

AERONAUTICS

Engine Trouble Analyzer To Make Flying Safer

➤ SAFER FLYING is promised by a new engine trouble analyzer that enables the flight engineer during flight to locate improper operation that might cause engine stoppage so that repairs can be made on landing.

The 90-pound device, installed in transports, detects operating difficulties in the ignition system, fuel injection system, and hydraulic or electrical accessories. It also detects lack of magneto or engine synchronization, engine roughness, and even makes a vibration analysis of combustion, detonation, and valves and fuel injection seating in a selected cylinder.

This new engine trouble analyzer was revealed to the Society of Automotive Engineers by John Lindberg, of Pan American Airways, N. Y., and Clifford Sackett of the Lindberg Instrument Company, Piedmont, Calif. They described it as a graphical indicator employing electronic methods to create graphs of magneto primary voltage and of cylinder vibration pickup voltage, also of engine timing degrees. It is sensitive enough to locate a fouled sparkplug.

Science News Letter, January 18, 1947

SEISMOLOGY

Dam Reservoir Creates Man-Made Earthquakes

➤ MAN-MADE earthquakes, more than 4,000 small tremors, have been recorded at Lake Mead, the giant reservoir created by Boulder Dam on the Colorado River. Caused by the adjustment of the earth's surface to the weight of 40,000,000,000 tons of water in the lake, the quakes are so slight that only a few could be felt by human beings.

As recorded on seismographs of the U. S. Coast and Geodetic Survey, the more than 4,000 man-made tremors add up to a total force of about 1% of that of one destructive natural quake, the Bureau of Reclamation of the Department of Interior reports.

Scientists say that the numerous but small shocks are no threat to Boulder Dam, because the quakes are associated with natural geological faults in the earth. The extra load on the earth from an artificial lake is big enough to cause minor tremors, but it is not great enough to cause new faults or produce severe earthquakes.

Most of the earth movements came in the first years after the dam was completed in 1936 and only a few have been noted since 1942. Meanwhile, it is estimated that the lake basin has settled several inches with respect to the neighboring mountains.

Data on the man-made tremors, reported in the Bureau of Reclamation's magazine, *Reclamation Era*, were collected by three strategically-placed seismographs. Other seismographs have been used to record local shocks from the reservoirs of Shasta and Grand Coulee dams.

Science News Letter, January 18, 1947

ASTRONOMY

Heavenly Atomic Explosion Occurred on Nova Persei

➤ DETAILS of a series of atomic explosions that occurred several decades ago have been worked out by Prof. Dean B. McLaughlin of the University of Michigan. Clouds of gas with speeds of from 500 to 2,000 miles per second rushed out from Nova Persei in 1901, a star far too faint to be seen with binoculars that within two days temporarily became one of the brightest stars in the heavens.

Eruptions on the star probably followed each other in rapid-fire order. What originally appeared to be one cloud of gases later showed up on the star's spectrum as three shells moving at different speeds. The main flow of gases, racing forth from the star at 1,000 miles per second, formed a shell around the star that today appears as a small nebula.

Science News Letter, January 18, 1947

AERONAUTICS

Encased Magneto Designed To Better Fit Aircraft

➤ HIGH-FLYING aircraft need something more than superchargers to stuff air more rapidly into the fuel ports. In the thin atmosphere at near-stratosphere altitudes there are apt to be troublesome corona discharges or flash-overs between parts of the magneto equipment. To obviate this, E. B. Nowosielski of Bloomfield, N. J., has designed an encased magneto with a pair of oil-sealed pumps that maintain normal atmospheric pressure within. Rights in the patent, No. 2,413,993, are assigned to the Edison Splitdorf Corporation.

Science News Letter, January 18, 1947

IN SCIENCE

CHEMISTRY

German Insecticide May Supplement DDT

➤ "BLADAN," an insecticide first produced in Germany during the war, may prove a useful supplement to DDT in some uses, entomologists of the U. S. Department of Agriculture state.

For example, DDT is not effective against certain species of mites and aphids that attack apples, though it does a good job of killing codling-moth larvae. So field tests of the two insecticides in combination are in order.

Bladan has hexaethyl tetraphosphate as its active principle. It has an advantage over DDT in that it is easily soluble in water; but offsetting this is the fact that it deteriorates quickly and hence does not have the long-lasting residual effects of DDT.

Science News Letter, January 18, 1947

PALEOBOTANY

Devonian Parasite Killed By Other Parasitic Fungus

➤ "A KILLER KILLED" might have been the headlines in the Devonian Daily News on a story covering a picture shown at the Princeton University Bicentennial Conference on Genetics, Paleontology and Evolution by Dr. Henry N. Andrews, Jr., of the Missouri Botanic Garden.

In a specimen of one of the oldest of known land plants, dating back some 300,000,000 years to Devonian geologic time, Dr. Andrews found what appears to be the spore-case of a presumably parasitic fungus. But instead of being filled with its own spores it contains a lot of smaller spore cases of a different fungus. The parasite had been parasitized.

Dr. Andrews used an exceedingly careful chemical technique to get the actual plant remains out of a certain type of fossils. Then he was able to handle them as if they were plants that had been plucked and pressed only a few weeks ago. He can even demonstrate the presence of such fine details as the chloroplast, tiny green bits of living stuff that give plants their color even though long since dead and faded.

