ORNITHOLOGY

High-Flying Bird Greeted Mt. Everest Conquerors

➤ THE CONQUERORS of Mount Everest, Sir Edmund Hillary and Tensing Norkay, had company near the crest of the mighty mountain—they saw an unidentified bird flying at a height of more than 27,000 feet.

This is something short of the record height at which birds have been seen flying, however. A flock of geese that were photographed near Dehra Dun, India, at 29,000 feet, are the high altitude champions so far.

The leader of the successful Mount Everest expedition, Sir John Hunt, reported that he saw two birds near their camp at about 26,000 feet altitude.

During a 1921 assault on Everest, Dr. A. F. R. Wollaston reported seeing a giant vulture, the lammergeier, at 24,000 to 25,000 feet altitude.

Other records: Godwits and curlews, 20,000 feet; Andean condor, over 19,000 feet; yellow-legs, black-bellied plovers and sand pipers, 10,000 to 12,000 feet; pelicans, ducks, geese and cranes, 3,000 to 8,000 feet.

Science News Letter, August 29, 1953

MEDICINE

Advise Late Testing In Nonparalytic Polio

➤ MUSCLE WEAKNESS may show up in more than a third of patients with nonparalytic polio quite some time after they have been discharged from the hospital with no sign of such weakness, Dr. Eugene Moskowitz of Mount Vernon, N. Y., and Dr. Lawrence I. Kaplan of New York City report in the *Journal of the American Medical Association* (Aug. 15).

Their findings were made in follow-up examinations of patients who had been treated at Grasslands Hospital, Valhalla, N. Y., and who were discharged from the hospital during the period 1947 to 1951.

The reason such muscle weakness is not detected before they leave the hospital, they explain, is that while at the hospital the patients, even if up out of bed, are not performing their normal daily play or job activities. Consequently, in the hospital there is no chance to determine whether a child's leg muscles will get weak and tired after two or three hours of active play, or a policeman's after an eight-hour shift.

A "surprising number," 42.7% of the patients, complained of getting tired more easily and many were irritable and easily upset, even to the point of stuttering. But the muscle weakness was not extensive enough in any of the 75 patients examined to interfere appreciably with their normal activities.

The diagnosis of nonparalytic poliomyelitis should be made only following complete muscle testing after the patient has resumed normal activity, the doctors advise.

If the patient is free of spasm and has had multiple screenings for muscle weakness, his stay in the hospital, in the average case, can be "significantly" reduced, they think.

Being allowed out of bed early has no bad effect on the nonparalytic polio patient's eventual functional recovery, if he does not have muscle spasm, breathing difficulty or fever.

Science News Letter, August 29, 1953

MEDICINE

Active Stomach Ulcer Is Bar to Air Travel

➤ THE VAST majority of sick people can travel by air, but there are some exceptions. These are reported by Dr. Sidney Kreinin of Swedish Hospital, Brooklyn, N. Y., in *GP*, the magazine of the American Academy of General Practice, as follows:

Patients with severe anemia, lung or chest difficulties, serious heart trouble, asthma patients subject to frequent attacks or during an acute attack, those with nose and throat and sinus infections, persons with stricture of the Eustachian tube between the ear and the throat, and those with active stomach ulcer.

The last are warned against flying because, as one ascends, gas in the stomach and intestine expands. Stomach ulcers might perforate under the stress of the rapidly expanding gas.

Babies travel well by air and seem less susceptible to air sickness than grown-ups, Dr. Kreinin states. He believes there is no reason women may not fly during pregnancy up to the last month before the baby is to be born.

Science News Letter, August 29, 1953

INVENTION

Antivesicant Chemicals Protection for Troops

➤ A MARYLAND inventor has developed new chemicals to combat the hazards of mustard gas and other vesicants. Jonathan W. Williams of Hyattsville reports that the chemicals can be impregnated in protective clothing for troops that must enter a contaminated area.

As vesicant fumes work inside the suit with the air that cools the soldier's body, the chemicals effectively neutralize the vesicant so that the soldier is not burned.

Such antivesicant chemicals must not be harmful to the skin, and they should be stable to oxygen, water and sunlight. They must cause little or no increase in flammability or deterioration of the cloth and they must withstand laundering.

