

GEOLOGY

Neutrons Used to Help Find Oil Deposits

➤ NEUTRONS, uncharged atomic particles that have figured in the search for atomic power, may now serve in the search for petroleum. A source of neutrons, consisting of a mixture of radium and beryllium, is lowered in an oil well followed by an ionization chamber which detects the radiations induced in the rocks by the neutron bombardment. The neutrons easily penetrate both metal and cement casings. The effects are amplified and carried by an electrical cable to the surface where a continuous record of them and the corresponding depths is made on a moving tape.

This is similar to electric and radioactive methods of "well-logging" already in use. But neutrons give direct evidence of the porosity of the rocks, that is, of their capability of bearing oil.

If a porous layer is discovered at a certain depth, the well owners can lower a perforating gun which will shoot holes through the casing and determine if oil is there. The new method is described by Bruno Pontecorvo, research physicist of Well Surveys, Inc., Tulsa, Okla., in *The Oil and Gas Journal*.

Science News Letter, October 3, 1942

RESOURCES

United Nations Will Gain 2,000,000 Board Feet Balsa

➤ TWO MILLION board feet of balsa wood, in addition to the quantity previously anticipated, will be available for warplanes and life-floats in 1943, the Office of War Information disclosed. A huge kiln for drying the precious lumber has been successfully delivered to Ecuador, where balsa timber is cut.

Kiln-drying of balsa is necessary because the wood rots unless dried immediately after harvesting, and Ecuador's long December-to-April rainy season prevents air-drying.

So vital is balsa to winning the war that a Combined Raw Materials Board, set up by the United Nations to keep war plants here and abroad supplied with materials, has requisitioned every ounce of the wood and allocated it to

war factories. This United Nations agency foresaw the need of the new kiln, to take care of the growing volume of Ecuadorian balsa production. An order went out for immediate shipment and the kiln is now safely delivered to its South American destination.

Lives of thousands of merchant seamen have been saved with balsa life-floats. Tons of aluminum have been freed for bombers and fighter planes through the use of the light, tough wood in trainers and cargo planes.

Search for additional stands of balsa timber goes on in uncharted jungles from Bolivia to the West Indies. Forestry experts, sent out by the Combined Board, are ploughing through Southern Hemisphere forests looking for harvestable sources.

Only half as heavy as cork, stronger pound for pound than spruce, the wood which once made toy airplanes is saving lives at sea, now, and carrying cargoes of weapons to United Nations fighting fronts. There will be no more model planes of balsa for the duration; model-makers will use other softwoods. Balsa is vital to winning the war.

Science News Letter, October 3, 1942

METALLURGY

New Electrical Method Quickly Detects Gold

➤ GOLD PRESENT in alloys or in thin electroplating can be detected in about one second and the test is sure-fire according to the scientists who devised it. They are J. A. Calamari, Robert Hubata, and P. B. Roth at the New York Medical Laboratory in Brooklyn, N. Y. The test is described in *Industrial and Engineering Chemistry*.

The method is electrical. A sample is connected to the positive pole of a battery, 6 to 9 volts, and three or four layers of filter paper which have been dipped in a solution of sodium nitrate-hydrogen peroxide are laid on top. A graphite rod connected to the negative pole is touched to the filter paper.

If gold is present a purple spot appears. From the intensity of the color the percentage of gold present can be estimated. Most other metals give no reaction, but chromium gives a blue spot, vanadium a red one and silver a black spot. The test is sure-fire for gold.

Science News Letter, October 3, 1942

IN SCIENCE

ORNITHOLOGY

Starlings May Carry Hoof-and-Mouth Disease

➤ STARLINGS are under suspicion as possible carriers of hoof-and-mouth disease, serious Old-World malady of cattle. Circumstances and statistics in support of this theory are offered in *Nature*, by Dr. W. S. Bullough of the University of Leeds.

Although British agricultural authorities, like the federal and state authorities in this country, have succeeded in stamping out each outbreak of hoof-and-mouth disease soon after its discovery, these outbreaks have been of rather frequent occurrence and undiscoverable origin.

It is now suggested that the virus is carried to England from the Continent, where the malady is always rife, by migrating starlings. Bird-banding has proved that starlings of the Continental strain, unlike the British variety, do migrate in winter from Scandinavian and other northwestern European lands to the British Isles. And the feeding habits of starlings bring them into close contact with cattle.

While the case against starlings has not been clinched, outbreaks correlate with most active migration.

Science News Letter, October 3, 1942

ENGINEERING

Unexploded Bombs Located at Kelly Field

➤ A STRANGE procession of three men was recently seen on Kelly Field. The man ahead wore earphones and carried a strange contraption in front of him. The two behind bore a litter on which were batteries and other electrical equipment. All three were intently looking at the ground. They were looking for unexploded bombs left buried since World War I. A demolition squad exploded the bomb.

