SEISMOLOGY

Third Wave in Earth New Clue to Quakes

➤ A CLUE to the mystery of earthquakes is the discovery of the underground pathway of the "third wave."

This is the vibration that trails along after the two major waves of an earthquake. It travels in the layer of sediment that lies on the floor of the ocean just above bed rock, Dr. Don L. Leet, director of the Harvard Seismograph Station, finds.

He first observed this third or "T" wave in 1935 and has been tracking it down since then, aided by new, more sensitive instruments. When the earth's crust adjusts violently, there is an earthquake. Vibrations from the quake spread out in all directions and are recorded at seismological stations throughout the world when the quake is a strong one.

The first and second waves sweep through the earth at about five and three-and-a-half miles per second. The third wave tags along at slightly more than one mile per second. The layer of sediment through which this third wave travels is estimated to be 18,000 feet thick in some places under the Atlantic Ocean.

Science News Letter, February 3, 1951

NUTRITION

Vitamin C in Winter From Sweet Potatoes

➤ UNLESS the housewife guards against it, the family's meals in late winter and early spring may be skimpy in the amount of vitamin C they provide. This vitamin, also called the anti-scurvy vitamin and ascorbic acid, helps keep body tissues healthy. Many vegetables and fruits lose some of their vitamin C content during winter storage. Sweet potatoes, however, keep a high proportion of their vitamins during curing and storage. They lose some vitamin C during baking, but retain this rather perishable vitamin better than some foods throughout the cooking process.

One medium sized sweet potato, an average serving for most persons, gives at least one third of the vitamin C needed for the day, nutritionists of the U. S. Bureau of Human Nutrition and Home Economics report. Oranges and other citrus fruits are also excellent sources of this vitamin. If the meals for a day include a medium sweet potato and half a cup of citrus fruit, the entire day's need for vitamin C will be filled.

Sweet potatoes also supply vitamin A in abundant amounts. This vitamin is essential to the young for growth and at all ages helps keep the skin and the linings of nose, mouth and inner organs in good condition. It plays a part in maintaining normal vision, especially in dim light.

Besides sweet potatoes and citrus fruits, you can get vitamin C from tomatoes, fresh green cabbage and other fresh greens. Milk contains the vitamin in appreciable amounts. One quart would supply almost half the minimum amount required for the day and somewhere between a fourth and a fifth of the recommended daily allowance.

Science News Letter, February 3, 1951

INVENTION

New Plastic Insole Prevents Frostbite

➤ LESS danger from frostbite for soldiers in such winter climates as experienced in Korea is promised with a new plastic insole which provides an air space between sock and shoe sole and, being non-absorbent, drains off moisture from perspiration instead of absorbing it.

The sole is even more valuable in tropical climates. By carrying perspiration away from the feet, it is an aid in controlling such trouble as athlete's foot and others caused by germs and spores of fungus which work through the shoe.

In fact, it is valuable in all climates. It keeps the moisture that gets into the shoe while walking on wet streets away from the foot. It keeps the sock dry from perspiration, keeping them cleaner so that they can be worn for longer periods.

This sole is a removable type. It is made of several layers of woven plastic fibers, each layer forming a mesh like in window screens. Top and bottom layers are of a finer weave than the interior layer. After being cut to proper size and shape, the layers are fused together around the outer edges.

This so-called laminated plastic insole was awarded a patent by the U. S. Government in 1950. It is the invention of Prof. Earl Parker Hanson, University of Delaware, Newark, Del., and an Army man Robert L. Woodbury, Washington, D. C. It has been thoroughly tested by both American and British armed services.

Science News Letter, February 3, 1951

AERONAUTICS

Jet Engine Develops 14,000 Horsepower

➤ AIRPLANE jet propulsion takes a forward step with a new engine developed by Westinghouse in collaboration with the U. S. Navy. It is claimed to be the most powerful turbojet yet produced.

