primate Advisory Board composed of four resident and three nonresident scientists will be appointed by the President of the University of Wisconsin to advise the Director of the Wisconsin Center on research programs, scientific standards, and regional participation. The first program involving regional participation is a joint research effort with Professor William C. Young of the Anatomy Department of the University of Kansas.

who not yet appointed

WHAT WILL BE THE RELATION OF THE CENTER TO OTHER DIVISIONS OF THE UNIVERSITY?

The Wisconsin Regional Primate Research Center will be a semi-autonomous part of the University and will coordinate its research program with research efforts of previously established departments and schools. The senior staff members supervising major program areas in the Center will retain their positions in the School of Medicine and the College of Letters and Science and will integrate the Center's research program with the University's post-doctoral and pre-doctoral research and instruction programs. The Center will be guided by a Committee of the Graduate School appointed by the President of the University and composed of the Dean of the Graduate School, the Director of the Center and senior scientists representing major research activities of the University. The facilities of the Center, within the limits of space and animals available, will be available to any faculty member with an interest in research with infrahuman primates.

WHAT FACILITIES ARE PLANNED?

The Regional Primate Research Center building will be a four story and basement building adjacent to the present Primate Laboratory at 22 N. Charter St. This site in the campus extension area has been approved by the Board of Regents. The building will contain laboratory facilities, animal rooms, an animal nursery area, food preparation rooms, administration and staff offices as well as research rooms. In addition a large primate holding facility is planned to permit a year-around indoor-outdoor housing facility for several hundred monkeys.

WHO WILL STAFF THE CENTER?

A full time staff of approximately twenty scientists will be required for programs now planned. The Center will also provide positions for twenty to thirty administrative and animal maintenance employees.

Heading the staff will be the Director who will supervise the Center, coordinate the major research programs, head the psychological research program and foster primatology research programs in neighboring institutions. Dr. Harry F. Harlow, present Director of the Primate Laboratory and the George Cary Comstock Research Professor in Psychology will be the Director of the Center. The major psychological research program at the Center will be the analysis of variables influencing the development of normal and abnormal affectional systems that effect mental health. In conjunction with the other major programs, long term analyses of the neurological, biochemical and endocrinological correlates of behavior will be undertaken. Dr. Harlow is a member of the National Academy of Sciences, the American Philosophical Society, the American Academy of Arts and Sciences, the Army Scientific Advisory Panel and the executive committee of the National Society of Sigma Xi. He has served as editor of the Journal of Comparative and Physiological Psychology since 1951 and is a past president of the Midwestern Psychological Association and the American Psychological Association. He was born in Fairfield, Iowa in 1905 and received both the BA (1927) and the Ph.D. (1930) from Stanford University. He has been on the faculty of the University of Wisconsin since 1930.

Dr. Konrad Akert, Professor of Anatomy in the School of Medicine, has initiated an anatomical-neurological research program on the post-natal development of the primate brain which will be continued in the Center. Dr. Akert was born in Zurich in 1919. He received the M.D. in 1946 and the Doctor of Medical Science degree in 1949 from the University of Zurich. In 1960 he received the Robert Bing Award in Neurological Sciences from the Swiss Academy of Medical Sciences.

Dr. R. K. Meyer, Marshall Professor of Zoology, will direct a program of research in physiology concerned with hormonal factors in the reproductive processes in primates. Dr. Meyer received his Ph.D. in Zoology and Medical Physiology at the University of Wisconsin in 1930 and has been on the faculty since 1935. He is a member of the Endocrinology Study Section of the National Institutes of Health and Chairman of the Membership Committee of the Endocrine Society. Dr. Meyer will be assisted in this program by Dr. Richard C. Wolf of the Medical School Department of Physiology.

Dr. Harry A. Walsman, Professor of Pediatrics, will supervise a research program on biochemical factors associated with mental retardation in infants. Dr. Walsmen holds a Ph.D. in Biochemistry (1939) and a M.D. (1947) degree from the University of Wisconsin. He was born in Milwaukee in 1912 and graduated from West Allis High School in 1930. He is a member of the American Academy of Pediatrics.

The Associate Director of the Center will supervise the administrative, supply, and animal maintenance activities of the Center and act for the director as program coordinator and as head of the psychological research program. Dr. Jay B. Mowbray, presently Associate Director of the Primate Laboratory will be Associate Director of the Primate Research Center. Dr. Mowbray received his M.S. (1949) and Ph.D. (1950) in Experimental Psychology from Tulane University in New Orleans, La. and has had many years of experience in scientific research administration with the U. S. Army. Dr. Mowbray was born in Wilmington, Del., in 1917 and joined the staff of the Wisconsin Primate Laboratory in December 1959.

