

## MEDICINE

## Infectious Hepatitis Puzzles Navy Doctors

► THE WAVE of infectious hepatitis that has struck four ships so far in the U. S. Navy's sixth fleet has doctors puzzled.

Still unknown is the exact source of this infection that has taken one life and hospitalized 105 other men since Jan. 25.

One airplane carrier, the U.S.S. Forrestal, reports 49 cases among its crew of approximately 3,500 men. The three other ships, destroyers, report 23 cases among a possible total of 750 men. These 72 patients are the latest reported victims.

The normal incidence of infectious hepatitis among ship crews is calculated at less than two cases per destroyer. The current outbreak has been confined to men aboard ships, patrolling the Mediterranean, a Navy doctor said.

Those men now infected have been hospitalized ashore in Italy, Germany and Saudi Arabia.

Navy personnel stationed ashore have been relatively unaffected. Meanwhile, immune serum globulin is being rushed to those men who may have been exposed to the infection.

The immune serum offers protection for six to eight weeks. It will offer protection if administered six days before onset of symptoms, the Navy doctor said.

Infectious hepatitis occurs among any age group and either sex. Symptoms include fever, nausea, headache and gastrointestinal upset. No vaccine has yet been developed for this disease that is spread by man to man only. It can result in serious damage to the liver and, sometimes, death.

The Mediterranean area is recognized as a constant source of infectious hepatitis. The virus thrives in unsanitary environments. It is transmitted by oral discharges and fecal excrement.

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## VIROLOGY

## First Confirmed Case Of Asian Flu Reported

► SEVERAL MONTHS of the "flu season" have passed and the first confirmed case of flu due to the Asian strain virus has been reported by the U. S. Public Health Service. It is the first case of influenza definitely known to have been caused by virus A, the Asian strain that hit the country in 1957.

The influenza season began in December, 1958, and will last until about March, Dr. C. C. Dauer, medical adviser of the National Office of Vital Statistics, said.

No isolations of the A virus have been reported since last July. This first report of isolating the virus came from Dr. E. D. Kilbourne of Cornell University Medical College, New York.

He reported that two girls sailed from Norway to return to the U. S. via Rotterdam. On Jan. 24, one of the girls became ill with fever and aching. The other became ill after the ship arrived in the U. S.

The Asian virus strain was isolated from one girl only. Dr. Dauer explained that the other girl had probably begun to recover before tests were made.

The girl from whom the virus was isolated had been vaccinated with monovalent Asian strain influenza virus vaccine in the fall of 1957. She had not experienced influenza in 1957 or 1958.

The U. S. Public Health Service has received reports of "influenza-like" cases during this flu season, but none of these have been actual isolations of the Asian strain A virus.

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## MEDICINE

## Oral Drug for Diabetes Helps Severe Cases

► A DRUG for diabetics, called DBI, is proving effective in treating children, research physicians reported.

It also helps complicated, severe adult diabetes, Dr. Robert S. Baldwin, Marshfield Clinic and St. Joseph's Hospital, Marshfield, Wis., said.

In other reports on more than 700 cases presented at a symposium in Houston, Texas, sponsored by Baylor University College of Medicine, it was revealed that diabetic patients who do not respond adequately to injections of insulin or oral drugs can be helped with the new agent. DBI's job is to promote utilization of blood sugar by the body's tissue.

It was found that DBI did not promote the liver storage of glycogen, the form in which sugar is stored in the body. Therefore, patients still require some insulin along with DBI.

DBI is one of a class of drugs known as the biguanides and is not a sulfonylurea as are the other oral antidiabetic agents. The generic name of DBI is phenformin.

The drug was developed by U. S. Vitamin and Pharmaceutical Corp. of New York City, and is not yet available for general use.

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## GEOPHYSICS

## Find Giant Disturbances Traveling in Ionosphere

► GIANT DISTURBANCES have been discovered that both day and night sweep through one layer of the ionized air that reflects radio waves back to earth at heights of 50 to 500 miles.

Dr. L. H. Heisler, electrical engineering expert at the University of Sydney, Australia, says the disturbances traveled through the ionosphere nearly five miles a second at night. They stretch at least 600 miles across the sky, he reports in *Nature* (Feb. 7).

Other scientists have found that single giant disturbances can be identified while traveling distances as great as 2,400 miles. Previously it was thought such disturbances in the F-layer occurred only during the day. Studies to determine their nature are underway.

