

MEDICINE

Measles Vaccine Hopeful

Inoculations of live measles virus vaccine may provide infants with lifelong immunity to measles, one of the most serious of the common childhood diseases.

► INOCULATING INFANTS with live measles virus vaccine may provide safe, lifelong immunity to measles, new research indicates.

Measles is one of the most serious of the common childhood diseases. It has caused more deaths annually in recent years than polio.

Among the crippling secondary infections that may follow the onset of this disease is encephalitis, a dreaded brain inflammation that may result in death or permanent mental disability. Infections of the middle ear may cause deafness. Pneumonia is another possible complication from measles that is a major cause of death.

The promising results of tests with live measles virus vaccine inoculations on 13 infants from four to 13½ months of age was reported in the *New England Journal of Medicine*, 263:230, 1960, by Drs. Joseph Stokes Jr., Charles M. Reilly, Maurice R. Hilleman and Eugene B. Buynak.

The virus used was furnished by virologist Dr. John F. Enders of Harvard University, a Nobel Prize winner in 1954 for his pioneer efforts in polio virus culture.

The group was selected to include children six months or younger who still might

possess the natural maternal measles antibodies in order to determine whether the antibodies would be a barrier to the vaccine virus.

The small amount of maternal measles antibodies still present in the younger infants appeared in fact to neutralize the vaccine virus.

Among the susceptible older infants, there was no evidence of complication. The disease among this group was far milder after vaccination than the illness that accompanies the natural disease and, the scientists state, "is certainly to be preferred, providing that the immunity is lifelong or, if not, that waning immunity can be effectively reinforced."

The scientists suggest a killed virus vaccine for reimmunization purpose as probably "more applicable when an antibody is present."

The research project was jointly sponsored by the department of pediatrics of the University of Pennsylvania School of Medicine and the Children's Hospital of Philadelphia, and the division of virus and tissue culture research, Merck Institute for Therapeutic Research in West Point, Pa.

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MEDICINE

Immunize Against Insects

► TWO WOMEN PHYSICIANS regularly grind up insects' venom sacs in an unusual search for better materials to protect sensitive persons from serious illness or death from insect stings.

Commercially available shots, utilizing whole insects ground into a preparation, have been only partially successful.

But under grants from the National Institutes of Health and other groups, the two women have done a unique job of immunizing against insects.

In Washington, Dr. Halla Brown, associate professor of clinical medicine and chief of the section on allergy at George Washington University, goes out every fall to collect specimens to grind up for use the following season.

Her former colleague, Dr. Mary H. Loveless, associate professor of clinical medicine at Cornell University Medical College in New York, continues to work on a more or less experimental basis.

In an interview, Dr. Loveless said she attributes some firemen's deaths to their allergies. They may be stung by wasps whose nests they disturb under the eaves of houses or in attics. Because insect bites are hard to see, such deaths are sometimes attributed to heart attacks.

"I always give tests to my patients to determine the level of their allergy," Dr. Loveless said. "Most of the treatments I give require about two and a half hours. I usually begin with one-tenth of a sac of venom and during the treatment period, I increase the shots at half-hour periods until the final shot is usually made up of two full venom sacs."

Both Drs. Brown and Loveless encounter patients who are rendered unconscious within 20 minutes after being stung by some type of insect to which they are allergic. Some die within a few seconds. But if they survive, they can be given immunity shots year after year.

The yellow jacket is the most common offender, but the *Polistes* wasp comes next. This is the type commonly seen in attics and under eaves.

Since 1947 Dr. Loveless has been working not only with insect venoms but with pollens to immunize against hayfever. Dr. Brown also has worked with pollens.

Pollen extract is emulsified in mineral oil and stabilized with materials that retard the release of watery allergen into the body from muscle or other areas. This slowed release permits injection of 10 to 20

times more allergen than otherwise could be tolerated.

The same technique also permitted Dr. Loveless for the first time this year to inoculate patients with a full dose of six venom sacs at one time without harmful results.

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TECHNOLOGY

New Tunnel Diode Is Fastest Switching Device

► AN IMPROVED TUNNEL DIODE that could conceivably count ten billion one-dollar bills in a second or make computer decisions with equal speed is believed the world's fastest switching device.

The device, introduced this month by the Radio Corporation of America, is one of four new types available commercially.

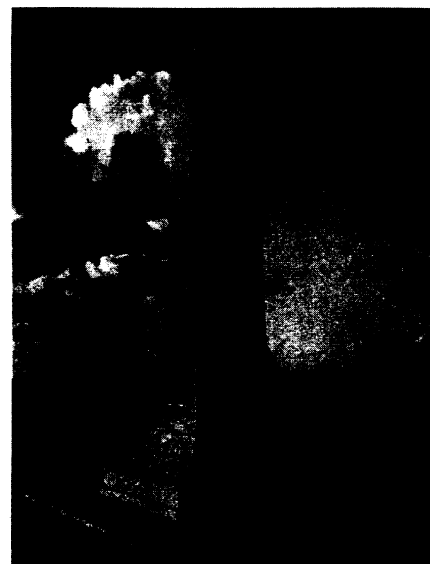
The Department of Defense is studying these new tunnel diodes with a view to developing a computer that will operate at a speed of a billion cycles a second—100 times faster than computers now in existence.

Because of their tremendous speed, the new diodes are expected to have wide use in a variety of electronic systems, including data processing, missiles, satellites and various communications equipment.

Tunnel diodes are tiny solid-state devices no bigger than the head of a match. They control the flow of electrons that make up an electrical current, and do so much faster than an electron tube or a transistor. They are called tunnel diodes because of the manner in which electrons seem to "tunnel" through them with the speed of light.

Theoretically it is possible for this particular device to switch, or "to make decisions" ten billion times a second. One of them is 50 times faster than the fastest transistor.

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MARCONI MEMORIAL — This granite column at Poldhu, Cornwall, Eng., marks the spot from which Marconi transmitted the first radio signal across the Atlantic Ocean in December, 1901.