WHEN WILL THE CENTER BE BUILT?

Preliminary plans prepared by the University Architectural Section propose construction of the center building beginning in June 1962. In the meantime some research programs and expansions of the animal colony at the Primate Laboratory can begin immediately. Location of the Center adjacent to the Psychology Department Primate Laboratory will permit the Center to be partially operational during the construction phase.

HOW WILL THE CENTER BE FINANCED:

The Wisconsin Regional Primate Research Center will be financed by the National Institutes of Health. Two separate grants are involved in the present award. The first is a grant of _____ for construction of the Regional Primate Research Center. The second grant provides _____ for procurement of equipment and operational costs for the first year. Grants for operational costs for succeeding years will be made after annual reviews of the needs of the Center. No matching funds are required from State or University sources.

$1,297,000 const

$367,540 1st. year operation.

new one thru grad. school under dean Willard.

avaliable to all

one more import 5th of June

will stay Rhesus monkey.

New facilaties —

housing facility — play down.

NEWS OF THE UNIVERSITY OF WISCONSIN

From the University's Statewide Communications Service, 1752 Van Hise Hall, Madison 53706

Release

Immediately 3/12/71 mcg

PERSONNEL

MADISON--The internationally-known Primate Research Center on the University of Wisconsin Madison campus will have a new director July 1 as the result of Board of Regent approval Friday of the appointment of Dr. Robert W. Goy.

A member of the University of Oregon faculty for eight years, Dr. Goy will replace Dr. Harry F. Harlow as director and hold the additional title of professor of psychology. Dr. Harlow is retiring.

Since 1964, Dr. Goy has been associated with the Oregon Regional Primate Center at Beaverton, and has served as chairman of the department of reproductive physiology and behavior. His salary at Wisconsin will be paid entirely by the National Institutes of Health, which supply more than $1 million a year to the UW center.

A graduate of the University of Michigan, Dr. Goy earned the Ph.D. in psychology at the University of Chicago in 1953. He taught at the University of Kansas before joining the Oregon faculty.

In other personnel actions, the regents named Dr. Robert L. Clodius as University Professor, Madison campus, professor of economics and professor of agricultural economics, and project administrator of the Midwest Universities Consortium for International Activities in higher education in Indonesia. Dr. Clodius resigned this week as vice president of the University.

- more -

Add one--personnel

The regents approved a change of status for Jules M. Rosenthal, specialist in the Instructional Materials Center, School of Education, Madison, naming him program administrator and director of communications at the Mental Retardation Center in the Graduate School. His salary will be paid by extramural funds.

Regents also approved the appointment of William D. McGuire, a former administrative assistant at University Hospitals, as assistant superintendent beginning March 15, his salary to be paid by Hospitals revolving funds. A graduate of Notre Dame University, he holds the master of hospital administration degree from the University of Michigan.

The resignation of Jan K.E. Hirshfield, associate professor in medicine and genetics, who has been offered a position in Sweden, was accepted.

A leave of absence for James P. Gilligan, director of the Recreational Resources Center, division of economic and environmental development, University Extension, and professor of forestry, College of Agricultural and Life Sciences, was granted. He has been asked to serve as deputy assistant secretary of the Air Force for reserve affairs and education.

###

uw news

From The University of Wisconsin News and Publications Service, Bascom Hall, Madison 53706 • Telephone: (608) 262-3571

Primate Center

Release: Immediately 10/7/71 jb

MADISON--Family relationships and social isolation studies conducted at the University of Wisconsin-Madison Regional Primate Center will be shown on a CBS television special next Tuesday night at 6:30 p.m.

The season's first National Geographic Society special, "Monkeys, Apes, and Man," will be telecast in color. The Madison outlet is Channel 3, WISC-TV.

The one-hour program will travel from the Madison campus to the Japanese island of Koshima to Tanzania, Africa, and show the life styles of macaque monkeys, gorillas, chimpanzees, and other primates.

###

NEWS OF THE UNIVERSITY OF WISCONSIN

Primate Research Center

From the University's Statewide Communications Service, 1752 Van Hise Hall, Madison 53706

Release Immediately 8/6/71 aec

GIFTS AND GRANTS

MADISON--Gifts and grants to the University of Wisconsin, totalling almost $24 million, were accepted by the Board of Regents at their meeting Friday. The amount is roughly $275,480 less than the similar period last year.

