

AERONAUTICS

Jet-Propelled Plane Tested in Wind Tunnel

See Front Cover

► THE JET-PROPELLED plane, shown on the front cover of this SCIENCE NEWS LETTER, is being tested by NACA at Langley Field, Va. Engineers at the control panel of a full-scale wind tunnel expose the airplane to 250-mile-an-hour hurricanes generated by six 40-foot propellers, each driven by a 6,000-horsepower motor.

From studies made in NACA wind tunnels have come many conspicuous improvements in aircraft. Among the most important is a new type of high-speed cowling for radial aircooled engines that makes possible a great increase in the airplane's speed, and at the same time greatly improves the ability of the cowling to resist compressibility effects. A method has been worked out for milling off the heads of rivets flush with the surface of the wing with such exactness and smoothness that there is no hampering wind turbulence created. Not only is the wing smoother, but the new riveting method increases the structural strength by assuring tighter fitting rivets.

Science News Letter, November 25, 1944

GENERAL SCIENCE

Six Awards Presented By the National Academy

► "BACKLOGGED" because the war prevented the meetings at which they might have been presented, half-a-dozen gold medals awarded by the National Academy of Sciences have been given to six men eminent in the fields of the life sciences and geology, at the first sessions held by that organization since Pearl Harbor. There were three awards of the Daniel Giraud Elliot gold medal and certificate, which is given in recognition of an outstanding publication in zoology or paleontology; likewise three awards of the Mary Clark Thompson gold medal, which goes annually to some outstanding worker in geology and paleontology.

Recipients of the Elliot medal are: Prof. Malcolm R. Irwin, University of Wisconsin (for 1938); Prof. John H. Northrop, Rockefeller Institute for Medical Research (for 1939), and Prof. William Berryman Scott, of Princeton University (for 1940).

The Thompson medal was awarded to: Prof. Edward W. Berry of the Johns Hopkins University (for 1942), Dr.

George Gaylord Simpson of the American Museum of Natural History (for 1943), and Prof. William J. Arkel of Oxford University (for 1944).

A seventh honor, the Ordnance Distinguished Service Award, was conferred upon a veteran officer of the U. S. Army, Maj. Gen. G. M. Barnes, chief of Research and Development Service, Office of the Chief of Ordnance, long distinguished for work that has contributed greatly towards the commanding superiority in weapons and munitions now enjoyed by American forces in the field.

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CHEMISTRY

Steatite Goes to War, Used as an Insulator

► STEATITE, the mineral twin-sister to ordinary face powder and after-shave talc, has gone to war against the Axis, baked into intricate forms and shaped for use as insulators in electronic communications equipment, the War Department reports.

Within the past year a new manufacturing process has been perfected that permits the non-metallic mineral to be baked as a ceramic into intricate forms and shapes, some of them so tiny as to seem almost microscopic. Tubes of baked steatite can be made as thin as an ordinary shingle-nail, yet are capable of having a thinner wire inserted. These tubes can be bent at the sharpest angles, yet are hard and enduring, and cannot be injured by acids or intense heat.

Both talcum powder and steatite are known to science as kaolin talc, and both come from the same mineral, which is itself called steatite, or popularly soapstone. Its powers of resistance to heat, acids, and the attacks of the elements are remarkable in a mineral which is so soft in its natural state within the earth that it can be worked by hand like putty. All of the many varieties of steatite are extremely soft and "soapy." Most of them harden quickly, however, when exposed to air.

A chief source of raw steatite of the type needed for insulating electrical equipment is the Italian island of Sardinia. When Italy attacked France in June, 1940, the supply was abruptly cut off. Fortunately, supplies of steatite sufficient to meet immediate needs were developed in Alabama, North Carolina, and Virginia. When Sardinia was retaken by the Allied armies in mid-September, 1943, one of the first shipments from it to this country consisted of kaolin talc.

*Science News Letter, November 25, 1944***IN SCIENCE**

MEDICINE

Sisters Born at Same Time, But Are Not Twins

► BIRTH of baby sisters who are not twins though they have the same birthday and who developed in separate wombs in their mother's body—a rare if not completely unique occurrence—has taken place at the Philadelphia Lying-In Unit of the Pennsylvania Hospital, the same institution where quadruplets were born a few days previously.

The sisters were delivered on Nov. 7 by a Cesarean operation performed by Dr. F. Sidney Dunne of Philadelphia before a hastily assembled audience of physicians, obstetricians and nurses.

One sister, a full-term baby, weighed slightly over seven pounds. The other, one month premature, weighed just over five pounds. Both babies and mother are doing well.

The mother, a schoolteacher and former patient of Dr. Dunne's, came to Philadelphia from her home in Canada to have Dr. Dunne deliver her baby. Neither she nor the obstetrician knew there would be two babies, although Dr. Dunne knew some unusual condition was present.

She had been endowed with two separate wombs or uteri and a complete double birth canal. Although rare, this condition has been encountered before and some women with it have had babies. The particularly unusual feature in this case was the development of a living, healthy baby in each uterus. Usually, if not always, a woman with double uteri will have a baby develop in one but not both.

As remarkable as the births of these sisters and the quadruplets, famous for being the only quads on record born by a Cesarean operation, was the birth at the same hospital of a baby that developed in its mother's ovary instead of the womb. About 40 such cases have been reported in medical literature, but this is believed to be the only one in which the baby lived. The physician in this case was Dr. Roy W. Mohler.

