

## MEDICINE

# Monkeys Stand In for Humans

Monkeys are moving out of the jungle to live in specially built homes while they perform more dramatic functions than movie stand-ins.

By FAYE MARLEY

► MONKEYS and other subhuman primates are moving out of the jungle into special dwellings designed by architects for their comfort.

Monkeys are medical "stand-ins" for people. An estimated 150,000 primates, about 60% of them rhesus monkeys, are being imported into the United States each year for research. Drug production and testing by pharmaceutical companies demand thousands of them, and universities need many more.

## Need for Rhesus Monkeys

A few years ago when poliovirus vaccine was in its early phases of production, there was a great shortage of the rhesus monkey, *Macaca mulatta*, which comes from India and Pakistan, but the supply is more adequate now. Other species are brought mainly from the South Pacific and Africa.

These animals are expensive—a rhesus monkey costs \$70 or more, chimpanzees cost \$700, while an orangutan may bring \$2,500. But they have proved their worth in helping to rid humans of yellow fever, malaria and polio, to name some of yesterday's leading scourges. They also have aided in treatment of tuberculosis, in studies on heart and circulation problems, and in other diseases, including those affecting the nervous system.

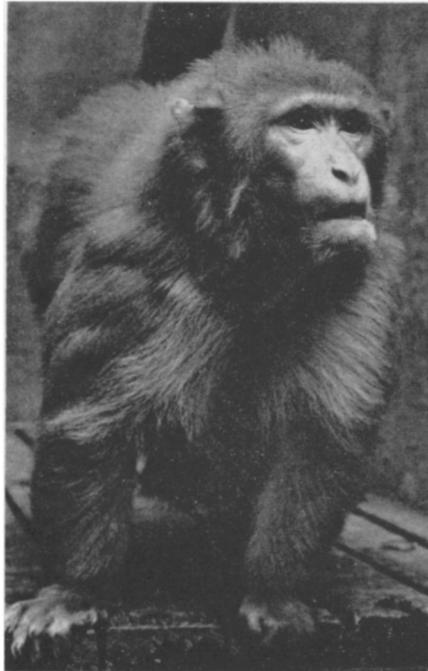
Recently Tamarin and squirrel monkeys, marmosets and other South American species have begun to show promise as research animals, and are being imported more cheaply than the more popular rhesus monkey.

## Yerkes Laboratory First

The late Robert M. Yerkes, famous psychologist, was responsible for the first primate laboratory in this country, which was originally established at Yale in 1925. In 1930 the first building was constructed at Orange Park, Fla., and now the animals are being moved to Emory University, Atlanta, Ga., to be a part of the Yerkes Regional Primate Center, supported by the National Institutes of Health.

Puerto Rico's monkey island at Cayo Santiago, which had its beginning in 1939 as a collaborative project between Columbia University and the department of tropical medicine at the University of Puerto Rico, now is also supported by the National Institutes of Health.

The Japan Monkey Center at Gifu was begun soon after World War II and promises to expand its behavioral studies with the Japanese monkey, *Macaca fuscata*. This



National Institutes of Health

**POETIC PRIMATE**—*This is Byron, a 15-year-old rhesus monkey at the National Institutes of Health, who is devoting his life to research.*

monkey lives to be more than 30 years of age, and there are between 40,000 and 60,000 of the species, mainly in the deep mountainous areas. These monkeys live as far north as monkeys can live, and in snowy weather they are an amusing sight in their untropical habitat. Some of them are being shipped to this country for research.

One of the first monkey colonies of importance was the one in Sukhumi on the Black Sea in the Soviet Union. Founded in 1927, this picturesque colony provides animals for experimentation in the laboratories maintained by the Institute of Experimental Pathology and Therapy of the USSR's Academy of Medical Sciences. It has been visited by many Western scientists.

Overlooking the sea on a high elevation, the Sukhumi nursery houses its animals in one of the world's most beautiful settings. The outdoor cages, tended by women caretakers, are mainly for display purposes. The actual experimentation is in four laboratories maintained by the institute, one of which is the famous one of Prof. L. A. Zilber in Moscow, whose field is virology.

With a growing interest all over the world in primate research, the U.S. Congress has appropriated more than \$18 mil-

lion since 1960 for the National Institutes of Health to award in grants that, so far, have provided for the establishment of seven primate research centers.

Dr. Joe R. Held of NIH's animal resources branch, which is administering the program, told SCIENCE SERVICE that different projects will be undertaken in these centers.

"The subhuman primates are most closely related to man," Dr. Held emphasized, pointing out that other animals would not be suitable for the research planned. The primate stand-ins, which are "cousins" of the human primates, are excellent tools for solving the human disease problem, he said.

## Dr. Harlow at Wisconsin

One of the regional primate research centers will be a continuation of the University of Wisconsin's existing primate laboratory, which Dr. Harry F. Harlow has directed for many years.

At least a million persons who attended the Seattle Century 21 Exposition last year saw the dummy mother Dr. Harlow exhibited, demonstrating how a motherless infant monkey would cling to the soft, cuddly bath towel material that clothed the substitute mother.

Although Dr. Harlow has raised more than 60 healthy monkeys with these dummy mothers, he found that they did not develop a normal sex life. The four that became pregnant rejected and abused their babies.

