

MEDICINE

'Flu Outbreaks in Europe

A new reporting system has been set up by the World Health Organization in the hope that with the aid of collaborating centers epidemics will be checked.

► IS A world-wide influenza epidemic like that which caused such havoc in 1918 now brewing?

Reports of hundreds of thousands of cases in France following an outbreak that afflicted half a million or more persons in Italy last month raise the question in the minds of health officials as well as laymen.

Here in the United States there are no signs yet of an epidemic. Latest reports to the U. S. Public Health Service show a national total of 2,821 cases for the week ended Jan. 1, which is only a slight increase over the 2,165 reported the preceding week.

World Health Organization officials hope their newly established influenza reporting and information stations will help check the epidemic before it spreads too far.

Object of the system is to detect, as swiftly as possible, the type of influenza virus causing an outbreak wherever it occurs. With this information, health authorities and doctors can be forewarned in time, it is hoped, to vaccinate people against the disease in advance of its spread.

The plan might be defeated by the speed with which influenza spreads. It might also be defeated if the type of virus causing the epidemic is not the same as those now included in commercial vaccines. The type of virus can be determined as quickly as 24 hours from the time material for typing is received in the laboratory. But leading vaccine producers in this country agree it would take seven months to produce the vaccine in large quantities. And they would only guarantee production within seven months if they could get started around the first of October of a year.

Fertile hen's eggs are needed for the vaccine production. The virus is grown on the embryo in the egg. Getting these eggs is not like going to the grocery store and buying a couple of dozen. Orders must be placed with farmers and they face seasonal problems. When the vaccine is finished, it must undergo sterility tests, for safety, before it can be released. These tests take two weeks each, and several must be made in succession.

Some hope of keeping the present outbreak in France from spreading very far appears in the fact that the present vaccines include both A and B types of influenza virus. World Health authorities think the French outbreak is a spread from the one in Italy last month. That was due to type B virus, according to the medical

school at the University of Rome.

Type B virus has been the cause of sporadic cases of influenza in Germany this winter among American troops and civilians attached to the military organization. No signs of an epidemic have been seen yet in Germany. The Army has an elaborate set-up there for influenza detection. Each station hospital there has a staff officer whose special job is to examine all cases suspected of having influenza. When a patient does have 'flu, this officer sends samples of his blood to an Army laboratory at Heidelberg where it is typed.

Venezuela also had a 'flu outbreak last month. This was also type B 'flu, our national Influenza Strain Study Center in New York determined from material sent them for typing. A recent outbreak in Puerto Rico, however, was found due to type A.

Besides the center in New York for determining virus strains, an Influenza Information Center has been set up at the National Institutes of Health in Bethesda, Md. This operates under a commission representing the Surgeon Generals of the Army, Navy, Public Health Service and Air Force. It also collaborates with the WHO World Influenza Center at London. Similar collaborating centers have been or are being set up in France, Sweden, Egypt and Italy.

'Flu Outbreak in Alaska

An outbreak of suspected influenza among U. S. troops at Big Delta, Alaska, has been reported to the Influenza Information Center at the U. S. National Institutes of Health. Samples of blood serum from suspected cases have been sent to Fort Baker, Calif., for typing and the Territorial Health Department laboratory at Anchorage has been alerted.

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PHYSICS

Ultrasonic Waves Can Perform Many Stunts

► LABORATORY stunts with high-pitched sound waves are easily performed with simple equipment, revealed by General Electric engineers, that can be made in most any school workshop. The apparatus consists of a hollow tube, with a piston, and a source of compressed air to discharge over the tube's mouth.

The tube, with the air blowing over its

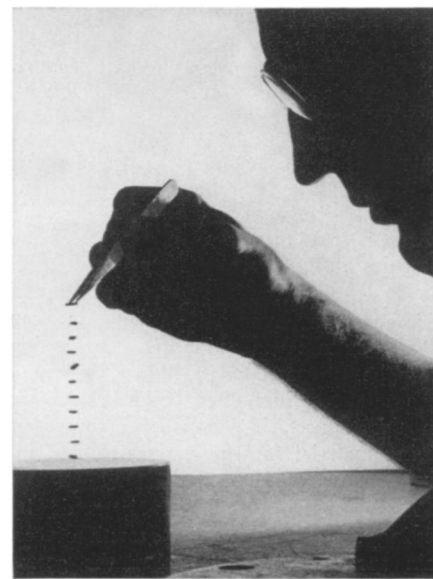
end, becomes a whistle. The simple piston can be moved up and down to regulate the pitch of the sound. When the piston is in the proper position, the whistle gives off sound waves too high-pitched to be audible to the human ear. These are the so-called ultrasonic waves. Experiments are best performed with waves of some 25,000 beats per second. The human ear cannot hear frequencies much above 17,000 beats per second.

The ultrasonic waves from the equipment are focussed to a point like light brought to a focal point by a concave mirror. When bits of cork are placed directly above the focal point, they remain suspended in the air a half wavelength apart. When cotton is held at the focal point, its particles are agitated by the unheard sound until the fabric smolders.

If talcum powder is sprinkled on a table, and the ultrasonic vibration reflected at an angle to it, the powder rearranges itself in wave patterns with ridges where the reflected vibrations meet origin vibrations direct from the whistle.

Ultrasonics have many interesting applications developed during the past few years and many more are promised. Apparatus has been built at Pennsylvania State College to give a pitch of 30,000 cycles. White mice placed in the sound field died after one minute of exposure. It kills insects also, and its possible uses range from sterilizing food, through medical treatment and eliminating the smoke nuisance, to speeding up chemical reactions.

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ULTRASONIC STUNT — Bits of cork are suspended ladder-fashion in mid-air by ultrasonic waves. The sound is coming from an air whistle, smaller than a cigarette, located two feet above the tweezers.