In spite of its high power, it uses less fuel per pound of thrust than its predecessor which now powers some of the nation's fastest planes. Its thrust is equivalent to 14,000 horsepower. With the use of an afterburner this can be greatly increased. It will be known as the J40. Its predecessor is the J34.

Science News Letter, February 3, 1951

IN SCIENC

DENDROLOGY

Dutch Elm Disease Found in Illinois

➤ THE FIRST case of the deadly Dutch elm disease striking a tree in Illinois has been discovered.

Drs. J. C. Carter and L. R. Tehon of the Illinois Natural History Survey Division found the diseased tree near Mattoon.

Spreading fast throughout the country, Dutch elm disease and the dreaded phloem necrosis disease of elm threaten America's elm trees with extinction. At present, high-pressure, high-saturation DDT spraying is the most potent weapon in the battle to save our elms from the insect-spread diseases.

Science News Letter, February 3, 1951

MEDICINE

Infant Disease Spread By Air-Borne Germ

➤ SCIENTISTS have put the finger on one more germ that causes diarrhea and vomiting in infants. Its name is E. coli D 433. Two of the new antibiotics, aureomycin and terramycin, bring prompt improvement to the small patients and prompt disappearance of the new germ.

E. coli D 433 was found by English scientists last year to be the culprit in several outbreaks of diarrhea and vomiting among infants. Now Drs. Erwin Neter and Clare N. Shumway of the Children's Hospital and University of Buffalo, N. Y., have found it causing sporadic, non-epidemic cases of diarrhea in infants.

Dramatic proof that this germ can cause diarrhea came from feeding it to a two-months old infant who had been born with multiple defects, including brain defects. This baby who had not previously harbored this particular germ in its bowel discharges or respiratory tract had diarrhea and lost seven ounces in weight within 24 hours after getting a dose of E. coli D 433. Terramycin promptly cleared up the infection.

The germ was also found in the throat of one child who had diarrhea and in the passage between nose and throat in two out of four of the babies. Previously Dr. Neter has found a food poisoning germ in the upper respiratory tract of babies and children with diarrheal disease. All this suggests that germs causing diarrhea may spread through the air and invade the body through the nose and throat like common cold germs. This may be one way in which babies, particularly in nurseries, get diarrhea.

Science News Letter, February 3, 1951

E FIELDS

ORNITHOLOGY

Game Birds Imported For Restocking Southwest

➤ THREE new types of wild game birds arrived in the U. S. by air. They will be tested for possible use in restocking the Southwest, from which native birds have mostly vanished.

Dr. Gardiner Bump, Interior Department biologist in charge of foreign game introductions, selected these three types as most promising for replenishing our depleted game bird supply during his just-completed seven-month tour of the Middle East.

Native to Iraq and Turkey, the 30 birds to be put on trial include the seesee, or sand, partridge, the black partridge and the houbara, or bustard, types. Another type of bird, the chukor partridge, whose Indian cousin is now thriving in Washington and Nevada, arrived in a previous shipment for the same introductory trials.

After 22 days in quarantine, a guard against the introduction of any disease, the birds will winter at game farms in the Southwest. There scientists will study their eating habits and learn more about how susceptible they are to disease. They will also make sure the birds carry no hidden diseases or parasites.

If the birds pass the tests successfully, they will then be set free at carefully selected places where the climate and vegetation closely duplicate their native environment. If these wild game birds prove adaptable, and it will take two or three years to know definitely, then large numbers of the birds can be imported.

Science News Letter, February 3, 1951

ENGINEERING

Lightning Rods Needed On Chemical Plants

➤ ADEQUATE lightning rods are an absolute must for petroleum refineries, chemical plants and other hazardous structures, the American Institute of Electrical Engineers was told by A. M. Opsahl and J. Z. Linsenmeyer, engineers of the Westinghouse Electric Corporation.

Research in the Middle Atlantic area shows that there are about 30 to 40 thunderstorm days per year, and about 10 lightning strokes for each square mile of sky area, they said.

