

PUBLIC HEALTH

New Disease Is Reported; One Out of Five May Have It

American Public Health Association Discusses Link Between Soot and Pneumonia, Prevention of Colds

A NEW disease, which may have affected as many as one out of every five adults in the country without their knowing what they had, came in for discussion at the meeting of the American Public Health Association in New York City.

The disease has the jaw-breaking name lymphocytic choriomeningitis. It is caused by a virus. In about half the cases it causes fever and symptoms similar to influenza. In the other half it affects the membranes that cover the brain and causes more severe symptoms, such as bad headaches, stiff neck, nausea and vomiting and even slight, temporary paralysis. So far, no death has been reported in a proved case of this disease.

It is difficult or impossible to distinguish this new disease by clinical means alone from another brain membrane inflammation, acute aseptic meningitis,

Drs. R. D. Baird and Thomas M. Rivers of the Hospital of the Rockefeller Institute for Medical Research pointed out at the meeting.

The disease was discovered and its virus isolated by Drs. Charles Armstrong and R. D. Lillie of the U. S. National Institute of Health. They found the virus while studying viruses from St. Louis encephalitis epidemic patients in 1934. Two years before this Commander Paul F. Dickens of the U. S. Navy Medical Corps had reported two cases of what looked like acute aseptic meningitis but which he thought might be another disease caused by a virus. Since then the virus has been recovered from patients and from monkeys, mice and other animals in this country, England and France.

Diagnosis of the disease, say Dr. Armstrong, Drs. Baird and Rivers and

others who have studied it, depends on examination of the spinal fluid and on a mouse protection test. This consists in mixing the patient's serum with the virus and injecting it into mice. If the patient had the disease, his blood would have antibodies in it that neutralize the virus. In that case the mouse would remain well. But if the mouse gets sick, it shows that the patient's blood had no virus-neutralizing antibodies, and therefore that he did not have lymphocytic choriomeningitis.

Dr. Armstrong and associates made this test on blood from nearly 2,000 well persons who were having routine blood tests for other reasons. They found that among the adults, almost 20 per cent. had neutralizing antibodies in their blood, although none (*Turn next page*)

PHYSICS-MEDICINE

Super-Voltage X-Ray Doses Can Now Be Standardized

THE super-voltage X-rays used in treating deep-seated cancers can be accurately standardized for the first time, the U. S. Bureau of Standards has announced. Measurements up to 400,000 volts have been made for such standardization by two scientists of the Bureau's staffs, Dr. Lauriston S. Taylor and George Singer.

The significance of the work, Dr. Taylor told Science Service, is that it takes the "chance" out of previous work in the field of high-voltage X-ray therapy. Previous experimenters have used 400,000 volt X-ray without knowing, truly, what dosage they were administering. They obtained different results with the higher voltage rays but were unable to know whether the effect was due to the characteristics of the more piercing radiation or to inequalities in X-ray dosage. The new Bureau of Standards work permits dosages of radiation up to 400,000 volts to be known accurately for the first time. Previously 275,000 volts was "tops" for such calibration work.

To measure the rays, a tube of special design was constructed and one of the world's largest pressure X-ray ionization chambers (shown at left) was built.

This research was necessitated by the building and operation, within the last 3 years, of several dozen X-ray plants operating at the higher voltages. Previously X-rays generated by voltages up to 200,000 volts were used in treating cancer and other serious diseases.

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STANDARDIZING X-RAYS

Dr. Lauriston S. Taylor (left) and George Singer, Bureau of Standards experts, are shown with their machine for calibrating high-voltage X-ray machines. An ionization chamber is the core of the instrument which can measure for the first time voltages of 400,000. It takes the "chance" out of high voltage X-ray medical treatment.

of them recalled being sick with symptoms of any brain or nerve disease. This indicates that nearly one out of every five adults may have had the disease. The reason it has been missed in these patients is probably because when it does not affect the brain it behaves so much like influenza that it would be diagnosed as such.

In France Drs. P. Lepine, P. Mollaret and B. Kreis infected human guinea pigs with the virus of this disease. About half of them developed the brain inflammation symptoms while the other half had fever and symptoms of influenza.

Homicide Worst Killer

The human slayer is the new enemy that health authorities were urged to battle in their peacetime fight against preventable death when Dr. R. N. Whitfield, of the Mississippi State Board of Health, addressed the meeting.

No invisible bacillus or virus, homicide in 1935 took more lives than the germs of typhoid fever, paratyphoid fever, typhus fever, undulant fever, smallpox, scarlet fever and diphtheria combined.