Science News Letter, February 21, 1959

# IN SCIENCE

## ASTRONOMY

## Plans Made to Launch Telescope in Space

► PLANS FOR launching the first telescope in space have been made by three scientists at the Smithsonian Astrophysical Observatory and Harvard College Observatory, Cambridge, Mass.

The unmanned orbiting vehicle would contain about 150 pounds of batteries to operate about 150 pounds of television-like equipment that would scan the sky in the ultraviolet region. This part of the electromagnetic spectrum is blocked by the earth's atmosphere, so such measurements cannot be made from the surface.

The first good set of ultraviolet maps of the sky is expected in two to three years, the scientists report in the *Astronomical Sciences Review* (Jan.-March). They are Drs. R. J. Davis, C. A. Whitney, and F. L. Whipple, director of the Smithsonian Astrophysical Observatory.

A four-color map of the entire sky can be obtained by observations from the satellite for seven months, they calculate. Key to probing space with such a relatively simple telescopic satellite is the ground station, of which at least two very complex installations will be needed.

Science News Letter, February 21, 1959

## CHEMISTRY

## Find Economical Chemical For Killing Water Weeds

► A NEW CHEMICAL for killing water weeds in irrigation canals, and also disease-carrying water snails breeding in canals, has been shown economically effective.

Three scientists report that submersed weeds have been controlled as far as 15 to 20 miles below the point of application, using only about one gallon of acrolein for each cubic foot of water flow per second during a period of between 30 and 45 minutes.

In less than one week after treatment, the water-carrying capacity of a large canal, 60 feet wide, nearly doubled, and the beneficial effect lasted for as long as eight weeks before retreatment became necessary.

Drs. J. van Overbeek, W. J. Hughes and R. Blondeau of Shell Development Company's agricultural research division, Modesto, Calif., report in *Science* (Feb. 6) that acrolein has been found "highly effective" against water snails in canals treated. Although these were not the same kind of water snails that cause the schistosomiasis so prevalent in underdeveloped countries of the world, the scientists believe acrolein promises to become a useful "tool" in the battle to eradicate the *Schistosoma* blood flukes.

Science News Letter, February 21, 1959

# E FIELDS

## SURGERY

### Atomic Beam Performs Brain Surgery on Human

► THE FIRST known brain operation with a proton beam, instead of surgical instruments, has been carried out at the Gustaf-Werner Institute for Nuclear Chemistry in Uppsala, Sweden.

The patient was a man of 54, suffering from acute pain and depression.

The beam of protons passes through the cranium and the intervening tissue without affecting them. It is concentrated sharply on the exact part of the brain, in this case less than half a cubic centimeter, to be destroyed.

The operation took about two hours. The patient was conscious the whole time. Anesthesia was not necessary as the operation was painless. He lay on an operating table placed inside a drum, his head held in position by clamps. The table was rotated after each radiation so that the beam struck the operation site from different angles.

The operating table was placed about 80 feet from the synchro-cyclotron and separated from it by two walls, one of them six feet thick. The beam was led from the synchro-cyclotron through a 60-foot-long tube that passed through a small hole in the six-foot wall.

Those on the operation team were Profs. Lars Leksell and Bror Rexed, and Drs. Patrick Sournander, Bengt Andersson, Borje Larsson and W. G. P. Mair.

Dr. Mair, an Aberdeen histologist, is now working at the National Hospital for Nervous Diseases in London. He had been doing research at Uppsala for the past year.

The team pointed out that the idea of using a proton beam instead of surgical instruments originated at the University of California in Berkeley. There, Prof. Cornelius A. Tobias has used it for pituitary gland operations.

Science News Letter, February 21, 1959

## BIOLOGY

### Insect Juvenile Hormone Found in Mammals, Man

► THE "JUVENILE" HORMONE that helps control growth and aging in insects has been found in man.

Most mammalian tissues yield a substance showing juvenile hormone activity, Dr. Carroll M. Williams, a Harvard University biologist, said. The most active extracts of the hormone were prepared from the thymus gland of animals. This gland is located in the lower neck. Its exact function has never been determined.

At the present time there is no information as to whether the juvenile hormone is also acting as a hormone in humans or other higher animals, the scientist stressed.

Dr. Williams' co-workers included Miss Lynn U. Moorhead and Miss Jean F. Pulis,

also of Harvard. Their report appears in *Nature* (Feb. 7).

The exact chemical nature of the hormone is still unknown although scientists have obtained highly purified samples from insects. It is a stable, water insoluble molecule that belongs to the general class of lipids, or fats.

