

RADIOACTIVITY

Disease Virus "Tagged"

First move has been made to find out how viruses enter the body and wage their destructive war. One virus has been "tagged."

➤ DISEASE-CAUSING viruses have become "it" in an exciting game of radioactive atomic "tag".

What is believed to be the first radioactive "tagging" of a disease-causing virus has been accomplished by Dr. Raymond L. Libby and Caroline R. Madison of the American Cyanamid Company's research laboratories in Stamford, Conn.

Scientists are now hopeful that they have made the first move toward finding out why one child catches polio and another does not, why some get colds and others don't, and how important food plants resist their virus attackers.

This latest advance is the indirect result of atomic bomb research because the radioisotopes used were manufactured in one of the giant atom smashers used in the successful attack on the atom.

The virus used in the Stamford experiments was that of tobacco mosaic. It is one of the best known of the puzzling proteins that are not alive yet act in many respects like living parasitic organisms. It was given its radioactive "tag" by inoculating it into tobacco seedlings which were then fed with radioactive phosphorus as part of their mineral nutrient solution. The

virus acquired its radioactivity from its host.

After the virus had been "tagged" it was extracted, purified, and injected into the bodies of laboratory mice to study their reaction to it as an alien protein. The response of the animals' systems was two-fold: the formation of an immunity-conferring antibody in their blood serum, and the concentration of the radioactive virus largely in liver and spleen.

Now that the way has been shown, other workers will be able to "tag" this and other viruses, and use them in various researches. Of great importance would be the study of mode of entry into, and route of migration within, the body of a number of virus diseases of man and animals, ranging all the way from the common cold to infantile paralysis. Another study might be on the structure of the relatively huge and highly complex virus molecules themselves, and especially on how they "feed" on their hosts' body compounds. Possibilities are endless, especially now that practically unlimited quantities of "tagged" elements are becoming available from the atomic pile of the Atomic Energy Commission at Oak Ridge, Tenn.

Science News Letter, August 16, 1947

RADIO

Colored Pictures by Radio

➤ COLORED pictures can now be received in home or office by wire or radio waves in much the same way that newspaper photographs are now received, it is claimed. They are transmitted by a new type of facsimile system.

In ordinary facsimile, pictures or printed pages are received in black and white on photographic paper, recordings being made by a beam of light, varying in intensity. In the new full-color system, the picture is reproduced with colored lead. Sensitized paper is unnecessary; ordinary paper can be used.

The new device is called "colorfax"

by its inventors, Capt. W. G. H. Finch and Dr. LaVerne R. Philpott of Finch Telecommunications, Inc. The pictures can be seen as received, and need no developing or processing in any way.

The printing mechanism is described by the inventors as something to remind one "of a small airplane motor with four cylinders at right angles to each other revolving around a central shaft. Each cylinder is loaded with a colored lead equal to a primary color, yellow, red, blue and black. As each cylinder revolves the colored leads are applied to the paper and record a line of multi-color. Then the paper moves upward a hundredth of an inch, and the next

line is recorded. The copy is made at the rate of four square inches a minute."

Sending pictures, maps, charts and printed matter by wire or radio waves is not new, but recent developments have greatly broadened its applications. Basically, the process consists in putting the copy to be sent on a revolving cylinder where it is scanned by a sharp beam of light which crosses the copy in a succession of closely-spaced parallel lines. The reflected light falls on a photo-electric cell which sends out signals corresponding to the amount received by it.

These signals are amplified and sent to the receiving instruments. In them the process may be said to be reversed. The photocell that picks them up sends a beam of light in successive parallel lines across the face of a photographically sensitized paper on which the copy is reproduced. The varying intensity of the light from the signals causes a variation in photographic action, resulting in the picture or facsimile copy.

Science News Letter, August 16, 1947

MEDICINE

New Chemical Under Trial As Remedy for Filariasis

➤ A NEW, arsenic-containing chemical is now under trial as a remedy for filariasis in dogs and man. This worm-caused tropical disease caused great worry to many of our fighting men in the South Pacific because late, untreated stages of it develop into elephantiasis.

The new chemical is announced by Drs. G. F. Otto and T. H. Maren, of the Johns Hopkins Schools of Medicine and Hygiene and Public Health, in *Science* (Aug. 1). It is known as Tropical Disease Center No. 970, has a 16-syllable chemical name and its simplest chemical description is substituted phenyl arsenoxide. It was first made in the scientists' laboratory at Johns Hopkins and later by Parke, Davis and Co.

It is the first chemical ever discovered, so far as is known, that will kill all the grown-up worms of filariasis in doses that can be given to man. Filariasis has previously been treated with antimony compounds. These, however, only remove the baby or embryonic worms, called microfilariae, from the blood. It is the grown-up worms that are believed to be responsible for blocking the lymph channels and causing the grotesque and often horrible swellings of elephantiasis.

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