Science News Letter, October 3, 1942

Every boy and girl in high school and every high school principal and teacher will be interested in the announcement upon the four special pages in the center of this issue. When you have finished reading these pages, lift them out and hand them to someone who will be able to arrange the formation of a science club in a local high school.

E FIELDS

PHYSICS—PSYCHOLOGY

Fluorescent Paint Is Best In the Darkest Blackouts

► OUTDOOR fluorescent markings may be useful on very black nights but at other times their usefulness is doubtful. So writes Dr. C. E. Barnett of the Research Division of the New Jersey Zinc Company in *Chemical and Engineering News*. By starlight, with the moon absent, a good quality of luminous paint may be usefully visible four hours after sundown. But at other times markings of white paint will be equally if not more efficacious, he writes. The claims of many manufacturers that their paint will glow for 48 hours after excitation are true enough, he says, but the feeble bluish-green light can only be seen by the dark adapted eye. And this adaptation is disturbed by any light greater than starlight.

Science News Letter, October 3, 1942

BACTERIOLOGY

Bacteria Found to Blame For Corrosion of Pipes

► BACTERIA HAVE been found responsible for corrosion of iron pipes carrying deep well waters in the Miami Valley, Ohio. These waters contained very little oxygen and practically no other corrosive substances that could be detected by the usual chemical test. Similar trouble with "red water" has been cleared up with chlorine treatment which killed the bacteria.

The investigation which led to this discovery was carried out by Dr. Arba H. Thomas, chief research chemist of the American Rolling Mill Co., of Middletown, Ohio.

The organism chiefly responsible, Dr. Thomas found, was *Coccobacillus*, an organism of the anaerobic type. This type requires no oxygen for its life processes. In fact oxygen is poison to it. This type reduces sulphates in the water and liberates hydrogen sulphide

which attacks the iron producing the black iron sulphide.

This kind of corrosion is therefore very different from that produced by electro-chemical action which results in the red oxide of iron or rust.

Other organisms, the so-called "iron-consuming" bacteria, were also found. These, *Crenothrix*, *Spirophyllum* and *Leptothrix*, do not actually devour metallic iron, Dr. Thomas said, but they do consume dissolved ferrous salts, converting them to the insoluble red ferric hydroxide or a similar substance, producing "red water."

By introducing oxygen into the water, it was found that the rate of corrosion decreased as the quantity of oxygen increased, just the opposite to what would have occurred if oxygen had been the cause.

These bacteria, Dr. Thomas said, have long been known to biologists, but their connection with corrosion was only recently suspected. They are not disease producing.

The remedy is to chlorinate the water, or where it is to be used for drinking purposes and the chlorine taste would be objectionable, the chlorine-ammonia or chloramine treatment can be used.

Science News Letter, October 3, 1942

MEDICINE

Flu Vaccine Promising For Epidemic Control

► HOPE of controlling, at least to some extent, future influenza epidemics that may add to the horrors of war appears in a report by Dr. Joseph Stokes, Jr., and Dr. Werner Henle, of the University of Pennsylvania Medical School (*Journal, American Medical Association*, Sept. 5.).

A vaccine, they report, protected 43 out of 44 boys who were directly exposed to influenza.

Of 28 unvaccinated boys who breathed this same influenza germ-laden vapor, 10 had attacks of influenza.

The vaccine that gave such striking protection might not be able to stop an epidemic of influenza, even if it were possible to vaccinate the entire population. The vaccine protects against influenza "A" but there are other types of influenza that occur in epidemics against which the vaccine could not give protection.

Science News Letter, October 3, 1942

ENGINEERING

Glass Yarn Is Spun For Bomber's Electric Wiring

See Front Cover

► DESPITE the old adage that those in glass houses should not throw stones, the big bombers that throw block busters use glass as an important part of their construction.

The photograph on the front cover of this week's SCIENCE NEWS LETTER shows some of the millions of miles of glass filament which are drawn from the forming tubes and twisted into yarn that later will be braided over flame-proof electric wire for use in bombers. Each strand coming from each tube contains over 200 tiny glass filaments.

The illustration is an official photograph of the Office of War Information.

Science News Letter, October 3, 1942

MEDICINE

AMA Cancels Next Year's Annual Convention

► THE AMERICAN Medical Association convention scheduled for San Francisco in 1943 has been cancelled, it is announced in the Association's *Journal*. Reasons for this action are the tremendous demands on the medical profession made by the war and the strain on the nation's transportation facilities that would be imposed by this meeting of 6,000 to 10,000 doctors plus more thousands from related professions, most of whom would have to travel long distances to the scheduled convention city.

This is the third time in the 93-year history of the association that its annual session has been cancelled. The first was in 1861 when the session was postponed for a year because of the outbreak of the war between the states and the second in 1862 when the session was again postponed for a year because of the demands that war was making on the medical profession.

The association's house of delegates, board of trustees, scientific councils and officials will meet in Chicago in June, 1943, "to consider the many significant problems of the medical profession occasioned by the war, particularly such as concern the provision and distribution of physicians and the provision of medical service."

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