When the juvenile hormone is present in high concentration in insects, it blocks the formation of the pupa from the caterpillar, or the adult from the pupa. It acts to hold the insect in whatever stage it is in, and permits it to grow in this stage. It is for this reason that the hormone has been labeled the "status quo hormone."

"In view of the extraordinary biological activity of this hormone on the growth, metamorphosis and aging of insects, it seems important to decide whether the juvenile hormone may play a role in mammalian physiology or whether its presence in higher forms is something of a biochemical curiosity," Dr. Williams said.

The work was supported in part by the U. S. Public Health Service.

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## MEDICINE

### Foresee Early Diagnosis For Multiple Sclerosis

► EARLY DIAGNOSIS of multiple sclerosis, long known to be a frustrating and unsuccessful process, will soon be an accurate procedure, Dr. Leroy E. Burney predicted at the National Multiple Sclerosis Society conference in New York.

Diagnosis of this crippling disease now affects more than 500,000 Americans has been difficult. Until recently the time lapse between onset of the disease and diagnosis was about six years, the Surgeon General of the U. S. Public Health Service pointed out.

Now early diagnosis is a distinct possibility through the use of new techniques, one of which measures the constituents of the cerebrospinal fluid.

Scientists have found that the carbohydrates associated with gamma globulin are increased in the spinal fluid of MS patients, whereas certain other constituents are increased in other conditions such as brain tumor.

Furthermore, Dr. Burney said, epidemiologic studies of MS have resulted in the accumulation of information concerning those the crippling attacks.

It is much more prevalent in colder climates. Incidence of MS is six times higher in Winnipeg, Canada, than in New Orleans, La. Northern European countries report a higher prevalence, while the disease is rather uncommon in tropical zones. It afflicts young adults, usually between the ages of 20 and 40. It affects both sexes.

Another mystery yet unsolved is the exact factor or factors that precipitate this disease. At times, the most popular theory has been that a virus, a spirochete, or bacteria might be the culprit. At other times, dietary deficiencies pointed the way toward a causal relationship. Allergic response, metabolic defect, vascular disturbances in the brain and spinal cord have all been considered.

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## VIROLOGY

### Garner Snake Can Harbor Sleeping Sickness Virus

► THE GARTER SNAKE may be the culprit in keeping one kind of sleeping sickness virus going throughout the cold winter.

Scientists have already established that during the summer western equine encephalomyelitis is spread through a mosquito-bird-mosquito cycle. However, an acceptable explanation for how the virus was maintained during the winter, migrating birds studied did not contain the virus, was lacking.

Now, three U. S. Public Health Service scientists have found, there is evidence that the hibernating garter snake plays a role in overwintering of the virus.

Field studies showed the mosquito, *Culex tarsalis*, that transmits the virus spends the winter in rock piles also inhabited by snakes. Laboratory tests proved that the mosquito did feed on the snakes, also that snakes are susceptible to the virus.

"This is the first evidence," the scientists report, "to the best of our knowledge, that a virus which is an important parasite of avian and mammalian hosts can infect a cold-blooded vertebrate."

Virus was detected in very high dilutions of whole blood and tests indicated that the virus remained in the blood for a long time.

Leo A. Thomas, Carl M. Eklund and William A. Rush, all of the National Institute of Allergy, Rocky Mountain Laboratory, Hamilton, Mont., did the research reported in the *Proceedings of the Society for Experimental Biology and Medicine* (Dec., 1958).

Science News Letter, February 21, 1959

## AERONAUTICS

### XV-3 Flies Like Airplane, Takes Off Like Helicopter

► AN AIRCRAFT built to take off like a helicopter, then tilt its rotors and continue to fly like an airplane has been flown successfully for the first time at Fort Worth, Texas.

Bell Helicopter Corporation's XV-3 convertiplane, designed to combine the hovering and vertical flight capabilities of the helicopter with the relatively high cruising speed and long range performance of the airplane, achieved 100% in-flight conversion at an altitude of 4,000 feet and a speed of about 132 miles per hour.

Maximum speed of the XV-3 is estimated at about 173 miles per hour but Bell engineers said future larger versions would have more than double that speed capability.

The aircraft has two two-bladed rotors mounted near the tips of a relatively small wing. Each rotor mast axis tilts forward from the vertical through about 90 degrees. During the conversion process from vertical to horizontal, which takes 10 to 15 seconds, the lift load is transferred from the rotors to the wing.

The XV-3 is being developed for the U. S. Army under contract administered by the U. S. Air Force.

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