"We have more deaths now from accidents than from all the contagious and infectious diseases combined, excepting tuberculosis," said Dr. Whitfield.

"How much more dead is a boy or girl who has succumbed to typhoid fever or diphtheria than is another boy or girl who has been knocked to Kingdom Come by an automobile? Therefore I am convinced that state and city directors of vital statistics and statisticians in general should become deeply concerned with the figures that bear on preventable causes of death other than contagious and infectious diseases."

Soot a Health Problem

A relation between pneumonia and soot in the air was reported by Dr. Samuel R. Haythorn and Harry B. Meller of Pittsburgh.

The studies were made to determine whether Pittsburgh's sooty air had any bearing, as might be suspected, on the city's high pneumonia death rate. The rate of pneumonia deaths in Pittsburgh is forty per cent higher than in the state of Pennsylvania.

The relation between the soot in the air and the amount of pneumonia is still not too clear. During the years of the depression, for example, when employment was low and economic conditions at their worst, there was a fall in the pneumonia death rate, but it is ris-

ing again with the return of industrial air pollution.

When, however, the scientists set about examining the amount of soot found in Pittsburghers' lungs after death and comparing this with the pneumonia records, they could find "nothing tangible to connect the pigment deposits with the high pneumonia incidence and high mortality rates."

More definite was the relation found between breathing sooty air and recovery from pneumonia. When a lot of soot gets into the lungs, enough to show signs of anthracosis (the lung disease caused by breathing sooty air and common among miners) pneumonia is more apt to heal by organization. This is a slower recovery than that which follows a crisis.

There was also more pneumonia in the groups where the lungs showed signs of most severe anthracosis. Since these groups were from occupations such as mining in which there was more exposure to coal dust and soot, it might seem that this proves that sooty air is a cause of pneumonia. But against this evidence has to be set the fact that the groups of severe anthracosis included not only those persons who had been exposed more to sooty air but also those in older age groups where pneumonia is more prevalent in non-sooty cities.

Vaccines Reduce Cold's Severity

Persons liable to have colds make up about one-fourth of any group of people in industry or business, and it is these persons who constitute a year-round reservoir of common colds, Dr. Leverett D. Bristol, health director of the American Telephone and Telegraph Company, told members of the American Public Health Association.

Vaccinating against the common cold does not seem to reduce the number of colds, but lessens the severity and shortens the duration of each cold. This is apparent from experiences a number of industrial concerns have had over a period of years in which every effort was made to reduce colds and the time lost due to them by employees.

The probable reason, Dr. Bristol said, why the vaccines are not effective in cutting the number of colds is that there is no vaccine against the cause—probably a virus—of colds themselves. Vaccines help because they are effective against secondary bacterial infections which follow colds and make them worse.

The cold-prone persons, Dr. Bristol said, should be "strongly urged if not required" to seek the advice and treat-

ment of their family physicians in order to reduce the number of their colds to a minimum. Aside from helping themselves, they would cut down on the time they lose from work, and protect their fellow workers and other people they meet.

Dr. Bristol's advice to those who want to protect themselves against colds was:

Good health habits, proper ventilation, a daily diet including milk and plenty of fresh fruits and vegetables, extra nourishment through cod liver oil, attention to diseased sinuses, increased alkalization of the body and ultraviolet radiations, where needed.

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INVENTION

New Type of Speed-Boat Patented by Gar Wood

GAR WOOD, America's speedboat king whom Sir Malcolm Campbell stripped of the world speed record on water on Sept. 1, has been granted a patent on a new type of boat claimed to be faster than the conventional kind, it is reported by the U. S. Patent Office.

The new type of boat will literally ride on a layer of compressed air the papers for the patent (No. 2,086,593) reveal. Skin friction between the boat and the water, the biggest single factor slowing down present-day speedboats, is expected to be substantially cut by the new design.

Whether the invention is to be used in a new assault on the motorboat record, set at 126.325 miles per hour by Sir Malcolm, could not be immediately learned.

The speedboat has a tunnel the entire length of the hull built into its bottom. Ribs form air channels parallel to the tunnel. Air is forced into the channels by blowers geared to the engines. The air pushes the water away, preventing it from contacting the tops of the channels. The tunnel is so deep that when the boat is speeding through the water, the water does not touch its top.

The unusual design results in the boat actually traveling on a cushion of air when going at top speed. The new boat is of the "tractor" type, with its propeller in the bow of the boat.

Frequent new departures in motorboat design have followed Wood's consistent attempts during the past decade to better the speed record. The boat which held the record until recently was Miss America X, the tenth in a famous line of racing craft.

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