Science News Letter, January 18, 1947

E FIELDS

CHEMISTRY

New Alloys Increase Uses for Aluminum

► NEW ALUMINUM alloys, containing small amounts of beryllium which increases their tensile strength, were revealed by General Electric research laboratory. They open new fields for aluminum uses.

Their resistance to being pulled apart is from 30% to 80% greater than present commercially-available aluminum casting alloys, it is claimed. They resist corrosion, have high thermal stability, and can be both cast and wrought.

Zinc alloys containing beryllium, developed by GE during the past year, possess spring qualities comparable to brass and have other qualities that make them more usable for many applications than the present commercially-available wrought-zinc alloys.

A process for brazing ceramics to metal is important, particularly in the vacuum tube field. In this method, the ceramic is coated with titanium by heating in pure dry hydrogen or in a vacuum, then applied to the metal and brazed with copper by heating again in hydrogen or a vacuum.

Science News Letter, January 18, 1947

POMOLOGY

Frost-Dodging Apple Tree Blossoms One Month Late

► A RELUCTANT apple tree, that blossoms a month later than its orchard-mates and thereby escapes late spring frosts, is announced through the medium of the U. S. plant patent 722, issued to its originator, Max Bazzanella of Mineral, Va. The tree originated as a seedling on his farm in Louisa County, Va., about 15 years ago, and has been in bearing for a decade. Mr. Bazzanella states that he has propagated it by bud-grafting, and finds its cions true to the parent type.

The medium-sized fruits are described as spicy and sub-acid, with a quince-like flavor. The originator regards the new variety as especially suitable for drying and for general home use.

Science News Letter, January 18, 1947

TEXTILES

English "Terylene" Is Strong Synthetic Fabric

► ANOTHER new fiber will take its place along with rayon and nylon in clothing and other fields and may become as widely used. Its trade name is "Terylene," and it was developed by chemists of the Calico Printers Association of Manchester, England.

Terylene is claimed to differ from all other fibers yet produced. Textiles made of it are described as resembling silk. They can be washed, ironed and pressed without special precautions. The fiber can be very fine, or coarse if great strength is desired. It is resistant to heat and light and can be woven or knitted.

The new fiber is derived from terephthalic acid and ethylene glycol, both synthetic substances. Ethylene glycol, an antifreeze liquid, very similar to glycerine, is made by passing ethylene into chlorine water and treating the product with a base such as sodium hydrate. Terephthalic acid is a petroleum derivative.

Science News Letter, January 18, 1947

ENGINEERING

Lighter Automobiles Must Meet Flood of Foreign Cars

► LIGHTER automobiles must be built in America if an incoming flood of foreign cars is to be curtailed and if foreign markets are to be supplied by us with the light-weight vehicles demanded abroad.

This is the opinion of W. D. Appel, of Willys-Overland Motors, expressed to the Society of Automotive Engineers. Really light-weight cars can be built, he said, if the aesthetic takes second place to the functional.

Using light metal alloys and designing smaller cars are two ways suggested. Others include simplifying the design to eliminate machining operations, using higher stresses, and combining several functions in a single part. The body, the heaviest single unit, can be drastically lightened.

Better heating of automobiles for passenger comfort was urged by Lewis A. Rodert of the U. S. National Advisory Committee for Aeronautics, who suggested the adaptation of two aircraft heating methods to road vehicles.

In one system, air enters an intake scoop, passes through a filter and heater,

and is then circulated through the panels of the side walls, heating by radiation and convection. In the other, a heater mounted at the rear of the car would force air from vents downward over the car windows, passing out by vents in the floor. Either method would keep the interior at comfortable temperature and humidity and prevent fogging on the windshield.

Science News Letter, January 18, 1947

OCEANOGRAPHY

Pacific Floor Has Many and Deep Holes

► THE OFT-SUNG assertion, "There's a hole in the bottom of the sea," stands in need of revision, so far as the western Pacific is concerned. There are a number of holes, and they are much deeper than anybody suspected, a wartime echosounding survey disclosed. It was presented before the meeting of the Geological Society of America by Prof. H. H. Hess of Princeton University.

The sloping sides of these great deeps are marked by great arches of warped bedrock hundreds of miles in length, forming veritable submarine mountain chains. Topmost peaks of these drowned ranges emerge as small islands.

There is also a great lava plateau, separating the north Pacific basin from the western island arc groups that include Japan, the Philippines, the Marianas and other smaller archipelagoes.

Science News Letter, January 18, 1947

MEDICINE

Colds Can't Be Prevented By Disinfecting Air

► HOPES that colds and other respiratory ills can be banished by disinfecting the air of public places are dashed by latest U. S. Public Health Service studies.

Dr. R. E. Dyer, National Institute of Health director, concludes that installation of equipment for treating air in theaters, shops, factories and offices is not warranted by present information.

Chemical treatment of air with glycol aerosols and irradiation with ultraviolet light have been tested over a number of years. Federal experts have been working on the problem since 1936. The National Research Council and the American Public Health Association also made studies and reports.

Science News Letter, January 18, 1947