SCIENCE NEWS

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INFANTILE PARALYSIS

PLANS to prevent a wide-spread epidemic of infantile paralysis this summer were formulated at a conference of health officers held in New York on the invitation of Dr. Shirley S. Wynne, commissioner of health for New York City, and Dr. Thomas Parran, state health commissioner.

A large outbreak of cases has been reported from New York City, particularly from the borough of Brooklyn, which is where the terrific epidemic of 1916 started. For the week ending July 25 there were 195 cases in New York City, with only 89 cases in 27 states reporting to the U. S. Public Health Service. For the corresponding period last year only 15 cases were reported from New York City with 77 cases from the same 27 states. For the corresponding week in 1916, the year of the biggest epidemic of the disease ever known, 899 cases were reported from New York City, with the majority of cases then as now reported from Brooklyn.

This similarity in starting point of the outbreak has caused considerable concern, although the conference of health officers stated that there was no cause for undue alarm. They recommended that parents watch their children carefully and be on the lookout for early signs of the disease.

The conference ruled that state health officers should advise directors of all summer camps to discourage visiting of the children by parents or friends from outside the camp. State health officers are also to advise superintendents of all institutions housing children, such as orphan asylums, boarding homes and special schools, to forbid any outside visitors to the children. The experience in such institutions during the 1916 campaign was that in the institutions forbidding outside visitors outbreaks of the disease were averted. The conference also urged complete reporting of all cases as a measure which would help to keep the outbreak somewhat under control. When it is necessary to move an infantile paralysis patient from one place to another, such as from the country to the city to get hospital treatment, the local health officer must notify the state health officer of the move, so that the latter may take steps to guard against spread of the infection in the new locality.

Participating in the conference were representatives of the health departments of the New England states, Pennsylvania, New Jersey, Maryland and Ohio, and two medical officers from the U. S. Public Health Service.

THE ECLIPSE OF 1932

OBSERVATIONS to determine the exact path of the total eclipse of the sun, on August 31, 1932, by photographing the northern and southern edges of the moon's shadow as it sweeps across the earth will be made by a group of amateur astronomers at Springfield, Vermont.

This was announced at the sixth annual meeting of Amateur Telescope Makers, by Russell W. Porter, of the California Institute of Technology. Mr. Porter, whose home is in Springfield, some years ago guided a group of factory workers in making their own reflecting telescopes, and since then the movement has spread to all parts of the country. Though he is now spending the winters in California, working on the preparation for a 200-inch telescope, he returns to Springfield every summer.

The eclipse next year will be visible a few miles east of Springfield. With the cooperation of Dr. John A. Anderson, of the Mount Wilson Observatory, Mr. Porter has outlined a plan for observations that can be made without expensive equipment. The photographs of the edge of the moon's shadow will be made by observers stationed on hills, about five or six miles inside the path. It is expected that the two sets of photographs, if successful, will permit a very close determination of the extent of the path, and hence of the moon's position in space.

Other photographic observations will be attempted of the elusive shadow bands that appear before and after the moon totally eclipses the sun. For this, a large sheet of ground glass, or tracing cloth will be placed between the camera and the sun.

As the shadow bands appear on the screen, an effort will be made to photograph them from behind. It is also expected that motion pictures will be made of the corona, the outer layers of the sun, visible only during a total eclipse.

This year's gathering of the telescope makers included more than a hundred amateurs from all parts of the country. Present were engineers, bankers, lawyers, schoolboys and housewives, who have had the thrill of seeing such heavenly sights as the rings of Saturn or the mountains of the moon, through telescopes made entirely by their own hands. They gathered at Stellafane, the astronomical clubhouse established on a near-by hill by the original Springfield group. Set up around the building were telescopes of all sizes, some brought by visitors, others made by the local group.

Largest and most unique is the turret reflecting telescope, invented by Mr. Porter, and recently placed in adjustment. In this instrument the large concave mirror, that brings the light rays to a focus, is placed at the end of a framework projecting from a turret. A flat mirror close to the turret reflects the light from a distant star to the curved one, which sends it back, through a hole in the flat one and into the turret, where the view is seen by the observer. By moving the turret and the flat mirror from within, any part of the sky can be reached. This instrument has the advantage of protecting the astronomer from cold weather in winter, or from insects in summer.

FOOD POISONING PREVENTION BY CAREFUL COOKING

FOOD poisoning may be caused by a great variety of factors, but outbreaks can more frequently be traced to

carelessness in the kitchen than to the use of unfit ingredients. Thorough heating of all food products; protection against contamination by dust, flies or other insects, rats and mice, and against contamination by human carriers of disease-producing bacteria; cleanliness and careful refrigeration are among the recommended precautions. Botulism, an increasingly serious source of food poisoning, is caused most frequently by home-canned goods which have not been completely sterilized in the canning process and in which the *Clostridium botulinum* organism develops its powerful poison.

