

MEDICINE

Chemical Warfare New Hope In Battle Against Disease

Virus Diseases Cannot Be Fought as Bacteria Infections Are; New Weapons Must Be Developed

PREVENTION or control of diseases like infantile paralysis, influenza, and others caused by viruses may soon be achieved as a result of recent research. This optimistic opinion was expressed by Dr. Ernest W. Goodpasture of Vanderbilt University Medical School at the meeting of the American Public Health Association.

"It is not too much to expect very soon," he said, "the introduction into practical prevention of new and more effective methods of control of this great group of infective disorders."

Dr. Goodpasture used as an example of these newer methods the alum-picric acid spray for the prevention of infantile paralysis which was tried out on a large scale during the outbreak of the disease in Tennessee, Alabama and Mississippi this summer. How effective this nasal spray is cannot be told at present, but the method is a step in the right direction, it appears from Dr. Goodpasture's discussion.

He explained that virus diseases cannot be fought in the same way that scientists have learned to fight diseases caused by bacteria, such as typhoid fever and diphtheria. Scientists have been able to fight such diseases successfully by sending reinforcements to the body's own disease fighters, the antibodies produced by body cells in response to bacterial invasion. This is the strategy of vaccination, serum treatments and the like. The fight against virus diseases, it appears, will have to be advanced by chemical warfare.

Inside Cells

The reason is that the virus takes a different line of attack from bacteria. The viruses, whether they are living or not, can only multiply and cause disease when they get inside the cells of the body. This is true of some bacteria, but many of them can live and multiply as well between the cells as inside them. Many viruses, in addition to requiring the environment within the cells for multiplication, have a special predilection for nerve cells. This means that in the cases of infantile paralysis, for

instance, the virus enters the nerve cells without ever coming in contact with the fluid between the cells that contains the body's disease-fighting antibodies.

This is where the chemical warfare may prove effective. The alum-picric acid spray is designed to create a barrier through which the virus cannot pass into the nerve cells. Another piece of chemical strategy suggested by Dr. Goodpasture would be to inject into the body chemicals that would make the nerve cells unsuitable for the growth of viruses once they got in.

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BACTERIOLOGY

New Cold-Loving Bacteria Spoil, But Not Sour, Cream

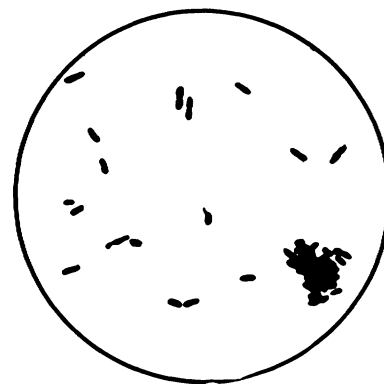
A NEW bacterium which spoils milk and cream without souring it has been discovered and is being investigated at Rutgers University, under the direction of Drs. J. A. Anderson and J. B. Allison.

This bacterium is very unusual in that it spoils milk and cream rather rapidly at temperatures just above the freezing point and fails to grow at body heat. As a matter of fact, the bad flavor is conspicuous only when the bacteria are grown in cream in the refrigerator instead of the usual warm cupboard.

The organism seems to act only on fats, producing a bitter taste and irritation to the throat, "like the beginning of a sore throat," which can be duplicated very closely by adding certain products of broken-down fats, the fatty acids, to pure milk.

This new germ can cause no harm beyond making foodstuffs taste badly, but since it can live in a refrigerator it creates a difficult problem for dealers in foods which it is undesirable to pasteurize.

The organism was first discovered in a lot of cream brought to Dr. Anderson by a local dairyman for examination. It was later found in water of wells a thousand feet deep, driven deep into rock and sealed with concrete.



NEW GERMS

Newly discovered cream - spoiling germs, that can grow at temperatures just above freezing. They give refrigerated cream a bitter, nasty taste without any warning change in its appearance. Photomicrograph shows them enlarged 1,500 times.

The organism, Dr. Anderson found, looks like a series of very short rods held together end to end. Besides growing at remarkably low temperatures, it is unusual in that it uses up the fat and produces a disagreeable taste without any change in the appearance of the bottle of milk or cream. It seems to attack only fats, never solutions of sugars or starches to which it is added.

"The organisms are a unique kind; they do things bacteria rarely do," summarized Dr. Allison. "The investigation of what they do and how they produce changes at temperatures where most living things are inactive should be very valuable."

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PSYCHOLOGY

Eccentricities in Art Blamed on Eye Defects

MOST persons who are nearsighted or have astigmatism get themselves eyeglasses to correct the visual defect and go unhampered about their business. These rather common defects, however, are held responsible for some of the vagaries that puzzle the ordinary viewer of modern art.

How nearsightedness or astigmatism in the artist's eyes can make him draw or paint pictures that look queer to the rest of us is explained by a Los Angeles eye specialist, Dr. Lloyd Mills (*Archives of Ophthalmology*, August.)

What we see, he explains, is a combination of images produced by the central part of our eye-lenses and the peripheral or outer parts of them. In

order to draw a picture of things as we see them, the artist must preserve the normal proportions of these two kinds of sight in his drawing. If visual defects prevent his doing this, he may paint beautiful pictures of the impressionistic type, or he may paint those which look "queer" to normal eyes.