Largest contributor by far was the federal government, with a total of $22,225,734 to bolster instruction costs, research, and student aid.

Although the federal government proportion is over $1 million greater than it was last year, the total of all gifts and grants is less. During June-July of 1970, private gifts amounted to almost twice the amount received this year--$3,021,720 last year and $1,623,215 this summer.

The largest federal grants were two from the Office of Economic Opportunity, given to the Madison campus for research on rural and urban poverty. The two grants total $6,247,536, and will cover programs until June 30, 1973.

The Primate Research Center at Madison will receive $1,287,671 for operation. This comes from the U.S. Department of Health, Education and Welfare, Public Health Service, and the National Institutes of Health.

Also accepted was a $90,000 grant to fund the Cooperative Leadership Training Program for American Indians, which is under the direction of the University Extension, with cooperation of three of its divisions: Human Resources Development, International Cooperative Training Center, and Center for Community Leadership Development.

The Wisconsin 4-H Foundation is listed as the donor of a dormitory for use at Camp Upham Woods at Wisconsin Dells. The three-story building can house 56 persons, and is valued at $95,000.

# # #

uw news

From The University of Wisconsin News and Publications Service, Bascom Hall, Madison 53706 • Telephone: (608) 262-3571

Primate Research Lab

Release: Immediately 5/5/71 em

MADISON--Whether confined in a space capsule or in jail, living in the ghetto or a high rise apartment, closer contact causes many changes in human behavior. Overcrowding has been blamed for increasing crime rates, stress related emotional disorders, and many other problems facing an increasingly urban America.

To determine the nature of some of these changes, nine undergraduate students at the University of Wisconsin-Madison recently were awarded a grant by the National Science Foundation to study the behavioral and biochemical effects of overcrowded living conditions in monkeys -- man's closest relative.

The study will be conducted at the Wisconsin Regional Primate Research Center, one of seven centers funded by the National Institutes of Health which promotes long-range research in all areas of human health.

The nine students are an interdisciplinary group representing majors in psychology, biochemistry, zoology, nursing, and chemistry. They are:

Jacob Emmerick, Pittsville; Scott Rode, Waukesha; Clarence Chou, Bayside; James Swinehart, Brookfield; Mary Donkle, Fort Atkinson; Robert Anderegg, Fond du Lac; Ann Schutts, Marshfield; Richard Nowakowski, Milwaukee; and Barbara Loevinger, Washington, D. C.

###

uw news

From The University of Wisconsin News and Publications Service, Bascom Hall, Madison 53706 • Telephone: (608) 262-3571

Primate Research Center

Release: SUNDAY A.M., DEC. 27 12/23/70

Wisconsin Regional Primate Research Center (262-3844)

By ELIZABETH M. MARTIN

CHICAGO, Ill.--(Advance for Sunday a.m., Dec. 27)--Over 15 million people in the United States suffer from mental disorders in which depression plays a significant role.

By using a wide variety of separation procedures, scientists at the University of Wisconsin Regional Primate Research Center in Madison have now produced various degrees of such depression in rhesus monkeys.

Dr. William T. McKinney, psychiatrist at the University Medical Center, along with Prof. Harry F. Harlow, Primate Center director, and graduate student, Stephen J. Suomi, reported that the severity of this depressive reaction to separation depends on a number of variables -- age at time of separation, social environment from which the animal is removed, and the situation during the separation period.

Speaking at a symposium on "Clinical and Research Aspects of Separation and Depression" at the annual convention of the American Association for the Advancement of Science Sunday, they stressed the need to identify and study these variables before connections between separation and depression can be clearly understood. Depression may not be the only reaction to separation and may only occur under specific conditions.

"By using the monkey," said McKinney, "we have the ability to precisely control the variables considered important in separation, and hopefully these

- more -

studies will contribute to an understanding of the effects of separation on personality development in humans."

Like human children, infant monkeys go through distinct stages when separated from mothers and peers. The first few days are characterized by intense protest at separation. The infant then "gives up" and enters a despair stage which includes huddling, self-mouthing, and self-clasping behaviors. When reunited, there is increased clinging to another animal.

On the other hand, three-year-old animals show increases in locomotion and environmental exploration throughout the separation period and no signs of despair. After reunion the animals' behavior returns to normal levels, only to revert upon further separations.