Structures of appreciable height will attract strokes from an area about 3.5 times the height of the structure. On this basis, a building 100 feet square and 25 feet high, in level terrain, would be struck once every 40 years.

"While these figures are average and will be influenced by local conditions," Mr. Opsahl said, "a 55-foot mast in the middle of the building, or four masts each 15 feet high and placed 15 feet in from the corners will make the same building a likely target only once in 30,000 years, although the masts themselves might be struck once every 30 years."

Wood and masonry buildings are particularly susceptible to lightning damage because of resistance placed in the path of the bolt, he stated. The bolt will shatter these materials as it seeks metal objects coupled to the ground. Steel frame buildings, which can themselves act as lightning rods, should be equipped with lightning rods to protect the masonry covering the steel frames.

The large exposed steel structures of petroleum refineries can be considered self-protecting against lightning strokes if all joints are well bonded and the whole structure is well grounded, according to Mr. Linsenmeyer. However, if they do not have good contact with the earth, lightning currents may go through the pipes connected to the tanks and cause sparking at the joints.

Science News Letter, February 3, 1951

SURGERY

Nylon Handles Put On Surgeon's Chisels

➤ NYLON HANDLES on the bone surgeon's chisel and heavy steel mallet reduce the shock to the patient from hammer blows during operations, Dr. J. D. Farrington, assistant clinical professor of orthopedic surgery at the University of Illinois, told members of the American Academy of Orthopaedic Surgeons.

The nylon handles also eliminate the danger of sparks flying about the operating room when the instrument is struck with a metal mallet. Less noise and less glare reflected from the bright lights of the operating room are other advantages cited by Dr. Farrington from this new use of nylon.

Science News Letter, February 3, 1951

RESOURCES

Daily Water Need Over 1,000 Gallons Each

➤ ALTHOUGH the average person drinks less than half a gallon of liquid in a day, over a thousand gallons of water per capita daily in this country are needed, the American Geographical Society reports.

Much of this is used industrially. For example, it takes 65,000 gallons of water, weighing 270 tons, to process one ton of steel.

Science News Letter, February 3, 1951

SURGERY

Screw in Short Leg Makes It Grow to Match

➤ THE POLIO-SHORTENED leg of a child can be made to grow and catch up with its mate by putting one or two screws into the leg bone near its actively growing end.

Success with this method of making legs match each other was reported by Dr. Charles N. Pease of Chicago at the meeting of the American Academy of Orthodpaedic Surgeons in Chicago.

Dr. Pease's method is the opposite of one in use since 1933. That earlier method of matching legs consisted in slowing the growth of the longer leg by a surgical procedure known as epiphyseal arrest.

The screws in the bone in Dr. Pease's method causes an irritation which stimulates bone growth through increasing blood circulation. The screws may be of vitallium, stainless steel, brass, vanadium or ivory. The type of material seems to make little difference. The screws are left in the bone because they have never been found to do any harm.

In children about three years old the speed-up in growth of the short leg can be seen during the first three months after the operation. In older children it takes from four to six months before the growth change is noticeable. The speeded growth goes on for about two or three years and then gradually slows. The growth effect of the screws finally stops when they become firmly encased in fibrous tissue.

Among 10 children followed since 1939 is one boy who at the age of 10 had a shortening of one inch in one leg. After the insertion of the screws he gained a full inch in that leg. Within two years both legs were the same length and continued to grow equally.

The operation has been performed on children whose legs were shortened by congenital deformities as well as on polio patients.

Science News Letter, February 3, 1951

INVENTION

Machine Answers Telephone And Takes a Message

➤ AN IMPROVED attachment for the telephone in office or home, will automatically answer an incoming call in the absence of an attendant, and record any message the caller may want to leave. In addition, it can be used to record a two-way telephone conversation, and also a speech or sound apart from those transmitted over the telephone line.

Inventors are Assen Jordanoff and Norman Robin, New York City. Patent received was 2,539,139. Jordaphone Corporation, of the same city, has secured the patent rights by assignment.

Science News Letter, February 3, 1951