Dr. Mills first became interested in the effect of eyesight on art when an artist came to him for treatment. This man produced paintings which were remarkable for fine use of color, but the drawings were sometimes distorted. This turned out to be due to astigmatism, but unfortunately, when glasses were supplied that corrected the astigmatism, the artist had trouble in getting

the color effects with which he had previously had so much success.

Short-sightedness, a condition found particularly among the educated classes, is especially frequent among artists, and has much effect upon their drawings. In short-sighted individuals, the acuity of vision with the central part of the eye is decreased, and they are forced to use that of the edges of the eye. This, thinks Dr. Mills, accounts for the work of Cezanne, Renoir, Gordon Craig, and George Grosz, the cubist. Pissarro had repeated abscesses of the cornea of the eye, and Van Gogh and Gauguin had mental diseases, which accounts for the eccentricities of their drawings.

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trading materials used by the white men were found. Therefore Dakota Sioux Indians must have built it. They were the only inhabitants there during that period.

To further substantiate this conclusion, Mr. McKern pointed out that the pottery and arrow heads found in the mound correspond with those found in known historical Sioux Indian village sites.

Near the mound, the expedition found vestiges of an old Sioux village. The area is now under cultivation, but the expedition found pieces of pottery, small stone implements, arrow heads and general village refuse.

The mound on the shores of Spencer Lake is 70 feet in diameter and 13 feet high. In the pit and four layers of burials the diggers found bones of 175 Indians. The burials were secondary, that is, bodies had been placed in trees or on scaffolds until flesh decayed and then the bones were gathered and buried in the mound. This was an ancient custom among certain tribes.

Identifying these Mound Builders is a valuable contribution to study of early residents of this region. It is, however, scarcely a start toward piercing the darkness that envelops prehistoric peoples of the state.

"Men have inhabited Wisconsin for thousands of years, yet science knows virtually nothing about them before 300 years ago and very little prior to 200

ARCHAEOLOGY

Find Indian Mound Built Since the White Man Came

Skull of Horse Imported by White Man Dates Important Find in Wisconsin; Left by the Dakota Sioux Tribe

A HORSE'S skull, hidden for two centuries in an Indian burial mound in Burnett County, Wisconsin, has established the first known case anywhere of mound building by the Dakota Sioux Indians.

Discovery of an Indian mound built since the white man's coming to America is a rare archaeological event. Almost all of the remarkable Indian mounds found up and down the Mississippi Valley are the work of prehistoric Mound Builders, whose ancestral relationships to well-known historic Indian tribes are very hard to trace.

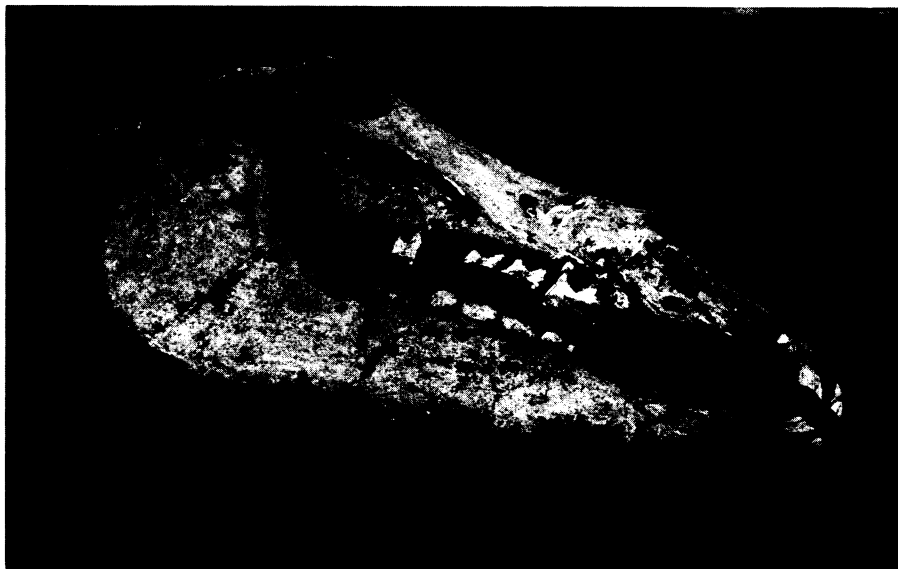
The horse's skull was unearthed by a University of Wisconsin-Milwaukee Public Museum expedition which recently returned after two months of exploration among mounds in Burnett and Barron counties.

Announcing the discovery, the director of the expedition, W. C. McKern, curator of anthropology at the Milwaukee Museum, said it was the most important archaeological development in Wisconsin in seven years. The mound in which the skull was found is the only one ever excavated in the state that can be traced definitely to a particular Indian tribe, Mr. McKern said.

Mr. McKern based his conclusions on the horse's skull.

The mound could not be older than

250 years, Mr. McKern said, because previous to that time the Wisconsin Indians had no horses. It couldn't be less than 200 years old, he reasoned, because no trinkets, beads, or other



HORSE GIVES PROOF

If any romantic Americans still cling to a belief that Mound Builders were mysterious ancients—not Indians—this horse's skull should convince them to the contrary. The skull has been dug from an earthen mound in Wisconsin shown on the facing page.