Although many compounds containing reactive chlorine meet some of these specifications, Mr. Williams says his chemicals, described as tetrachloro disubstituted glycolurils, do a better all-around job. His patent is No. 2,649,389.

Science News Letter, August 29, 1953

IN SCIEN

CHEMISTRY

Zirconium Dioxide Stabilized for Jets

➤ SCIENTISTS HAVE learned to stabilize a white powder that may make better jet engines and rockets possible in the future.

The powder is zirconium dioxide, a material whose crystals frequently change when attacked by heat. Changes in the crystals often cause a structural failure of the material.

By using special additives, ceramic research scientists at the Air Force's Wright Air Development Center, Dayton, Ohio, have been able to produce zirconium dioxide that can withstand heat up to 4,000 degrees Fahrenheit.

This may make possible better combustion-chamber liners for ram jet and rocket engines, as well as better engine nozzles. These parts are subjected to searing heat in rocket and jet engines. The powder also may be used in turbine blading some day.

The stabilization process can be done at lower temperatures than heretofore known. The technique should permit workers to use new fabrication methods that will help cut manufacturing costs.

Science News Letter, August 29, 1953

MEDICINE

New Technique Provides Better X-Ray of Spine

➤ A NEW X-ray technique to locate slipped disks, spinal cancers and other ailments of the back has been developed by West Los Angeles Veterans Administration and University of California at Los Angeles doctors.

It is faster and less irritating to the patient than conventional X-ray methods.

This is how it works: Radioactive iodinated human serum albumin is injected into the spine. A sensitive radiation detector known as a scintillation counter traces the radioactive substance through the spinal column, activating an electronic stylus which makes a sketch of the spine.

The iodinated human serum albumin is harmless in contrast to the irritation often caused by iodized oils used in spinal X-rays. Discomfort to the patient is reduced since the albumin does not have to be removed from the spine as does the oil.

The area being examined is visible during the procedure so that if a technical error should occur, it is evident immediately. In taking an X-ray, the error is only apparent after film has been developed.

The new technique was developed by Drs. Franz K. Bauer and Eric T. Yuhl.

Science News Letter, August 29, 1953

CE FIELDS

TECHNOLOGY

Human Hearts Studied With 3-D Apparatus

➤ WHILE COMMERCIAL moving picture producers were working to perfect 3-D, medical men at the University of Mississippi have been using 3-D to study the human heart.

For the past three years, Dr. Arthur C. Guyton, chairman of the department of physiology and biophysics, and his associate, Jack Crowell, have been operating a 3-D apparatus called the "stereovectorcardiograph." Use of the electrocardiograph with uniplane recordings has been common for many years, but making of three-dimensional vectorcardiograms is something new. The only other 3-D device similar to this is that used by Dr. O. H. Schmitt at the Mayo Clinic.

The stereovectorcardiograph, designed in the University of Mississippi laboratory, utilizes a five-inch, cathode-ray tube which has two separate beams. One of these plays on the left side of the screen; the other on the right. It is so simplified that clinicians can make stereovectorcardiograms which depict three-dimensional vectorcardiograms almost as easily as they now make recordings on a single plane.

They obtain the third-dimensional effect either by direct observation of the images on the oscillograph screen or by photographing the images first. Using a Polaroid-Land camera, Dr. Guyton can develop and make positive prints in a minute's time.

Science News Letter, August 29, 1953

ECOLOGY

Just Trace of Chemical Multiplies Sheep to Acre

➤ AUSTRALIAN SOIL experts have come up with a way to graze from two to 40 times as many sheep per acre as are presently grazed in certain areas with good rainfall in Australia. In some cases this can be done simply by adding up to an ounce of molybdenum to each acre of pasture.

This discovery means that millions of acres of now almost unutilized Australian territory will be open to agricultural exploitation. A. F. Gurnett-Smith, agricultural adviser to the Australian Scientific Liaison Office in Washington, explained that this is the result of study of the role of "trace elements" in the soil—minute quantities of, for instance, zinc, copper, sulfur and molybdenum.

The lack of certain of these trace elements causes land to be unproductive, as has been known to agriculturalists a long time. Australia, with her soils worn out in many places by geologic old age, offered ample grounds for pioneering in trace-elements research. In the U. S., by contrast, it has turned out that most of the soil does not require the addition of molybdenum or even other trace elements, since it already contains the necessary amounts.