Home-canned string beans and home-canned corn have frequently been sources of botulism. Almost nine tenths of the poisonings observed in the United States are caused by vegetables of various sorts preserved in brine; animal products are involved in less than one fifth. Canned goods containing a large amount of liquid appear more liable to the contamination than to relatively dry products.

While it is possible that ingredients such as eggs, milk or meat may be the vehicles of infection carrying poisoning organisms into the prepared mass, their development there is possible only because of failure to destroy them by adequate heating or to prevent their development by sufficient preparation, according to a bulletin on food poisoning. Foods such as meat pies, scalloped fish or oysters, hash, some salads, puddings, custards and cream pie fillings are frequently the cause of illness due to the fact that in their process of preparation insufficient heating is used to destroy the bacteria or their toxins and such prepared foods offer extremely favorable conditions for the development of bacteria if inadequately heated and improperly stored after preparation.

In the case of botulism, the food itself is made poisonous by the contaminating organism. Sometimes there is present an infection which makes a poison in the body of the host after the food is eaten. Trichinosis is often regarded as a form of poisoning caused by underdone pork. In reality, it is a disease caused by a parasite contained in infected pork. If the meat is sufficiently cooked to kill the parasite, the same pork can be eaten without dangerous results.

"Ptomaine poisoning" was at one time a popular explanation for the majority of cases of food poisoning. It was thought that protein foods degenerated into a toxic substance. This theory is now dismissed as false, and infection is blamed for the majority of food poisoning. Occasionally harmful chemical adulterants in food cause poisoning. Cases of gin paralysis have been traced to a poison present in adulterated forms of Jamaica ginger. Some cases of food poisoning have been traced to toxic substances contained in silver polish and consumed with the food.

Several epidemics of food poisoning on the Pacific Coast have been traced to a variety of mussel which becomes poisonous during the summer months. At first it was thought that the sickness incurred from eating the sea food might be caused by bacteria or by some pollution, but investigation has revealed that it is due to a poison originating in the mussel itself, the actual cause of which is unknown.

THE CONTROL OF GRASSHOPPERS

FACED with the prospect of a grasshopper inundation, Iowa farmers are preparing to employ a weapon the insect does not possess—strategy. The futility of completely warding off the attack of the hoppers, whose battle lines are advancing steadily eastward, has been realized. In consequence plans are being laid to deal a death blow to the grasshoppers which will carry on the war next spring after the lull of winter months.

Insect eggs by the thousands are being laid in the warm, firm soil now, and it is the young which hatch out in May and June that will attack the farmers' crops afresh. Iowa entomologists hope they will not live to do damage. Reports received at the U. S. Bureau of Entomology disclose that poison bran mash, the grasshopper nemesis, will be distributed in the spring of 1932 to destroy the pest before they develop and assemble in swarms which devour all cultivated crops.

Lack of funds occasioned by the drought prevented the more western farmers of South Dakota from declaring war this year on the grasshoppers as they first appeared. Other states were warned of the impending plague, but could do little toward stemming it.

The second strategic move which Iowa men will take is to plow their fields—many of them already stripped—in order to crush the egg deposited by the female grasshopper in a membranous pod an inch or so below the surface of the soil. If the rains come in the spring and the temperature lowers, man will find an ally in the weather as the hoppers can not survive in the present multitudes.

Iowa entomologists believe that unless such precautions are taken the situation next year will be unimproved and farmers will find themselves confronted with another despairing task.

DECLINE OF MAYAN EMPIRE

BECAUSE the face of the land in which they lived began to change insidiously, fatally, the Mayas of prehistoric America temporarily lost their grip on civilization, and their first Empire fell. This, at least, is the view advanced by a geologist who has returned from the region where America's greatest prehistoric civilization once flourished and then mysteriously succumbed.

The geologist, Dr. C. Wythe Cooke, of the U. S. Geological Survey, was sent by the Carnegie Institution of Washington to study the region within traveling range of the institution's camp at Uaxactun, Guatemala. Reporting his observations in the *Journal* of the Washington Academy of Sciences, Dr. Cooke describes the hill and lowland country as it is, and as it doubtless appeared in the days when the Mayas had their beautiful cities and their farms there.