When separation is combined with a period of isolation, a younger animal becomes withdrawn and remains this way even after return to the original environment. By contrast, the older animal seeks immediate contact with others and there are increases in clinging behavior as opposed to self-directed actions of younger animals.

These studies, supported by the Animal Resources Branch of the National Institutes of Health and the National Institute of Mental Health, confirm clinical observations which indicate that age and prior experiences are important variables in determining one's response to separation. "We do not believe that experiences during certain critical developmental stages necessarily have specific, inevitable, and irreversible consequence," stated McKinney. "However, many basic behavior patterns are determined early in life and with sufficiently rich social experiences, more stress is required to produce psychopathology."

###

uw news

From The University of Wisconsin News and Publications Service, Bascom Hall, Madison 53706 • Telephone: (608) 262-3571

Primate Research Lab Center

Release:

THURSDAY, MAY 14 A.M. 5/11/70

By ELIZABETH M. MARTIN

SAN FRANCISCO, CALIF.--Multiple techniques for producing depression in rhesus monkeys were revealed Thursday by scientists at the University of Wisconsin Regional Primate Research Center.

Dr. William T. McKinney, psychiatrist at the UW Medical School, along with Stephen J. Suomi, graduate student, and Prof. Harry F. Harlow, director of the Primate Center,described numerous studies using behavioral manipulations and drugs which have produced a consistent, stable pattern of depression in monkeys.

In these studies, supported by the National Institutes of Health, monkeys were either separated or isolated at different ages and for varying lengths of time. Other monkeys were given medication designed to induce depression.

All animals showed varying degrees of depression depending upon the experimental manipulation and independent of prior rearing experience. These behavioral changes included increases in huddling, rocking, and self-clasping along with decreases in exploratory and play behaviors.

In an address to the American Psychiatric Association, the investigators pointed out that depression is not caused by one single factor. They stressed the need for any overall program in which social and biological factors thought to be important in causing depression can be studied in a controlled and systematic way.

"It seems likely," said McKinney, "that one can produce a depression syndrome in nonhuman primates comparable to that in humans. Such studies should contribute to an understanding of the causes and cures of depression in people."

###

uw news

From The University of Wisconsin News and Publications Service, Bascom Hall, Madison 53706 • Telephone: (608) 262-3571

Release: TUESDAY, APRIL 28, A.M. 4/27/70

Wisconsin Regional Primate Research Center (262-3844)

By ELIZABETH M. MARTIN

WASHINGTON, D.C.--Psychologists at the Wisconsin Regional Primate Research Center revealed yesterday to the National Academy of Sciences a new approach to social rehabilitation of rhesus monkeys with severe behavioral abnormalities.

Prof. Harry F. Harlow, director of the Primate Center, and Stephen J. Suomi, graduate student, reported dramatic changes in the socialization of abnormal monkeys when paired with specially-selected, nonaggressive monkey "therapists."

Raising monkeys from birth to 6 months of age in total social isolation completely destroys the capacity for normal social behavior. Previous attempts at rehabilitation have been unsuccessful and isolates have never attained normal levels of social or sexual behavior.

Isolates typically huddle in corners, clasp themselves, rock, and avoid all contact with other monkeys.

The current study, supported by the National Institutes of Health, paired isolate males with normal female "therapists" shortly after removal from 6 months of total social isolation. These therapists were three months younger than the isolates and were in the clinging and elementary play stage of development.

- more -

The first response of the therapists was to approach and cling to the isolates. Within a week the isolates were also clinging. The therapists tried to initiate simple play with the isolates, and within two weeks the isolates responded with play behavior.

After five months of therapy it appears that the isolates have become essentially normal, social monkeys, at least when interacting with the "therapists."

It remains to be seen whether the isolates will develop normal sexual behavior patterns, according to Harlow and Suomi. Previously no male isolates have been observed to inseminate females, regardless of the number of opportunities.

"What's intriguing," commented Dr. William McKinney, a psychiatrist in primate research at Wisconsin, "is the apparent successful therapy of a social isolate by a monkey who is chronologically younger, but at the same developmental stage as the one being treated.

"Although total social isolation is rare in humans, lesser degrees of relative social isolation and debilitation are common," continued McKinney. "The basic ingredients of therapy for many of these people are warmth and close contact in addition to professional help."

"We have known for some time about the existence of therapists who seem inhuman," pointed out Harlow and Suomi. "However, it is encouraging to discover that it is also possible to have nonhumans who are therapists."

