

MEDICINE

Polio Protection Pill

Vaccine is not available for human use yet, but success is reported in getting one strain of poliomyelitis virus to grow in chick embryo where it loses virulence.

► A PILL to protect children against polio is on its way, it appears from results announced by Dr. Herald R. Cox of Lederle Laboratories, Pearl River, N. Y., at the opening ceremonies of the biochemistry and virus laboratory building of the University of California, Berkeley.

The pill will contain living polio virus "tamed" by growing through many generations, first in the bodies of suckling hamsters and then in hen's eggs.

Success in getting the MEFI strain, Lansing type of poliomyelitis virus to grow in the developing chick embryo was achieved by two groups of scientists at Lederle, Dr. Cox announced.

Monkeys and chimpanzees given this virus failed to show symptoms of polio, but developed protective antibodies against the virus that had been in the hamsters and against Lansing type strains of virus from two other institutions.

This accomplishment, Dr. Cox pointed out, does not mean that a vaccine against polio will be available at once. He stressed that no prediction can be made as to

whether or when such a vaccine might become a reality.

If and when made, it will probably be given in pills or some other form that can be swallowed. This appears from his statement that, in his opinion, this would be the logical way to vaccinate babies and children against polio. The reason is that the pill method would be following the natural one in which polio infection comes through the digestive route.

The safety of this method was shown by another Lederle team headed by Dr. Hilary Koprowski. They fed a living polio virus, Lansing type, of low virulence to 20 human volunteers. None of the 20 got sick or had any temperature rise, though all were watched very carefully. All that were not immune to polio virus at the start of the trial developed antibodies to the Lansing virus, though not to other types of polio virus.

Antibodies are the substances developed in the blood that protect against polio virus. Many children and grown-ups have these protective antibodies, even though they have

never gotten enough polio virus to be sick. The antibodies in the blood of most grown-ups are the source of the gamma globulin tried this summer for protection of children against the disease. This kind of protection, however, is not lasting and in Dr. Cox' opinion is only a stop-gap procedure.

The scientists who have, for the first time, succeeded in getting poliomyelitis virus to grow on chick embryos are Drs. Arden W. Moyer, Manuel Roca-Garcia and Victor J. Cabasso.

This achievement is considered important because it gives a way of growing the virus free of any possible contamination by other viruses or bacteria, and because it makes possible growth of the "tamed" virus on a large scale, which would be needed for vaccine production. Heretofore, the sources of polio virus have been either the brains and spinal cords of man, monkeys, chimpanzees and certain rats, or, more recently, cultures of human and monkey tissues.

The virus successfully fed to 20 human volunteers by Dr. Koprowski and associates was prepared from the brain and spinal cord of cotton rats. Studies of the mouth route for polio vaccination are being continued, Dr. Cox said, in conjunction with the California State Departments of Public Health and Mental Hygiene and the Hooper Foundation of the University of California.

Science News Letter, October 25, 1952

TECHNOLOGY

Atom Cannon Has Double Recoil Mechanism

► THE REMARKABLE thing about the Army's atom cannon is the double recoil mechanism that is an essentially new application in artillery.

This weapon that fires a 280 millimeter (over 11 inches) diameter shell sits down upon the bare ground whereas lesser weapons have had to be bedded in dug pits. It neutralizes the energy of the firing first by movement of the gun itself. Then there is a sliding of the carriage itself that absorbs more of the energy. The whole mechanism slides back into firing position again.

The ease with which the new gun operates, the few minutes it takes to set it up for firing and the way it travels over rough grounds are results of years of planning and design.

A famous science institution in Philadelphia, the Franklin Institute, is not generally known as an incubator for weapons of war, yet out of the brains and laborious design computations of a small group of civilians there has come the new gun that can, if need be, hurl atomic bombs about 20 miles.

This group includes F. S. Chaplin, as associate director, A. O. Bergholm and A. O. Olander as engineers, Dr. Rupen Eksergian as consultant, Dr. N. H. Smith as director of the Franklin Institute Laboratories and George S. Hoell, recently retired as associate director. They did the intricate stress analysis and engineering which Army ord-



ATOMIC CANNON—This is the U. S. Army's newest weapon, the 280-mm. gun which is capable of firing either conventional or atomic shells. Here it is firing a conventional shell in a demonstration at Aberdeen Proving Ground. The gunner at the left, standing about 75 feet from the gun and with his back turned for protection from the blast, has just fired the gun by twisting the handle on the firing key.

nance and industrial concerns have transmuted into metal. Whether or not guided missiles take up the task in future of delivering atomic bombs for ground troop

support in any weather, the 280 mm gun is in production and is the newest and latest artillery weapon the world has seen.

