

Earthquake Information Center Established

➤ A National Earthquake Information Center has been established by the Environmental Science Services Administration to quickly inform the American public of sizable earthquakes anywhere in the world.

The National Earthquake Early Reporting System became operational on Aug. 15, after several weeks of exhaustive tests.

It is located in the headquarters of ESSA's Coast and Geodetic Survey in Rockville, Md., and the early reporting system will receive and issue reports from that site.

Earthquakes of medium magnitude (6.5 on the Richter Scale) or larger will be reported by the ESSA Center, as quickly as their indications are received and analyzed, to news services and to government agencies with public-safety responsibilities.

Global facilities of the Coast and Geodetic Survey will be used to provide the information. Among the Survey's observatories to be employed in the Early Reporting System are installations in Guam, Hawaii, Alaska, California, Arizona, Washington and in the Antarctica.

TECHNOLOGY

Grand Coulee Dam to Be Monitored by Computer

➤ A "WATCHDOG" computer system is expected to save more than \$600,000 a year by watching over the largest hydroelectric power facility in the United States.

The automated system will monitor and record data at Grand Coulee Dam, including generators, switchyards and giant 65,000-horsepower pumps that lift water up into a reservoir for canals irrigating a half-million acres of land.

Reportedly the first ever applied to an all-hydro power plant, the system will become fully operational by the end of September. The Interior Department's Bureau of Reclamation built and operates the dam on the Columbia River.

Grand Coulee, with 18 generators in two power plants at opposite ends of the dam's spillway, now has a rated capacity of almost two million kilowatts that is fed into the northwest power pool. A third power plant, authorized last June by Congress, will boost the dam's output to 5.6 million kilowatts.

Prior to the computer system's installation, highly trained clipboard-carrying operators had to carefully watch the operation of each of the 108,000-kilowatt capacity generators to insure that they were operating properly.

Surveillance still will be necessary, but operational data will be logged automatically on electric typewriters at stated intervals or whenever any of the hundreds of operating conditions exceed preset limits. Audio and visual alarms alert operators if the latter occurs.

The Honeywell system, located in the dam's left power plant, is programmed to sequence-monitor 420 relay and circuit breaker contacts 1,000 times every second and to scan 200 bearing temperatures and 30 oil pressures of generators and pumps every 15 seconds.

ASTRONOMY

Instrument Proposed For Measuring Stars

➤ AN INTERFEROMETER with two telescopes separated by three-fifths of a mile could be used to measure the size of stars and provide much astronomical information not otherwise available.

A proposal to investigate whether or not such a large instrument would operate satisfactorily was made by Dr. R. H. Miller of the University of Chicago.

Dr. Miller noted that the instrument would not only give astronomical information but could be used also to measure earthquake vibrations, tidal strains in the earth and the wandering of the earth's rotational pole.

Astronomical information would include, in addition to the size of stars, improved measurements of their distances. Information on the bizarre stellar objects known as quasars could also be garnered, showing definitely how far they are from earth.

A 20-foot version of such an instrument, a "Michelson stellar interferometer," was built and operated at Mt. Wilson Observatory in California about 40 years ago, but it could be used to measure only six stars because of its small size. These stars are all large, cool and relatively close to earth.

Modern technology, Dr. Miller pointed out, is now such that a really large instrument that would detect faint stars is possible. The interferometer would have to be built with sufficient precision so that it would be lined up accurately to within a few billionths of an inch over a distance of more than half a mile.

Such an accuracy would have been impossible until recently, and would even now require "several major extensions to existing techniques." Nevertheless so much important information could be gathered using a large interferometer that the possibility of building the instrument should be tested now, Dr. Miller said in *Science*, 153: 581, 1966.

If the instrument operated successfully on earth, another could be built on the moon after man has established living quarters there.

IN SCIENCE

PHYSIOLOGY

Monkey's Fear Emerges Weeks After Birth

➤ BABY MONKEYS cowering in their cages in fright have revealed something about the nervous system.

A photograph which sent the two-month old monkeys into paroxysms of fear did not bother them at all when they were younger.

The implication, said Dr. Gene P. Sackett of the University of Wisconsin's Primate Center in Madison, is that fear depends on some maturation of the nervous system. It is an inborn response, but does not emerge until some weeks after birth.

Dr. Sackett proved his point by raising rhesus monkeys in isolation. At no time did they have an opportunity to learn that another monkey with his teeth in a grimace, his ears flattened, and his hair on end could hurt them.

Nevertheless, when at two months of age, they saw a picture of just such an angry monkey projected on a wall, they curled up and rocked in fear. The picture itself could not have been the cause of fear, since the monkeys had been seeing slides from the time they were 12 days old.

Fear disappeared after three weeks to a month, said Dr. Sackett, when the monkeys learned the picture would not actually hurt them.

Dr. Sackett concluded there must be a "complex, built-in recognition system" for specific visual patterns—the grimace, flat ears and so forth—which matures some time after birth.

AGRICULTURE

Sunspots Affect Harvest And Also Farm Prices

➤ SUNSPOTS, known for playing havoc with radio transmissions, also affect farm prices a Russian scientist believes.

The harvest of agricultural produce, and thus farm product prices, depend on solar activity, according to V. A. Dolotov of the Central Soil Science Museum, Moscow.

Studying harvest charts of a number of crops, he discovered that once in 11 years there is a drop in the harvest, resulting in a rise in the price of farm produce. According to Mr. Dolotov, this decline is connected with the 11-year cycle of maximum sunspot activity.

The increased solar emissions "to some degree violate the photosynthesis in plants, unfavorably influencing their development," he reported.

