

ARCHAEOLOGY

Prehistoric Water System Discovered in Colorado

► A PREHISTORIC water system of ditches and channels and a large reservoir have been discovered by archaeologists in the Mesa Verde National Park in the southwest corner of Colorado.

The ancient system was probably dug in 1150 A.D., nearly 350 years before America was discovered, Dr. John M. Corbett, chief archaeologist of the National Park Service, said. He called the find "prehistoric" because it predates the recorded history of America. The system indicates the pre-Columbus Anasazi Indians, or "The Ancient People" of the Pueblo and Hopi Indians, had a much better knowledge of hydrology than previously believed, Dr. Corbett said.

The find was made by park archaeologists during a survey for the proposed campground on Navajo Hill. A five-channel network gathered the water from an area 2,400 feet long and 300 feet wide on the top of the hill. These ditches collected the water and channeled it to a collecting basin. From there, a channel was traced to Mummy Lake, a reservoir surrounded by 16 excavated pueblos or ancient homes.

Surplus water must have been released into still another ditch and channeled farther down the slope to the pueblos below, Dr. Corbett explained. As today, the West was short of water most of the year.

• Science News Letter, 82:120 August 25, 1962

PSYCHOLOGY

Blind People Use Sound Echoes Like Bats

► SKILLFUL blind people can rival the bat and porpoise and detect obstacles by bouncing echoes off them by a method like the war-developed sonar and echo ranging.

Experiments by Dr. Winthrop N. Kellogg, professor of experimental psychology at Florida State University, Tallahassee, showed that, even without the thumping of a cane or other special aid, blind persons can spot "by ear" things that should be avoided.

To perform this human sonar, blind and blindfolded "controls" talk, sing, whistle, hiss, snap fingers, click tongues or make other noises they find most useful in judging both kind and distance of objects from which the echoes are bounced.

Metal, wood, denim cloth, and velvet "sounded different." They could be distinguished. Metal and glass could not be told apart, nor could unpainted and painted wood because they were of the same density.

The ability to tell the distance of an object was better than discrimination between objects of different sizes at the same distance.

Prof. Kellogg used sighted people blindfolded as well as the blind in his tests. The blindfolded seeing persons learned with practice to rival the blind. One of his blinded individuals could perceive a movement of four and one-third inches of a one-foot disc placed two feet in front of him.

Denim cloth and velvet surprisingly could be differentiated 86.5% of the time.

As long ago as 1793 Spallanzani discovered that bats determine distance by listening to echoes of their rapidly repeated cries. In the last decade it was determined that the bottlenose dolphin or porpoise navigates in the ocean by emitting trains of underwater sonic pulses.

Prof. Kellogg reports his experiments in the journal *Science*, 137:399, 1962.

• Science News Letter, 82:120 August 25, 1962

PUBLIC HEALTH

Hepatitis Epidemic Due To Poor Sanitation

► AN ENGLISH village primary school's lack of sanitation was blamed for 61 cases of infectious hepatitis. One death, of a young mother, was reported.

The doctors reporting the epidemic in Bourne End, Bucks, England, said they believed many more cases had occurred, but since the disease was not reported there was no way of knowing. They advised some method of notification.

One food handler and an estimated 31 children in the school, which had inadequate toilet facilities, were blamed with spreading the disease to families and the community.

Dr. K. T. Flanagan, a general practitioner of Bourne End, and Dr. John Lister, consultant physician, Windsor Group of Hospitals, reported the epidemic in the *British Medical Journal*, Aug. 11, 1962.

The U. S. Public Health Service announced in Washington that 35,317 cases of viral hepatitis have been reported in the U. S. so far this year. This is 27% below the comparable period for 1961 but still represents the second highest year of recorded hepatitis in the U. S. Hepatitis is a "notifiable" disease in this country. Every case should be reported to the local health department.

• Science News Letter, 82:120 August 25, 1962

GERONTOLOGY

Two-Thirds of Elderly Have Health Problems

► ABOUT TWO-THIRDS of the men and women 65 and older have health problems.

The finding was announced by Cornell University's Prof. Glenn H. Beyer, director of the Center for Housing and Environmental Studies, following research in central New York, Chicago, St. Louis and Los Angeles among aged pensioners not living in institutions. Arthritis and rheumatism were most common ailments. The survey also showed that 45% of the elderly people in the U.S. need better living accommodations than now available.