Science News Letter, October 25, 1952

AERONAUTICS

Hail as Flying Hazard

► HAIL AS a hazard in flying has become a matter of alarm to airline companies now that routine operational flights are made during bad weather. Even brief encounters with hard hail can cause major structural damage to a plane.

The leading edges of the wing and the tail are the most susceptible to damage by hailstones, according to a report of the National Advisory Committee for Aeronautics. Damage to the fuselage is usually confined to the nose and cockpit sections.

Windshields and canopies are sometimes broken or cracked. Engine cowlings are damaged to about the same extent as leading wing edges. Ignition harness and cooling fins are sometimes injured enough to require replacement. Engine air-intakes may be blocked by the hail.

Hail is usually encountered by airplanes in thunderstorms. The best way to avoid it is to keep out of thunderstorm areas. This is not always possible, however; hail may be encountered outside but near a thunderstorm. Where such cases are reported, it is presumed the hail was blown out of the thundercloud.

Many military and some commercial

planes are now equipped with radar which can be used to detect areas of precipitation. This equipment, however, gives no indication of the type or intensity of precipitation. It gives no warning of hail within the precipitation area. But it does give warning that permits a pilot to change his route and circle the storm center.

Military and civilian air-transport operators are now interested in air-borne radar which will enable a pilot to avoid the dangerous areas within thunderstorms and squall lines, and to fly through precipitation clouds with safety and comfort.

The report was prepared by Robert K. Souter and Joseph B. Emerson of the NACA laboratory at Langley Field, Va. It includes a summary of damages to planes by hail as reported by the U. S. Air Force, civil airline companies and the Civil Aeronautics Administration. The report, "Summary of Available Hail Literature and the Effect of Hail on Aircraft in Flight," summarizes experimental work by the CAA in bombarding stationary planes with pellets of ice the size of hailstones.

Science News Letter, October 25, 1952

VETERINARY MEDICINE

Medical Whodunnit Solved

► SOLUTION TO a medical whodunnit story, the mystery of the seven sick race horses, has just been reported to the Army Medical Service Graduate School in Washington. The solution brought the discovery that Japanese encephalitis, a brain inflammation, exists in Malaya, where it had never before been even suspected.

Unfortunately, an English nurse also got sick and died before the mystery was solved.

Scene of the mystery was Malaya. The horses got sick in the summer of last year, dismaying their backers by suddenly going off their feed, developing circling gaits, fever and weakness of various degrees. British government veterinarians in Singapore were even more dismayed, because the symptoms suggested the brain disease, encephalitis, sometimes called sleeping sickness, which attacks both horses and humans.

While the veterinarians and U. S. Army medical researchers in Kuala Lumpur puzzled over the mystery of the sick horses, an English nurse in the British Military Hospital in Kinrara developed some of the same symptoms. In spite of all efforts to save her, she died within a few days. Tests that had been made on her, however, enabled the scientists to discover the killer, the virus

of the disease, of Japanese encephalitis.

The same virus had attacked the horses.

The reason that the presence of the virus in Malaya had not been discovered before is explained as follows: If a virus goes about its work quietly and steadily, without causing epidemics, it can easily go undetected among human and animal populations exposed to it from birth. In such endemic areas, it usually is not until foreigners arrive, adults with no immunity, that the virus gets into the limelight by suddenly causing one or more cases of serious sickness.

The medical and veterinary detectives who solved the mystery were: Capt. Philip Paterson, Maj. Herbert Ley, Jr., Maj. Charles Wiseman, Jr., Dr. William Pond, Dr. Joseph Smadel and Lt. Fred Diercks of the Army Medical Service Graduate School, Washington, D. C.; Dr. H. D. G. Hetherington and Dr. P. H. A. Sneath of the British Military Hospital at Kinrara; Dr. D. H. Witherington of the Municipal Veterinary Department of Singapore, and Dr. W. E. Lancaster of the Federation of Malaya Veterinary Service. Medical report of the whodunnit will appear in the *American Journal of Hygiene* (Nov.).

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VETERINARY MEDICINE

Tipsy Cows Get Jag From Apples

► IF THERE are apple trees in the pasture, Bossy the cow may eat so many apples that she gets "tipsy." But she will not get over her apple jag without prompt treatment, the American Veterinary Medical Association warns. In Bossy's case, the symptoms are due to a type of poisoning which may end fatally. Malic or hydrocyanic acid in the apples are believed to have something to do with the poisoning.

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