

## MEDICINE

# How Polio Attacks Body

➤ **POLIO INFECTION** develops in the body by a process of evolution, in the opinion of Dr. Harold K. Faber of Stanford University School of Medicine, San Francisco.

Dr. Faber traced this evolution in a report at the Centennial Medical Convocation of the Children's Hospital of Philadelphia somewhat as follows:

The polio virus enters the body by way of the mouth rather than through the nose from the air. From this it is excreted through nerves into the throat and intestines. This is followed by reinfection and re-excretion on an expanding scale. Finally the virus is absorbed through lymph vessels into the blood, thus producing viremia, or blood stream infection.

Invasion of the central nervous system occurs in two ways, Dr. Faber holds. One is by passage from infected nerve cell bunches, called ganglia, through their incoming nerves.

The other is by way of the blood.

"Infection of the great nervous centers may stop before paralysis begins," Dr. Faber said, "or it may cause paralysis in various degrees, some of which are slight and transient, some severe and permanent, depending on whether the motor nerve cells are reversibly affected or actually destroyed.

"In cases with no symptoms at all, which are very common, and in those with mild, non-paralytic symptoms, the disease is checked in its earlier stages of evolution.

"Immunity from previous exposure, from gamma globulin or from vaccination may entirely prevent infection, or may stop its spread before serious damage occurs."

A different theory, with which Dr. Faber does not agree, is that the polio virus is basically extraneural and first implants itself on the mucous membranes of the throat and intestine, infecting nerve cells only secondarily.

Science News Letter, June 18, 1955

## MEDICINE

## X-Rays of Chest Show Intestinal Disorder

➤ **X-RAYS OF** the chest and sacroiliac joints can help detect a disorder of the intestinal tract known as Whipple's disease, Drs. William R. Eyler and Howard P. Daub of the Henry Ford Hospital, Detroit, reported at the meeting of the American Medical Association in Atlantic City, N. J.

The disease is one in which fat is not properly handled in the body. Diarrhea, a peculiar type of arthritis, emaciation and loss of strength are features of the disease.

Science News Letter, June 18, 1955

## CHEMISTRY

## Molecular Size And Shape Important

➤ **IN LIVING** systems, the size and shape of molecules in a chemical compound may be more important than their composition.

This is the finding of Prof. Herbert C. Brown of the department of chemistry at Purdue University, Lafayette, Ind.

Germs that need a certain acid in order to grow and multiply will accept in its place a chemical that contains different elements but has the same molecular shape. That is how sulfanilamide works.

Its molecule has the same shape as the molecule of para-aminobenzoic acid, and germs, lacking a modern chemical education, accept it in place of the acid. This blocks the germs' metabolism, and the body, through its defenses against disease, has an opportunity to rid itself of the germs.

In insecticides, the same principle holds. DDT was thought to be effective against insects because of its chlorine content. When another compound that had the same shape as the DDT molecule but no chlorine was tried, it also was a powerful insecticide.

Working with highly reactive chemicals inside a high vacuum system, Prof. Brown is measuring the effects of differences in molecular shape on the heat of chemical reactions. Ultimately, he hopes to come up with a formula that expresses this theory precisely, so that chemists will have a new tool with which to predict possible uses of various chemicals.

Science News Letter, June 18, 1955

## MEDICINE

# Nurse Baby If Possible

➤ **BETTER NURSE** the baby if you can. This advice to mothers can be deduced from a report by Dr. Paul Gyorgy, professor of pediatrics at the University of Pennsylvania, at the Centennial Medical Convocation of the Children's Hospital of Philadelphia.

True, Dr. Gyorgy stated that cow's milk may be used successfully for infant feed-

ing. In fact, he said, with good care to avoid germs, "it is difficult to do harm to a normal infant kept on any feeding scheme, provided the scheme covers the minimal requirements for all essential nutrients."

Infants fed human milk, however, "distinguish themselves" in at least two respects from babies fed cow's milk. First, Dr. Gyorgy said, breast feeding reduces both the sickness and mortality rates. Under poor or less than the best hygienic conditions, these differences become more marked.

Second, infants fed human milk get more of a growth factor for an intestinal tract organism called *Lactobacillus bifidus*. Discovery of the high growth activity for this organism in human milk has led to discoveries of many chemical differences between human and cow's milk. For example, human milk contains about 40 times more gynaminic acid than cow's milk.

Characteristic building stones found in human blood group substances are other chemicals found in human milk.

The value of these and other chemicals in human milk for the baby's nourishment and health has not yet been determined. But Dr. Gyorgy thinks more attention should be paid to the chemicals in human milk from the standpoint of infant feeding.

Science News Letter, June 18, 1955

A camera that takes pictures at a rate of 2,000,000 per second with a one ten-millionth of a second exposure has been developed for recording high speed phenomena.

## Questions

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