There were 16,560,000 persons 65 years of age and older in the U.S. in 1960 (nine percent of the total population). This represents a 35% increase since 1950, or about 1,000 a day. Prof. Beyer predicted that the figure will swell to 20,000,000 by 1970 and to 24,000,000 by 1980.

• Science News Letter, 82:120 August 25, 1962

IN SCIENCE

PSYCHOLOGY

Nerve-Jangling Sounds Under Study for Alarm

► WAR WARNING systems could be a combination of loud, jangling sounds like animal calls or the hissing "white noise" of a pants presser, a professor of speech at Michigan State University believes.

What noises would be best for alarming people in case of an attack? Dr. Herbert J. Oyer intends to find out with the help of a \$42,780 grant from the Office of Civil Defense.

The sound, Dr. Oyer explained, must be disturbing, not something which would be confused with a telephone or fire engine. It ought to wake a person from a sound sleep or startle him in a noisy factory.

The speech professor pointed out that pitch and intensity can be regulated to produce any sound, natural or unnatural. Sound waves can be clipped off and regulated in other unusual ways.

"We can do all kinds of things with sound," the professor said, "but what is ultimately the best warning signal remains to be determined."

• Science News Letter, 82:120 August 25, 1962

TECHNOLOGY

X-Ray Locates Potential Trouble in Rocket Motors

► THE BIGGEST industrial X-ray machine in southern California began operation recently.

A new 25-million electron volt betatron built by Lockheed Propulsion Co., Redlands, Calif., is housed in a massive new building at the firm's Potrero facility near Beaumont. It gives the company an unsurpassed tool for locating potential trouble spots in huge solid propellant rocket motors.

Operating at nearly 100 times the power used for a human chest X-ray, the equipment detects flaws deep inside these giant space boosters which, like hidden diseases in man, can sap their strength and destroy them.

The high-energy X-ray equipment is also available for performing non-destructive test services for other companies and military and Governmental agencies.

The betatron can X-ray through eight inches of steel with only a 90-second exposure. Older techniques would require a two-day exposure.

The test unit's ability to penetrate 20-inch thicknesses of steel, and much greater thicknesses of other dense materials, equips it to inspect a wide variety of industrial materials ranging from huge weldments to castings, forgings, and nuclear reactor components, Lockheed stated.

• Science News Letter, 82:120 August 25, 1962

E FIELDS

DENTISTRY

Dish-Shaped Profile Corrected by Surgery

➤ A DISH-SHAPED profile can now be safely corrected by surgery on either side of the lower jawbone.

Braces on the teeth when the facial skeleton is still developing can also improve this type of deformity, Dr. Kurt H. Thoma, professor of oral surgery, Boston University, says in the American Dental Association's journal.

The condition in which the middle section of the face is underdeveloped is called "false prognathism." True prognathism exists when there is abnormal projection of one or both jaws.

In false prognathism the nose is often saddle-shaped or the upper lip may be short while the lower lip projects. Most patients with cleft palate have this abnormality.

An old type of surgery endangered the facial nerves because the jawbone was cut at the front end. Dr. Thoma's procedure involves cutting completely through the ascending portions of the lower jawbone on each side, and moving back the front portion of the jaw. Holes are drilled through the bones and wires are inserted to hold the bones firmly until they grow back together in the new position. No teeth have to be sacrificed, and the scar becomes invisible after a few months.

The report appears in the September issue of the *Journal of Oral Surgery, Anesthesia and Hospital Dental Service*.

• Science News Letter, 82:121 August 25, 1962

MEDICINE

Liver Cancer in Rats From Tropical Plant

➤ LIVER CANCER in rats has been caused by feeding them untreated seeds of the cycad, a tropical plant found in Guam and elsewhere. These seeds, after processing, are commonly used for human food in many parts of the world.

In Florida, ironically, the plant leaves make luxuriant funeral wreaths. The cycad also grows in Mexico, New Guinea, Santo Domingo and Australia, where a campaign for its destruction has been inaugurated because of its paralytic effect on cattle and sheep.

A study of cycad and other plants in Guam was begun by Dr. Leonard Kurland, chief of the Epidemiological Branch, National Institute of Neurological Diseases and Blindness, Bethesda, Md., to find out possible relationship to nerve-damaging diseases.

The high incidence in Guam of amyotrophic lateral sclerosis (ALS), the disease that killed Lou Gehrig, the famous American baseball player, pointed to the cycad, Dr. Marjorie C. Whiting, nutritionist at

NINDB, reported after repeated visits to Guam.

