

## ZOOLOGY

**Male Sea Lion Shows Little Father Love**

► A MALE SEA LION CAN be a proud "family man," and yet completely ignore the youngsters.

Father sea lions on the relatively quiet Galapagos Islands in the Pacific have large families and stay close to them through the years, but yet seem completely indifferent to their young pups.

In fact, they even would roll over them and crush them if it were not for the watchful mothers.

The strange behavior of sea lions on these lava islands is now under close observation by Dr. Robert T. Orr of the University of San Francisco.

Unlike the sea lion males along the California coast that migrate hundreds of miles southward in July and August to breed, the Galapagos lions stay at home, Dr. Orr noted.

This lack of migration may be due to the abundant fish that swim in the nearby tropical seas or to lack of climatic change to trigger seasonal breeding habits.

Perhaps the study of their behavior can help scientists understand more of all behavior, including that of man, Dr. Orr said.

On the lava rocks of Barrington Island, sea lions seem to breed more or less continuously all year around. After studying a population of nearly 70 sea lions, Dr. Orr reported that each dominant bull lion maintains a harem of 10 to 12 adult females and an assortment of young pups from a few weeks old to three years old.

Each bull guards his territory and harem with loud barks, grunts and fierce charging motions. Like almost all creatures in the Galapagos, they seem unafraid of man, one of the world's most vicious predators.

Dr. Orr is one of about 50 scientists from six different countries who took part in a Galapagos expedition sponsored by the University of California at Berkeley.

These scientists studied the natural behavior of plants and animals that have been evolving unmolested for centuries on these Ecuador-owned islands.

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## TECHNOLOGY

**Smog Devices Tested By Dynamometer System**

► THE EFFECTIVENESS of anti-smog devices on automobiles is being tested on a device that makes a test drive but never leaves the laboratory in Los Angeles.

It is an automatic control system coupled to a dynamometer, designed by Winfield B. Heinz of the University of California, Los Angeles, department of engineering. A dynamometer measures power output.

During a test drive, another device attached to the car engine converts engine speed and intake manifold pressure into electric impulses that are recorded on a magnetic tape.

The laboratory tests the magnetic tape by feeding it into the dynamometer system, a complicated treadmill connected to the

rear wheels of a car. A record of the entire trip can be rerun in the laboratory.

Using the automatically controlled dynamometer, research engineers can simulate the same trip any number of times. This is hailed as important in testing the usefulness of smog-control devices on different cars.

The UCLA dynamometer systems now is being used to test an exhaust gas recycling system developed by Richard D. Kopa, who started the dynamometer project. It also is used in various experiments by the engineering department's Air Pollution Test Facility.

Not a new invention, the dynamometer, with the addition of the tape control system constructed from parts commercially available, will be more flexible, economical and simpler than other tape-controlled installations.

Mr. Heinz says these advantages make it especially useful for widespread testing of smog-control devices.

Anticipating the time when California may require smog-control devices on all cars to be periodically checked, Mr. Heinz and some air pollution officials believe that controlled dynamometer systems may be used by test stations and service stations as standard equipment.

The dynamometer system at UCLA also will be used to check smog emitted from different kinds of fuels and engines, and to encourage graduate students to do research on automatic control systems.

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## PUBLIC HEALTH

**Air Crashes Blamed On Pilot Heart Attacks**

► AIRPLANE ACCIDENTS caused by heart failure of pilots could be more common than is now believed, a Canadian heart specialist warned in New Orleans.

Twenty pilots have died of heart attacks while at the controls, Dr. G. W. Manning, London, Ontario, cardiac consultant for the Royal Canadian Air Force, said, although in at least four cases a co-pilot took over and landed the craft safely.

Autopsies on 24 pilots involved in fatal aircraft accidents in the RCAF showed that one third of them had a significant degree of atherosclerosis, a "rusting" of the inner walls of the coronary arteries.

One pilot convulsed at death and jammed the controls.

The greatest hazard of coronary disease, Dr. Manning pointed out, is where the pilot is the only person in control of the plane, a situation most frequently found in military aviation and the operation of small private planes.

A careful study of electrocardiograms of even the healthiest young pilots was recommended by Dr. Manning, who now has studies of 21,000 applicants for aircrew positions since he initiated an electrocardiogram program 25 years ago. He said 99 of the men were rejected because of heart abnormalities.