###

uw news

From The University of Wisconsin News and Publications Service, Bascom Hall, Madison 53706 • Telephone: (608) 262-3571

Primate Center

Release: Immediately 4/14/70 jb

MADISON--Dr. Rolf Castell, of the Max-Planck Institute for Psychiatry in Munich, Germany, recently joined the University of Wisconsin Regional Primate Research Center as visiting scientist.

His visit is sponsored by the National Institutes of Health.

Dr. Castell will film the first 30 days of development in the infant rhesus monkey to study mother-infant interactions and reflex growth. The film will be analyzed to determine what social signals occur between the mother and infant as the latter leaves her for the first time to explore its surroundings.

This is a preliminary step for the development of neurological tests to pinpoint abnormalities in development.

Dr. Castell is the 14th visiting scientist to be associated with the center since it was established eight years ago.

###

uw news

From The University of Wisconsin News and Publications Service, Bascom Hall, Madison 53706 • Telephone: (608) 262-3571

Release: Immediately 6/8/67 jb

MADISON--Three staff members of the University of Wisconsin Regional Primate Research Center in Madison will participate in the conference called by the National Institute of Child Health and Development at Boulder, Colo., next week.

Dr. H. A. Waisman, professor of pediatrics and director of the Joseph P. Kennedy Jr. Laboratory, will deliver a key address titled "A Pediatrician's View."

Scheduled to be discussants are Dr. Margaret K. Harlow, lecturer in the department of educational psychology and consulting editor of The Journal of Comparative and Physiological Psychology, and Dr. J. W. Davenport, associate professor of psychology and assistant director of the center.

Dr. Harlow has studied the effects of early rearing conditions on the social and intellectual development of the rhesus monkey.

Dr. Davenport is studying the interaction of emotion and learning in monkeys and rats and comparing the two species for differences and similarities. In addition, he is organizing a research program to investigate the relationship between learning and thyroid function.

With Dr. G. R. Kerr of the department of pediatrics, Dr. Waisman has studied brain development and the influence of amino acid metabolism in monkeys. He also has surveyed the relationship between malnutrition and mental retardation in the infant monkey.

Researchers from centers, universities, and colleges will explore ways at the conference to learn how monkeys may serve as models for human research.

The institute is a division of the National Institutes of Health.

###

June 8, 1967
Boulder Conference

[Primate Res. Center]

The contributions of sub-human primate research to understanding human development is the topic of a conference called by the National Institute of Child Health and Human Development, a division of the National Institutes of Health, at Boulder, Colorado, June 11 to 14, 1967. Three scientists associated with the University of Wisconsin and the Wisconsin Regional Primate Research Center, Dr. H. A. Waisman, Dr. Margaret K. Harlow and Dr. J. W. Davenport, have been invited to attend the conference.

Approximately thirty researchers from Primate Centers, Universities, and Medical Schools across the country will gather to explore ways in which monkeys may or may not serve as models for human research. Particular attention will be given to the xxxxxxxxxx relationship between biological and behavioral aspects of early development. In addition, this conference will provide an opportunity for primatologists to become acquainted with problems in human development amenable to study in monkeys while at the same time acquainting clinical research scientists with opportunities and limitations of primate research.

The Wisconsin investigators have worked on a number of studies which are of significance for this conference. Dr. H. A. Waisman, Professor of Pediatrics and Director of the Joseph P. Kennedy, Jr. Laboratory and Dr. G. R. Kerr, Assistant Professor of Pediatrics, both of the University of Wisconsin Medical Center, and their co-workers have studied brain development and the influence of amino acid metabolism on brain metabolism in monkeys. They have also utilized the pregnant rhesus monkey to learn about the role of the placenta in the transfer of substances which may harm the developing fetus. Presently, they are studying the relationship between malnutrition and mental retardation in the infant rhesus monkey.

Dr. Margaret K. Harlow, Lecturer in the Department of Educational Psychology and consulting editor of the Journal of Comparative and Physiological Psychology, has co-authored numerous papers with her husband, Dr. H. F. Harlow, on the effects of early rearing conditions on the social and intellectual development of the rhesus monkey.

Dr. J. W. Davenport, Associate Professor of Psychology and Assistant Director of the Wisconsin Regional Primate Research Center, is presently studying the interaction of emotion and learning in monkeys and rats and comparing the two species for similarities and differences. In addition, he is organizing a research program to investigate the relationship between learning and thyroid function.

Dr. Waisman will give the wind-up talk, "A Pediatricians View," and Dr. Harlow and Dr. Davenport will be discussants at the conference.