

VIROLOGY

Virus Study Advances

► A THEORY on the role played by a virus after it enters a host cell has been offered.

When viruses are outside of cells they are separate, tiny particles with identifiable forms and chemical composition. Many are composed merely of protein and nucleic acid. They are biologically inactive and cannot reproduce themselves in this state.

Upon entering a host cell, however, the virus particle disintegrates and disappears. The nucleic acid of the virus is released and directs the production of new virus materials in the host cell. This is the theory of virus attack as presented to the American Philosophical Society meeting in Philadelphia by Dr. Frank L. Horsfall Jr. of the Rockefeller Institute for Medical Research, New York.

The ultimate goal of the virus particle is to accomplish the safe conduct of the nucleic acid into a host cell which can support multiplication of the virus.

The shell of the virus itself is not essential, however, because naked nucleic acid

removed from the virus particle can itself lead a cell to produce new particles, Dr. Horsfall said.

The actual reproduction of more virus particles in the host cell proceeds in sequential steps at a molecular level. The last step is the assembly of a new virus particle from its component parts.

Damage to the host cell is a coincidental result of this process and may be severe enough to destroy the host.

To date, scientists have been able, in some cases, to prevent virus penetration into a host cell by using antibiotics.

However, they have not been able to prevent reproduction after the nucleic acid has made its entrance into the cell. A few chemical compounds are known to accomplish this feat, Dr. Horsfall said, but they also inflict damage upon the host cells.

Scientists are now studying methods of controlling virus reproduction after the nucleic acid has entered the host cell in the hope that such reproduction can be inhibited.

Science News Letter, May 10, 1958

MEDICINE

New Lobotomy Used

► INJECTION of very hot water, 167 degrees Fahrenheit, directly into the frontal lobes of the brain is a new treatment for mentally disturbed patients.

Developed by Dr. Rudolph Jaeger, professor of neurological surgery at Jefferson Medical College, Philadelphia, the treatment was given to 65 patients suffering from anxiety states caused by the unbearable pain of cancer, emotional instability, cerebral thrombosis, paresis, senile psychoses, schizophrenia, atypical face pains and the widespread pains of simple hypochondriasis.

To give the treatment, a little hole is first made through the skull at each temple. The blood vessels of the underlying brain surface are treated by electrocoagulation to prevent bleeding. After the skin wound is sewed up, a blunt needle is inserted through the skin between the stitches to the frontal lobes of the brain. The usual amount of hot water injected is a little less than a teaspoonful, from three to four cubic centimeters, but the quantity can vary.

Later, similar treatments may be given without the need for any further operation; the hot water can be injected at any time through the openings in the skull that are already made. Usually a second injection follows the first one after about two weeks.

A third, fourth or even fifth injection may be needed at intervals of weeks or months, depending on the severity of the patient's symptoms.

The hot water injection severs the connections between the frontal lobes and other parts of the brain. The effect is thus similar to that of surgical lobotomy.

But the advantage of hot water lobotomy, Dr. Jaeger reports, is that it is possible to start with a small area and gradually extend the lobotomy effect as may be needed over an indefinite period of time without any additional operation.

Science News Letter, May 10, 1958

GENERAL SCIENCE

Seven Experts Awarded Medals by NAS

► SEVEN PRIZED science medals were awarded by the National Academy of Sciences on April 28.

Two astronomers were honored: Dr. Horace W. Babcock, Mt. Wilson and Palomar Observatories, the Henry Draper Medal for work leading to the discovery of magnetic fields in star and sun, and Dr. George Van Biesbroeck of Yerkes Observatory, the James Craig Watson medal for measurements of double stars, comets and satellites.

Dr. Ernest W. Goodpasture of the Armed Forces Institute of Pathology received the Jessie Stevenson Kovalenko medal for achievements in pathology, including the use of the chick embryo for propagating viruses for preparation of immunizing vaccines.

For studies in heredity and the process of biological evolution, Dr. Theodosius Dobzhansky of Columbia University received the Kimber Genetics Award.

Measurement of the ages of meteorites won the J. Lawrence Smith medal for Dr. Mark G. Inghram of the University of Chicago.

Fossil studies were recognized by two medals, the Mary Clark Thompson medal to Dr. Gustav Arthur Cooper of the United States National Museum who worked on brachiopods and the Charles Doolittle Walcott medal to Dr. Pierre Hupe of the Sorbonne who investigated trilobite deposits.

Dr. Henry Allen Moe, secretary-general of the John Simon Guggenheim Memorial Foundation, received the Public Welfare Medal of the National Academy. This is awarded for "eminence in the application of science to the public welfare."

Science News Letter, May 10, 1958

PEDIATRICS

Do Not Change Child's Diet During Summer

► A NEW HOT weather syndrome will hit millions of children this summer.

This syndrome is characterized by a pale, flabby, tired child who has gained excessive weight during the warm weather because he stays inside an air-conditioned house, watches television, and munches on snacks which destroy his appetite for well-balanced meals.

Hot weather imposes no special dietary requirements for children. Extra water is the only addition they need during the summer months, Drs. Floyd A. Norman and Edward L. Pratt, Dallas, Tex., pediatricians, report in the *Journal of the American Medical Association* (April 26).

Children do not need an extra supply of salt, as do some adults, they stressed. It is unwise for adults to condition children to dislike hot weather or subject them to summertime food fads.

The doctors' rules for maintaining good nutrition and eating habits among children include:

Vigorous outdoor activity. Children do not mind hot weather unless they are conditioned to dislike it.

Cool, not cold, drinks are best. Water should be used to quench the thirst whenever possible; between-meal foods and high-caloric drinks should be limited.

Plan "cooling-off" periods which will quiet the child before mealtime and may increase the appetite.

Limit high-caloric foods such as ice cream and peanut butter, and serve the main meal at night when the temperature is lower.

If infants and children eating well-balanced diets do not tolerate ordinary heat, they should be examined for illness rather than switched to another diet, they conclude.

Both doctors are affiliated with the department of pediatrics, University of Texas Southwestern Medical School, the Children's Medical Center, and Parkland Memorial Hospital, Dallas.

Science News Letter, May 10, 1958

The *European corn borer* in 1957 destroyed almost 181,000,000 bushels of corn grown for grain, worth \$168,841,000.

When Korean rice paddies are flooded, carp *fish* are introduced and grow to edible size before the rice is harvested.