Dr. Manning reported his findings at a meeting of the American College of Cardiology.

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**IN SCIEN**

## MEDICINE

**Antibiotic for Pet Birds Cuts Parrot Fever Peril**

► DANGER of parrot fever, or psittacosis, being transmitted by pet birds to their owners and handlers has been lessened by putting an antibiotic in the feed continuously for 15 days before shipping them to pet shops.

Parakeets have been the principal offenders, causing most of 104 cases of human psittacosis and one death in an eight-year period in New York State, exclusive of New York City. More pet shop employees than purchasers became ill.

Marked reduction occurred in the number of human parrot fever cases in upper New York State after the antibiotic, chlortetracyclins.

An average of 11.6 cases had been occurring each year before the birds were given medication. Five, three and two cases, respectively, have been the average during 1961, 1962 and the first six months of 1963, scientists said in Public Health Reports, 79:101, 1964.

The researchers warned that drugs may not be universally effective in eliminating psittacosis from infected birds. Antibiotic-resistant strains of the disease could develop. Also, when medication is discontinued the treated birds are susceptible to infection.

The comparative studies were carried out at the New York State Department of Health, Albany, in the division of laboratories and research by Drs. Donald J. Dean, James Lieberman, Robert M. Albrecht, Paul Arnstein and George M. Baer with William B. Goodrich.

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## OBSTETRICS

**24-Hour Period Dims Memory of Labor Pains**

► WOMEN are more "optimistic" about the pain of childbirth 24 hours after delivery than immediately after a baby is born.

Testing a non-narcotic drug, methotrimeprazine, (see SNL, 80:396, Dec. 16, 1961) against a standard narcotic painkiller, meperidine, three Baltimore physicians found no difference in the potency of the two drugs.

Evaluations of pain in childbirth by obstetricians and mothers often differ, especially when the "rose-colored" glasses phenomenon of the woman's memory manifests itself. It has long been said, anecdotally, that women must forget the unpleasantness of labor pains or they would show less enthusiasm for subsequent pregnancies.

Drs. Thomas J. DeKornfeld and Louis Lasagna, with John W. Pearson, reported the study of 334 women in the New England Journal of Medicine, 270:391, 1964.

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# CE FIELDS

## ZOOLOGY

### Flatworms 'Stand Up' When Light Is Low

➤ TURN THE LIGHTS low, and certain sea flatworms will "stand" on their rear ends and wave their front body parts.

Some of these marine worms will even leap up from the sea floor and swim when the lights turn dim, Dr. Howard M. Lanhoff of the University of Miami, Coral Gables, Fla., has found.

The peculiar creature that responds to light in this manner is a translucent marine flatworm called *G. Sargassicola*. It is frequently found on the Sargassum weed washed up on Florida shores, Dr. Lenhoff reported in *Nature*, 201:841, 1964.

The worms responded only to a sudden decrease in light intensity, not to a slow one. They reared up when a green light was removed, but not when a red one was removed.

This curious rearing behavior occurs only among members of the flatworm and may be in response to shadows cast by possible prey, Dr. Lenhoff suggested. He observed that the flatworms reared up to capture tiny crustacean larvae swimming above them.

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## METEOROLOGY

### Way Found to Detect Clear Air Turbulence

➤ A WAY TO TELL when a plane will encounter clear air turbulence, or "cat," has been found. Cat usually betrays its presence only by shaking up airplane passengers.

A change in surrounding air temperatures, measurable but too slight to read on the usual cockpit instruments, indicates an airplane is approaching a region of clear air turbulence, studies by Eastern Air Lines scientists have shown.

Eastern Air Lines is now developing a special instrument to be installed in jet cockpits that will visibly register the outside temperatures in fractional degrees. Warning lights will then flash to alert the pilot when certain limits in the tell-tale temperature changes are reached.

A portable prototype of the device, called "cat-spy," is being used on jet flights by flight meteorologist Paul W. Kadlec in follow-up studies conducted under contract with the U.S. Weather Bureau.

The project of stalking for "cat" was started in 1960 when the airline's chief meteorologist, J. J. George, concluded that two wind forces, one horizontal and the other vertical, had to be present to produce severe turbulence in clear air. The shearing effect of these opposing forces, he believed, produced the severity of turbulence encountered in upper air currents.