ANIMAL PHYSIOLOGY

Diseased Fleas Brought To 'Bug' Rabbits

➤ AUSTRALIAN scientists will soon be bugging rabbits to death—they hope. Fleas have been imported from Spain by the Federal Government's Council for Scientific and Industrial Research Organization's division of animal genetics for a new attack on the resurging rabbit problem.

Scientists plan to use the fleas as carriers of the rabbit disease myxomatosis—if and when quarantine officials are satisfied that they will not endanger other animals. The Spanish fleas breed only on rabbits. They are a variant of the European rabbit flea, which has been the main spreader of myxomatosis in Europe.

The Spanish variety has been selected because it should adapt quickly to Australia's similar climatic conditions. Scientists believe the fleas should be more effective in spreading the disease than mosquitoes, which so far have been the chief carriers in Australia.

Whereas the mosquito-borne disease is spread only if there are mosquitoes in a rabbit-infested area, the fleas, according to Government scientists, would be always with the rabbits. They jump from rabbit to rabbit.

If introduced to a rabbit population already partly infected with myxomatosis the fleas should quickly spread disease through the whole population.

In the case of rabbits that have grown immune to some strains of myxomatosis, the fleas could be infected with more virulent strains and then introduced to do their damage.

SPACE

First Apollo Radio Link To Use New Satellite

➤ THE FIRST new link in the communications chain that will connect moon-bound Apollo astronauts with earth will operate through a satellite that has yet to go into orbit.

The Intelsat II satellite is scheduled to be locked into a synchronous orbit, hovering over the Atlantic Ocean, in October. The "link," a British-made communications station that includes a 42-foot dish antenna, is now en route to Ascension Island in the Atlantic, where it will begin preliminary operations by Sept. 21.

For the moon flight, the station will receive signals from the astronauts,

then pass them on via the satellite to a station in Andover, Maine, for transmission to the Goddard Space Flight Center in Maryland.

The new Ascension Island station has also been designed to work with other, not necessarily synchronous, satellites in other networks. For this reason it has automatic searching and tracking equipment.

In its role with Apollo, the aerial will be detecting signals with a power of only 0.0000000012 watts.

TECHNOLOGY

Pressure Smooths Glass Deep Down in Ocean

➤ THE HEAVY pressure of the deep sea can "heal the wounds" of spherical glass floats.

Scratches on glass normally cause the glass to fracture when tensions are applied. When scratched glass spheres were subjected to 15,000 pounds per square inch, however, the sharp edges of the scratches were compressed and the spheres were smoother than before. The test pressures were almost equivalent to those on the floor of the deepest ocean.

The laboratory tests were made on glass deep sea floats by engineers of Benthos, Inc. and the Corning Glass Company who believe glass will play an important role in ocean technology. Further investigations will determine the effect of scratches on the inside of the spheres.

MEDICINE

Hemorrhoids Removed Easily by Rubber Bands

➤ THE USE of rubber bands to remove hemorrhoids in a doctor's office could be a special advantage with the expected shortage of hospital beds for Medicare patients.

Dr. Eugene P. Salvati of Plainfield, N.J., told a meeting of the American Proctologic Society in Cleveland that 79% of the 490 patients he had treated were over 40 years of age and that it was to be expected that the hemorrhoid problem will become much greater in the future with more geriatric patients.

The rubber band method can often be used where surgery is too drastic and injections too temporary.

The originator of the method, Dr. Paul C. Blaisdell of Pasadena, Calif., reviewed 10 years of successful experience with the simplified technique in the American Journal of Proctology, official publication of the International Academy of Proctology.

Dr. James Barron of Detroit, Mich., has used the method on 150 patients since he improved the original technique.

MEDICINE

Cervical Cancer Tests Best in Doctor's Office

➤ THE DO-IT-YOURSELF method of taking cervical cancer tests and mailing material to doctors and laboratories is not as accurate as going to the physician's office for personal examination, the British Medical Journal, Aug. 6, 1966, reported.

Use of the Davis cytopipette for self-administered tests has been extensive in Denmark and in the United States, three Manchester, England, pathologists pointed out, but its advantage lies mainly in screening programs where expert gynecological examination facilities are not widely available.

When more than 900 women were tested with both the Davis pipette and a conventional smear test, the pipette successfully diagnosed only half as many malignant cells as did the smear test, half as many atypical cells and only 40% of the trichomonas. While the smear test revealed only 828 normal results, the pipette "passed" 862.

J. M. Muskett and A. K. Carter of the Cytology Laboratory, department of pathology, Christie Hospital and Holt Radium Institute, and Dr. O. G. Dodge, all of Manchester, reported a study of comparative methods.

ASTRONOMY

World Astronomers Checking 'Crazy' Quasar

➤ ASTRONOMERS around the world are checking up on a "crazy" quasar that has unexpectedly jumped 20 times in brightness during the last year.

Quasars are strange stellar-like objects sending radio and light radiation into space at a tremendous rate. Some scientists believe these bizarre objects are quite close to the Milky Way galaxy in which the sun and earth are located, while others are convinced they are the most distant sources known.

Dr. Allan R. Sandage of Mt. Wilson and Palomar Observatories, Pasadena, Calif., discovered that the quasar designated as 3C-446 is behaving in an unusual fashion and so alerted astronomers to keep an "eye" on it. Since last September, 3C-446 has brightened optically by 3.2 magnitudes, a 20-fold increase—twice as high as ever detected for a quasar.

This is equivalent to Polaris, the pole star, suddenly rivaling the brightness of Sirius, the dog star, most brilliant object in the sky except for the sun, moon and planets. Despite its large jump in luminosity, however, 3C-446 is still only 15th magnitude, too faint to be seen except through telescopes at least 30 inches in diameter.