

MEDICINE

Measles Vaccine Not Near

THERE IS DISCOURAGING news for America's youngsters today.

They will continue to be subjected to the discomforts of one of childhood's most common infectious diseases, measles. This gloomy forecast is based on a statement by a Buffalo virologist that a measles vaccine is not expected to be developed in the near future.

Contrary to recent newspaper articles, scientists are still a long way from such a protective vaccine, Dr. David T. Karzon of the department of bacteriology and immunology at the University of Buffalo School of Medicine, told SCIENCE SERVICE.

Commenting on research with the measles viruses, Dr. Karzon explained that there is some relationship between them and the viruses that cause distemper in dogs. It has been established that children that develop measles develop antibodies against both measles and distemper, he told an audience at Philadelphia's University of Pennsylvania. Scientists believe the viruses are only distantly related, however, because this double action does not occur in all species of animals.

Puppies immunized with measles viruses

are capable of challenging very active distemper viruses although the puppies do not exhibit abundant distemper antibodies as a result of the measles infection. This unexpected reaction remains a puzzle, he said.

When asked if a distemper vaccine could produce the reverse effect, that is, stimulate the development of antibodies against measles viruses, the virologist replied that he did not know. For one thing, he explained, distemper may or may not be dangerous in man. As far as is now known, man does not contract distemper, but there is no positive proof that distemper viruses injected into man for the purposes of producing antibodies would not affect humans.

Distemper and measles have similar symptoms which include fever, "runny nose," fatigue and discomfort. As a childhood disease, measles is relatively harmless if it runs its normal course. Possible complications include brain fever or encephalitis, however. In conclusion, Dr. Karzon noted that puppies immunized with infectious measles viruses do not develop clinical symptoms of the disease.

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TECHNOLOGY

Circuits May Be Replaced

ELECTRONIC circuits may be replaced, at least in some Army equipment, by control devices that use liquids or gases, instead of electricity, and that have no moving parts.

Applications of the new control devices, developed by B. M. Horton, R. E. Bowler and R. W. Warren of the Army's Diamond Ordnance Fuze Laboratories, may also include such civilian tasks as controlling dishwashers, power tools and computers. Industrial uses are also foreseen.

The simple units consist of a block of metal or heavy plastic in which passageways have been made. They can perform the same complicated functions of complex electronic circuits in a computer or control device.

Today's weapons of warfare are often controlled by computer-type devices. This gear presents many problems of transportation, maintenance, and repair. In the field, especially under combat conditions, these problems are magnified. Electronic apparatus must be carefully handled and deteriorates rapidly when subjected to extremes of heat and cold, humidity and shock.

The new system is virtually invulnerable to those conditions. Its storage or shelf-life is practically unlimited. Because it has no moving parts to wear out, maintenance and repairs are minimized.

The three civilian scientists have already successfully developed units which can perform amplification, feedback, digital computation, analogue computation, normal mathematical and memory functions.

The new pure fluid amplifiers work by directing a low weak stream of fluid against the side of a strong stream. The weak stream, called the "control stream," displaces or redirects the "power stream" that does the real work.

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AGRICULTURE

Device Measures Cattle's Stomach Gas Pressure

A DEVICE for measuring the pressure of stomach gas in cattle may speed detection and treatment of cattle bloat.

Bloat is an accumulation of gas in the rumen, or first stomach, of cud-chewing animals, which the animal is unable to release, or "burp" out. Its cause and prevention are both unknown and the increased gas pressure involved, if not released in some way, results in the animal's death. Cattle losses due to bloat amount to many millions of dollars annually.

An electronic telemetering system for signalling high rumen pressures is described in Science, 131:611, 1960, by Dr. Loyal C. Payne of the University of Nebraska, Lincoln.

The system involves placing a small FM radio transmitter within the rumen of an animal that is allowed unrestricted movement in a pasture. The transmitter sends out a warning broadcast to a recording receiver wherever a preselected pressure is exceeded.

If one wishes to know whether any of the animals are bloating then all the transmitters are tuned to the same frequency and the receiver is set for this frequency. A pressure switch in each transmitter is adjusted for a given pressure, below which there will be no transmission. But when the pressure is exceeded, transmission begins and the observer knows that one of the animals is bloating.

If one wants to know which specific animal is bloating, each transmitter is tuned to a different frequency. In this manner, ten animals may be telemetered on ten different frequencies. By scanning this range with the receiver, bloat can be determined in individual animals.

The major disadvantage with this system, Dr. Payne reports, is that the transmitter must be recovered by surgery or slaughter. However, he says, the low cost of each unit and the long life of the battery should balance this disadvantage.

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PHOTOGRAPHY

Binocular Viewer, Filters Make Color Pictures

TWO BLACK-AND-WHITE slides of the same subject, when taken through red and green filters and viewed with corresponding filters through binoculars, will yield a full-color picture.

Drs. Norman Geschwind and John R. Segal of the Veterans Administration Hospital's department of neurology in Boston report in the current journal Science, 131:608, 1960, that a full-color picture also can be seen if one of the filters is not used in the viewing process. This investigation confirms with binoculars the same effect recently studied by Dr. Edwin H. Land of the Polaroid Corporation. Dr. Land, extending British work of 45 years ago, produced a full-color picture on a screen by projecting two black-and-white slides through suitable filters.

The investigators used crossed polarizing screens to adjust the color balance of the picture, and the viewer's brightness control to adjust the color brilliance.

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GENERAL SCIENCE

Science Talent Gathers Friends and Ideas

See Front Cover

SEVEN of the young student-scientists, who by talent and hard work won a place among the 40 winners of the 19th Annual Science Talent Search, are seen on the cover of this week's SCIENCE NEWS LETTER.

Discussing their ideas on science while setting up their exhibits during the Science Talent Institute, held in Washington, D. C., March 3-7, the winners portrayed are from left to right: Dennis Graham Baker, Mass.; Samuel Robert Friedman, D. C.; Joyce Anne Thompson, W. Va.; Arthur Taylor Winfree, Conn.; Gayle Ann Edlund, Ariz.; Richard Pence Mills, Ill.; William Edward Underwood, Mo.

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