The hills to-day are forested with big trees and a little underbrush. The lowlands are flat plains covered with a tangled mass of gnarled and twisted trees, festooned with vines. In the rainy season these low

plains are flooded. At one time evidently the plains were lakes all the year round, affording plenty of water for the region and good transportation. Both water supplies and transportation are highly inadequate to-day.

Dr. Cooke suggests that quite possibly the transition from lake to lowland took place during the time of the Mayan Empire. If so, this would explain many facts about Mayan economics now hard to understand.

"One may imagine the Peten District of Guatemala when first occupied by the Mayas to have had a thick fertile black soil," he states. "During the many centuries of the Mayan occupation more and more of the soil was washed away until the bare limestone was exposed. Then the land was abandoned and reverted to the jungle."

The erosion of the soil would have been enormously accelerated when the Mayas lived there, for the Mayas cut down the forest to grow quantities of corn for their large population.

If the geography of the region in Mayan days had been as it is now, all the provisions and merchandise would have had to be transported on the backs of men. Human burden bearers would have had a hard time of it traveling from one city to another over the low plains with their wild tangle of growth. But if we think of the lakes as they once were, it is easy to see that travel about the land in boats would have been easy, with only short overland distances to be covered between the large lakes.

The calamitous change of the lakes into plains may have brought disease to the Mayas as well as inconveniences. So long as the lakes were deep near shore, fishes would have eaten up the mosquitoes, but when the water became swamps and marshes, the mosquitoes must have risen up to plague the people, and malaria may have hastened the decline of the fine cities of the Old Mayan Empire. The once-populous region is to-day almost totally uninhabited.

ITEMS

PROBABLY for the first time, the two separate stars that constitute the body called sigma Scorpii have been observed separately. Professor Bernhard H. Dawson, of the observatory of the Argentine National University, saw them as the star emerged from occultation behind the moon. The interval between them was such that he figures their distance to be about one tenth of a second or arc, or about one eighteen thousandth the diameter of the moon in the sky. No existing telescope is powerful enough to separate such close bodies when observed in the usual way. Sigma Scorpii has been known in the past to be a double, or binary, from a study of its light through a spectroscope. As its two components revolve around each other, one approaches the earth as the other recedes, then their rôles are reversed. This causes the dark lines that appear in their spectra to separate and then come together. Many such bodies, known as spectroscopic binaries, are recorded in star catalogues, but Professor Dawson's observation is believed to be the first actually made of one component separately from the other.

THE danger to health and life of methanol, cheap synthetic wood alcohol which is being widely used as an automobile radiator anti-freeze and in certain industries, is not limited to its use as a beverage, Dr. Carey P. McCord, of the Industrial Health Conservancy Laboratories at Cincinnati, has reported to the American Chemical Society. The deaths last winter of 208 persons who drank methanol has overshadowed its other dangers, Dr. McCord pointed out, and urged that unusual protective measures for the safety of the public and of industrial workers are needed. Methanol is now finding wide use in such industries as dry-cleaning, hat-making, metal-working, painting and cabinet-making. Dr. McCord found in investigations with animals that methanol is just as dangerous when absorbed through the skin or when its vapor is inhaled as when the liquid is drunk. Authorities are not agreed, however, on the question of whether methanol is dangerous through skin absorption and inhalation.

THE unusual case of a man who lived for fifteen years with two sewing needles in his liver has been reported to the American Medical Association by Dr. George de Tarnowsky, of the University of Illinois College of Medicine. The patient, a man 52 years old, came to the hospital supposedly suffering from stomach ulcer of fifteen years' duration. He showed anxiety, and was reluctant to tell much of his past history, but confessed to his pastor soon after entering the hospital that he had tried to commit suicide fifteen years before by pushing two sewing needles into his abdomen. X-ray examination showed their position, and they were removed by operation. One needle had broken in half. One was found in the liver and the other in the ligament which helps to attach the liver to the diaphragm. The patient made an uneventful recovery and was completely relieved of the former symptoms.

DOCTORS examining emigrants from here to Canada are instructed to pay special attention to psychological factors, according to the *Lancet*, British medical publication. The medical examination is required of all classes of emigrants desiring to live permanently in Canada. It is hoped that the examination will detect not only the obvious physical or mental defects in prospective emigrants, but also those persons who have defective judgment, unstable nervous systems, or who are emotionally oversensitive. Release from restraining influences of the home environment is often too much for persons lacking in self-control or moral responsibility, the *Lancet* points out. The psychological stress of a complete change of environment is considerable. Comparative isolation in outlying districts; changes in money standard, food, cooking and dwellings; complete change in local interests and details of social life and activities; difference in customs and routine methods of doing business and work generally all tend to produce homesickness of such severity as to be really disabling.