Dr. Harlow has devoted more than 30 years to his investigations, but his research is incomplete. One area of the new center he is directing will house animals where studies can continue for the 25-year life span of many rhesus monkeys.

An extensive breeding program will be undertaken at the Wisconsin center to provide a constant supply of young monkeys for studies that will include biochemical factors linked with mental retardation. Postnatal development of the primate brain, hormonal factors in reproduction, and variables influencing the development of normal and abnormal behavior also will be investigated.

## Oregon Center Begun in 1960

The first of the NIH primate research centers was started May 1, 1960, with the award of grants to the Medical Research Foundation of Oregon. The out-of-door buildings are on a large tract of land in Beaverton, about ten miles west of downtown Portland.

Dr. William Montagna, formerly of Brown University, is now directing the Oregon center. Dr. Donald E. Pickering, the first director, began the work on the physiology and biochemistry of the fetus and newborn primates. Studies of the fetal skeleton's biochemistry and growth, of congenital malformations and cardiovascular physiology also have begun.

Construction of all seven primate research centers is expected to be completed by the end of 1964. Scientists from all parts of the country and the world will be able to visit the centers and work there on specific projects.

Dr. Geoffrey H. Bourne of Emory University will direct the Yerkes Regional Laboratory, being constructed primarily to study the greater apes.

Emphasis there will be on the relation of infant growth and experience to behavior in later life, as well as on the attributes of the aged primates. Other studies will include brain functions, comparative studies on monkeys and other anthropoids, and effects of unusual environments and intense stimulation.

In addition to the centers already mentioned, the University of Washington at

Seattle, Harvard University, the Delta Regional Primate Center at Tulane University in New Orleans and the National Primate Conditioning Center at the University of California at Davis have received grants from NIH.

Dr. L. H. Schmidt, director of the Davis center, told SCIENCE SERVICE that he expects to organize a broadly based staff of permanent investigators, including specialists in bacteriology, virology, biological chemistry, nutrition, physiology, pharmacology, pathology, psychology, ecology and biometrics.

The center expects to study a number of problems in all of the more common species of monkeys of Asia, Africa, South and Central America, and selected macaques of India, Southeast Asia, the Philippines and Formosa.

• Science News Letter, 84:218 Oct. 5, 1963

#### AVIATION

## Sailplane Trip Difficult

► IF A FORMER Spitfire pilot carries out his plans to "sailplane" his way across the Atlantic Ocean, it would be like "going over Niagara Falls in a bucket," said world famous soaring pilot Paul A. Schweizer.

Cornelius "Paddy" Donovan, a 52-year-old former RAF Wing Commander, hopes to make the 2,000-mile crossing from Newfoundland to Shannon in western Ireland in a glider, using the strong winds of the jet stream to propel him east.

Although the jet stream winds at 50,000 feet reach speeds of several hundred miles an hour, no one has ever ridden them in a glider. Glider technology has not advanced enough for that, said Mr. Schweizer, who also builds gliders.

Glider, or sailplanes as they are more popularly called, are man's closest imitation of a soaring bird. When a bird soars, it is lifted higher and higher because the air is rising faster than the bird is falling through it.

That is how albatrosses and other great frigate birds of the sea can soar or sail for days over water without ever tiring or flapping a wing.

Here is Mr. Donovan's problem:

Once his glider is released from the Canberra jet that will tow it to a height of 50,000 feet, he will have to position himself carefully in order to get sufficient oxygen at that height and gamble that the dependable currents of warm air over the ocean and the strong jet stream winds won't let him down.

The world's record for distance reached by sailplane is about 535 miles, set in 1951 by Richard H. Johnson of the U.S. He flew over land, where air currents are more dependable, from Odessa, Texas, to Salina, Kans.

The world altitude record for gliders is 46,267 feet above sea level, set by Paul F. Bickle of the United States in a Schweizer sailplane in 1961.

During World War II a GC-4 glider was towed 3,500 miles across the Atlantic by a jet, filled with supplies for Russia. But no one has ever tried it alone.

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#### TECHNOLOGY

## 46-Ton Belt Machine Supported by Air Sleeves

► A BELT-TESTING machine weighing over 46 tons is supported on air at the Goodyear Tire & Rubber Company plant in Akron, Ohio.

The machine, which measures 49 by 36 feet, is held up by rubberized fabric "sleeves" that resemble fat treadless tires and are filled with compressed air. Supported in this manner, vibration is reduced 99%.

If the machine were not supported by air, it would shake apart the 40-year-old building in which it is installed.

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## Do You Know?

Flour of a high nutritional value has been made from bleached seaweed.

In proportion to total body weight, man's legs are more massive than those of any other mammal except the kangaroo.

Basically, a wall blocks sound with weight.

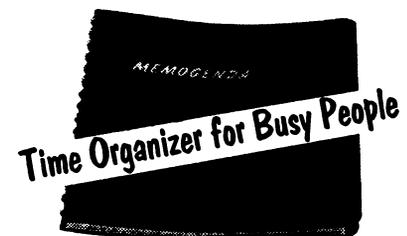
The 50-year-old airport at Hamburg, Germany's second largest city, is one of the oldest in Europe still in operation.

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