All these unusual occurrences took place in the Lying-In Unit of the oldest hospital in the United States, Pennsylvania Hospital, established in 1751 with its cornerstone laid by Benjamin Franklin.

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CE FIELDS

MEDICINE

Anti-Malaria Vaccine Successful in Animals

► SUCCESSFUL vaccination of animals against malaria, a feat until recently believed impossible, has been achieved by Dr. Jules Freund, of the Public Health Research Institute of the City of New York, David M. Heyman, president of the Institute, announced in a report.

Whether the technique Dr. Freund has developed will be successful in protecting humans against malaria is still a question. Investigators at the Institute and the Department of Health are now working on the problem of application of the method to humans.

The chief obstacle, one which has hampered efforts to find new and better drugs for treating malaria, is the fact that the malaria germs, or parasites as they are called, which attack humans do not attack other animals. Man, monkeys and birds are the only animals in whose bodies malaria parasites will grow and produce sickness, but monkey malaria, bird malaria and human malaria are caused by different kinds of parasites. Scientists have recently found one strain of monkey malaria parasites which will grow in humans, but none of the human strains will grow in monkeys.

More than once scientists have developed chemicals which were effective in curing malaria in monkeys but which failed utterly when tried in human cases. Encouraging as the development of an anti-malaria vaccine for monkeys is, scientists therefore hardly dare to hope that the new technique will succeed in humans.

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PSYCHOLOGY

Ear Plugs Cut Absenteeism Among B-29 Workers

► AN ABRUPT drop in absenteeism was the unexpected result of supplying workers riveting the wings on B-29 bombers with ear plugs of new type, designed to prevent deafness from excessive noise, Dr. Hallowell Davis, of Harvard Medical School, reported at the meeting of the Industrial Hygiene Foundation, held in Pittsburgh.

The ear plugs, known as V-51R plugs, have until very recently been made ex-

clusively for Navy gunners and Army artillerymen. Within the last few weeks samples have been released to some plants producing aircraft. They "represent a real advance," Dr. Davis said. They attenuate noise by 30 decibels or more, which is enough to bring the extreme noises of present industrial situations down to the probably harmless level of 100 decibels. This is equivalent to the noise of a subway express passing through a local station, he explained.

The abrupt drop in absenteeism following issuance of these plugs to the riveters has obvious implications, Dr. Davis pointed out.

High-level noise such as they were exposed to may and probably will cause deafness after long-term exposure to it. Regardless of this effect, however, noise may be sufficiently tiring, annoying and distressing to contribute to a high rate of absenteeism in spite of patriotic and financial motives for staying on the job.

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CHEMISTRY

Activated Carbon From Steam-Exploded Wood

► ACTIVATED carbon, used in gas masks, sugar-refinery filters and a hundred other key chemical spots, is produced by a new steam-explosion process from wood chips and similar waste materials, on which U. S. patent 2,362,463 has just been issued to R. M. Boehm and H. E. Hall of Laurel, Miss.

The wood is prepared for final carbonization by a process resembling that used in the preparation of wood fibers for manufacture into wallboard by the Masonite Corporation, assignee of rights in the new patent. That is, the wood chips are subjected to high steam pressure in a sealed cylinder, and the pressure then suddenly released. Only in the present process the pressure is carried to a higher point—up to 1,000 pounds per square inch.

This is maintained for a relatively short period, usually from 30 seconds to five minutes. When the pressure is released, the disintegration of the fibrous wood structure is complete; what comes out of the cylinder is a dark mass of doughy consistency. This, the inventors state, can be compressed into briquets under high pressure without the addition of any syrupy or tarry binder. Instead of expanding, and possibly cracking, during the further heating to produce carbonization and activation, the briquets actually contract and become denser.

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ENGINEERING

Design for Truck Cabs Solves Problem of Repairs

► A UNIQUE design for truck cabs, of the type wherein the driver sits directly over the engine, is the subject of patent 2,362,453, taken out by D. L. Cosper of Auburn, Ind., and assigned to the International Harvester Company. It solves the problem of how to get at the engine for adjustments and repairs very neatly: the floor boards and steering wheel are lifted out, and then the whole cab tilts sideways when a crank is turned.

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ORNITHOLOGY

Finding Swifts in Peru Solves Migration Mystery

► ANOTHER mystery of nature can be checked off the unsolved list, with the discovery in Peru of chimney swifts wearing bands that had been put on their legs in the United States. Dr. Frederick C. Lincoln, in charge of studies on bird migration conducted by the U. S. Fish and Wildlife Service, describes the find as "one of the most important ornithological discoveries in the last two decades." It closes the last gap in scientific knowledge of where North American birds go for the winter.

Although nearly 375,000 swifts have been tagged with identifying bands during the past 10 years, in this country and southern Canada, it was not until Indians in the Yanayaco river valley in Peru shot some of them that any of the bands were ever recovered. These bands were returned to Washington through the American Embassy at Lima, and were checked against the official bird-banding lists. The bands had been placed on the birds over a wide area, including localities in Illinois, Connecticut, Alabama, Tennessee, Georgia and Ontario.

So sudden and complete is the migrating swift's disappearance that the ancient Greeks imagined that the birds dived into ponds and hibernated in the mud at their bottom. This curious notion survived through the Middle Ages and even had some currency in comparatively recent times.

The chimney-dwelling habits of the swift represent an adaptation to modern, man-made conditions of the birds' age-old preference for hollow trees as rookeries. Many of them still inhabit hollow trees; flocks comprising thousands of individuals often take shelter within a single tall tree or unused chimney.

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