This turbulence reveals its presence by

a temperature change as little as two degrees Fahrenheit registered a minute or two before the cat is encountered. A temperature change of about five degrees during a six-minute period is another warning signal.

Both of these signals give the pilot one minute, or ten miles at the speed of modern jets, to maneuver before entering the turbulent region. Today's jets can withstand forces far beyond those registered during clear air turbulence.

There is no reliable evidence to show that cat has caused any jet airliner accident.

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## SURGERY

### Progress in Organ Transplants Indicated

➤ A GIANT STEP forward in the rapidly growing surgical art of transplanting human organs is seen in the transplant of a hand and forearm from a recently dead man in Guayaquil, Ecuador.

Ten days after the operation, a 28-year-old sailor was still making good progress, although four days was the limit for a Hartford, Conn., man before amputation was necessary for his own transplanted left hand.

Circulation inadequacy and blood clots caused the loss of Wilfred Chabotte's transplanted hand, even though he had claimed some feeling in it a day after it was sewn back on at Hartford Hospital.

Better luck for 12-year-old Everett Knowles was reported at Massachusetts General Hospital, Boston, who in May 1962 had his own arm replaced at the shoulder socket after a freight train crushed it loose against a concrete abutment. Everett's youth as well as the skill of his physicians probably kept the replaced arm functioning.

The sailor's transplant was done by Dr. Roberto Gilbert, chief surgeon at the Guayaquil Clinic in Ecuador, Feb. 13. He had lost his right hand in an accident.

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## CHEMISTRY

### Special Dust in Houses 'Dries Up' Insect Pests

➤ BLOW A CERTAIN type of dust into the walls and floors of buildings under construction, and insects will be parched to death.

Almost indefinite protection can be obtained when structures are treated with a dust called "fluoridated silica aerogel," Dr. Walter Ebeling, division of agricultural sciences at the University of California, Riverside, has determined through research.

Termites, cockroaches, silverfish, fleas, bed bugs and many other insects bugging modern civilization are literally "dried to death" by this new powder, which removes the protective wax on their bodies and causes death through evaporation of body water.

Tested for five years, the silica aerogel will be used in two major building projects now under construction in California, a Ventura apartment house and a science building on the University of California's Irvine campus.

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## GEOPHYSICS

### Two Rings of Tiny Particles Surround Earth

➤ TWO BANDS of tiny particles surrounding the earth have been found by using intense bursts of concentrated light from a laser.

Drs. G. Fiocco and L. D. Smullin of Massachusetts Institute of Technology, Cambridge, Mass., shot the laser light beam high into the atmosphere through a three-inch telescope. The reflected light, caught with a 12-inch telescope, showed the two belts.

One band is about 50 miles high, the other about 72 miles above the earth's surface. The lower level is that of noctilucent clouds, which are faintly luminous, fast-moving clouds that can be observed at twilight from high latitudes.

The band at the 72-mile level is believed to be in the region where incoming meteorites tend to break up.

The ruby laser used in the experiment produced a beam that lasted 50-billionths of a second, it was reported in *Sky and Telescope*.

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## BIOCHEMISTRY

### Growth Hormone Factor In Weight Control

➤ THE HORMONE that stimulates growth in children may also control weight in adults.

Dr. Josiah Brown, University of California, Los Angeles, Medical School endocrinologist, has studied the role in adults of the growth hormone, which is secreted by the pituitary "master" gland.

He has demonstrated that this hormone not only helps mobilize fats from the stores of fatty tissues but also appears to have an important part in their utilization in our energy processes.

For many years the only known role of the growth hormone was in the growth process in childhood and adolescence. Dwarfism is the result of a lack of the growth hormone.

It was known that the adult pituitary gland normally continued to produce the hormone, but its purpose in the adult was not known. In recent years Dr. Brown and others have shown that during starvation the hormone helps to pull fat out of storage depots in the body.

More recently he has obtained evidence that the hormone is involved in the "burning" of these stored fats as fuel for energy.

When we stop eating, this is a signal for the pituitary gland to release the growth hormone for its fat mobilization and utilization job. When we resume eating, secretion of the hormone ceases.

From this evidence it appears that growth hormone could be valuable in weight control. However, the supply is so limited it is not practical for this purpose. What little is available is needed to treat the more important problem of dwarfism.

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