But Dr. Gert L. Lacqueur, chief, Laboratory of Experimental Pathology, National Institute of Arthritis and Metabolic Diseases, also discovered unexpected cancer-causing properties of cycad seeds when he fed them to rats. High doses caused acute liver damage causing death. Smaller doses produced cirrhosis, followed in a few instances by cancer of the liver with metastasis (spread) and in independent kidney tumors.

Collaborative work on the cycad is going on at a number of institutions, including the University of Wisconsin, the University of Hawaii and the University of New England, Armidale, New South Wales, Australia.

Botanists are interested in preserving the cycad plant, whose ancestor goes back to the Mesozoic era, 70 million to 230 million years ago.

• Science News Letter, 82:121 August 25, 1962

AGRONOMY

Faster Growth in Dark Green Corn Plants

➤ WHERE the dark green corn grows, there is faster growth, more weight and more chlorophyll. This has been determined by E. A. Oehlke and R. A. Andrew, agronomists of the University of Wisconsin, Madison.

As a result, chlorophyll content promises to become a desired quality in future corn breeding programs.

Chlorophyll is the pigment which causes green color in plants and is responsible for the plant's ability to use sunlight as a source of energy.

Corn light in color had the least chlorophyll. Some inbred corn lines have a light striping or a dotting of lighter spots on the green leaf, and these also have less chlorophyll than inbreds with dark green leaves.

The findings hold true only for the darkest and lightest greens in corn, and a plant with just a little more chlorophyll than another would not necessarily grow a little faster or weigh a little more.

• Science News Letter, 82:121 August 25, 1962

ENTOMOLOGY

Separation of Sexes; No Moth Togetherness

➤ OPPOSITE sexes seem to shun each other in the tiny night world of moths, a Canadian entomologist has claimed in Ottawa, Canada.

After several years of following the night habits of species of moths, Dr. D. K. Edwards of the Forest Entomology and Pathology Laboratory, Victoria, B.C., has published his findings in the *Canadian Journal of Zoology*, 40:511, 1962, that males and females have different activity peaks.

Female moths, he says, actively fly about early in the night while the males reach their peak just before sunrise, after the females have stopped flying.

Could it be that the female gets tired of chasing about looking for her elusive mate?

• Science News Letter, 82:121 August 25, 1962

ENTOMOLOGY

Mosquito Repellent Takes Breath Away

➤ TO WARD OFF pesky mosquitoes, don't breathe!

This method may be a bit too drastic for the average outdoorsman, but it will keep off those buzzing pests, Drs. R. H. Wright and F. E. Kellogg of the British Columbia Research Council, Vancouver, reported in *Nature*, 195:404, 1962.

In experiments, human breath added to an air stream passing by warm, wet dummies caused female mosquitoes to be attracted 16 times more than cold, wet targets and 51 times more than warm, dry targets. Without the breath, the mosquitoes remained fairly inactive.

The scientists found that currents formed by breath and body heat drew the blood-sucking insects to the target. Testing with repellents, they found that some of the most popular brands interfere in some way with detecting these currents. The reason remains a mystery.

• Science News Letter, 82:121 August 25, 1962

TECHNOLOGY

USSR Three Years Behind In Electronic Computers

➤ RUSSIA is at least three years behind the United States in electronic computers, Dr. J. Presper Eckert, of Sperry Rand Corporation, one of the team that made the first big American computer (ENIAC) in 1946, told the Northwest Computing Association Conference in Seattle.

Two years ago the Russians were five years behind, but Dr. Eckert does not believe the Russians will catch up further because their recent progress is based largely on the information obtained from the non-secret publication of computer details in the USA.

While there are only 600 to 800 electronic computers in the USSR, there are 10,000 at work in the USA, half of them capable of the big complex jobs. The Russian machines can deal only with more restricted and generally simpler problems.

Dr. Eckert finds that no significant computer invention can be attributed to the Russians, and that in data processing their lag is greater than three years.

Due to the lack of computers and the fact that only 10% of Russia's clerical work is mechanized, the amount of paper work in Russia is increasing so fast that by 1981, according to an estimation, all the population will be needed to perform administrative functions.

In the United States on the other hand, the computer has stemmed the rise in paper work. In 1950 40% of the labor force was clerical; by 1960 it had increased further by 11%, but in 1961 the increase was stopped and there was no increase in the percentage of people required to keep track of what other people are doing. Dr. Eckert said superior computers sophisticatedly used will free more to do meaningful work in the future.

• Science News Letter, 82:121 August 25, 1962