Some 340,000,000 acres of unimproved land, Dr. J. Griffiths Davies, associate chief of Australia's Division of Plant Industry, Melbourne, estimates, can be converted, wherever the Australian climate permits, into lush grazing ground.

Having found, after some 15 years of research, which elements and how much of each are needed for different soils, the Australians now know that in the Southern Tablelands of New South Wales, for instance, small amounts of phosphorus, sulfur, calcium and molybdenum will enable some millions of acres to feed three sheep per acre. This contrasts to the previous ratio of one sheep to two acres.

In the southeast of South Australia, the addition of superphosphate, copper and zinc, it is found, changes the ratio from one sheep to 20 acres to two sheep per acre.

Such remarkable changes are forecast for areas where the rainfall is adequate. In the great deserts of central Australia, extreme aridity continues to defy agricultural development.

Science News Letter, August 29, 1953

SEISMOLOGY

Aftershocks Come When Earth Creeps Back

➤ AFTERSHOCKS THAT follow earthquakes, such as those which hit the Ionian Islands off Greece, are caused by the earth creeping back into place after the "snap" of the quake.

After a tremor, the earth is something like a stretched plastic belt crawling back to a stable state again.

The "snap" of a quake may not come until years after the stresses and strains that cause it have started to build up. During this time, warping occurs. Then after the release of these tensions by the sudden shock of an earthquake, the earth slowly creeps back into approximately the state it had been prior to the quake. This creeping, which brings the aftershocks, may continue for many months after a quake.

Although the explanation of why we have earthquakes is relatively simple, predicting when and where they will strike cannot be done with any accuracy.

The solid rocky crust of the earth is always in a state of strain and is acted upon by shifting forces. When the rocks shift a little to relieve the strain, they cause an earthquake. The waves set up by this earthquake in the rocky material of the earth's crust spread out like ripples from a stone in a pond, and are detected on delicately balanced seismographs half way round the world.

Science News Letter, August 29, 1953

GEOCHEMISTRY

Lead Shows Earth Age 3,500,000,000 Years

➤ A CHEMICAL closely related to the tetraethyl lead in high-test gasoline has been used by scientists to show the age of the earth's crust as 3,500,000,000 years. They have also found that the earliest time at which all the elements could have been formed was 5,500,000,000 years ago.

Lead tetramethyl was the chemical with which Drs. C. B. Collins, R. D. Russell and R. M. Farquhar of the University of Toronto worked. The lead for this compound came from especially selected uranium minerals, they report in the *Canadian Journal of Physics* (March).

All uranium and thorium minerals are radioactive, and decay over a long period of time to lead. This "radiogenic" lead looks and reacts like ordinary lead, and is found mixed with ordinary lead in minerals.

It is, however, an isotope of ordinary lead. Since it results from the radioactive decay of uranium and thorium minerals, the amount of the isotope is an indicator of the mineral's age.

To detect the amount of radiogenic lead in minerals, the three Canadian scientists made it into lead tetramethyl, then analyzed the compound in a mass spectrograph. They did this for many samples from all over the world to get the time of formation of the earth's crust and the maximum time of formation of the elements.

Science News Letter, August 29, 1953

INVENTION

Remote Control Bombing Done With Glider and TV

➤ U. S. AIR Force pilots now can foist "suicide" bombing upon any enemy without having to sacrifice their lives.

An "apparatus for remote control bombing," patented by Delmer S. Fahrney of the U. S. Navy, permits death-laden gliders to be towed near the target, released and guided by remote control to the bull's eye.

The scheme permits fighter planes to carry out bombing missions by towing small suicide bombers to the enemy. When in range, the pilot cuts the glider free. A television camera nestled in the glider's nose flashes pictures to the fighter pilot showing what is ahead of the glider. By watching his tiny TV screen, the pilot can guide the glider to an enemy ship or ammunition dump by radio control.

The fighter pilot can trigger the glider's bomb load by remote control, or he can leave the detonation up to an impact switch built into the glider.

The remote control bombing system was granted patent No. 2,649,262 under Section 266 of the Patent Laws, which permits the government to use the invention without payment of royalties to the inventor.

Science News Letter, August 29, 1953