

PUBLIC HEALTH

Flu Epidemic Likely

Health authorities suggest that this fall would be a good time to be vaccinated unless your doctor advises against it. Time for type A to return.

► AN INFLUENZA epidemic is likely to come this winter (1954-55).

Health authorities will not make predictions about such epidemics, especially this far in advance. But one of them did tell SCIENCE SERVICE that this fall would be a good time to get vaccinated against the disease, unless, of course, your doctor advises against it.

The Defense Department apparently thinks the same. An order has gone out for American servicemen throughout the world to be vaccinated before Nov. 15.

Here are reasons for expecting an influenza epidemic this coming winter: 1. Influenza epidemics are due to type A 'flu virus. This virus appears in cycles of about two years. We had no influenza A last winter. In 1952-53 we had an influenza epidemic, type A. Two years before that, in the winter of 1950-51, there was another influenza A epidemic.

2. There was a sharp outbreak of influenza A in June of this year in South Africa. In May and June there was a type A outbreak in Australia. In August influenza A hit the Philippines. This pattern of summer and early fall 'flu epidemics in those regions of the world has sometimes been followed by an epidemic in the United States the following winter.

Health authorities are watching closely to see what comes of those three epidemics. So far, there is no influenza in the United States. It is, of course, too early in the year for it. The last epidemic broke out in the first week of January, 1953. Actually, it had started earlier with cases at Fort Leonard Wood, Mo., at the end of November, 1952. Looking back, health and medical authorities realized that was the start of the epidemic. But as so often happens in influenza epidemics, the actual start was missed and only recognized after the epidemic had gotten into full stride.

The Armed Forces did not start vaccinating early enough that year. They found, looking back, that their vaccination of servicemen overseas and in special areas in the U. S. was not started until the epidemic had about reached its peak. That is why the Nov. 15 deadline has been set for vaccinations this year.

Influenza vaccine should be given about a month before the disease is likely to attack. It takes at least two and probably four weeks for the vaccine to build up immunity in the vaccinated person. But since the protection from the vaccine does not last too long, it is best to vaccinate as near the start of the 'flu season or expected epidemic as possible while still allowing that

month for the body to develop immunity.

The vaccine being given servicemen is made of equal parts of two A virus strains and one B virus strain. It is a little stronger than the one previously used or than the one prepared for civilian use. The whole problem of influenza vaccines and just how to make them most effective is still unsettled. One thing is known, however. That is, that it is futile to vaccinate against 'flu at the beginning of an epidemic. The vaccinating must be done several weeks before.

Influenza B comes in six-year cycles instead of the two-year cycles of influenza A. This virus causes local outbreaks, sometimes over a wide area, or sporadic cases. But it does not cause the large regional outbreaks that make an epidemic. For example, when influenza B is the virus of the year, there may be a lot of 'flu cases in one town and none in a neighboring town. Over the nation, there may be enough towns with sharp B outbreaks to bring up a large national total of cases. But the pattern is not that of an epidemic such as virus A causes.

This B virus was first recognized in 1940 when it was widely prevalent. It next appeared in numerous local outbreaks in 1945-46, and then again in 1951-52. That is, it started at the end of the years 1945 and 1951 and got into full swing in 1946 and 1952. We can expect the next influenza B outbreaks about January, 1958, if it continues to follow this pattern.

Influenza outbreaks and epidemics are not likely, however, to cause the havoc of the great world-wide, pandemic of influenza in 1917-1918. The very high mortality which made that epidemic so disastrous was due to the pneumonia and other infections that followed in the wake of the 'flu. With penicillin and other antibiotics to stop the secondary infections, it is highly unlikely that an influenza epidemic will ever again cause so many deaths.

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CYTOLOGY

Test-Tube Cells Replace Human Guinea Pigs

► HUMAN GUINEA pigs may be replaced in future disease studies by glass-grown cells, thanks to Elsa M. Zitter, Relda Cailleau and Paul Kirk of the University of California.

Their achievement, the first serial cultivation of normal human cells directly on glass in liquid medium, is announced in *Science* (Sept. 24).

The growth of generation after genera-

tion of living bits of normal human beings in test tubes opens broad new vistas of research in virus diseases, cancer, and understanding of the cell.

Hela cancer cells have been cultivated this way, but classical serial cultivation of normal cells was previously limited to plasma clots in nutrient liquid. The cells could not be removed from plasma without killing them. Single generation serial cultivation of normal cells was possible, but standardization of material was impossible this way.

The key to the new technique appears to be adaptation of the cells to the clot first, giving time for adjustment to an artificial environment.

The method makes possible testing human viruses against normal human cells, getting in the laboratory much information unobtainable before except by infection of human volunteers. It may also be possible to grow viruses in human normal cells, to make better comparison of cancer and normal cells, to see what cancer-causing viruses do to these cells.

The technique opens a wide range of studies where information has been sketchy—cell nutrition, chemistry and differentiation.

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JIG-SAW—It is a scientific puzzle to put back together the skeleton of this Gavia, prehistoric relative of the modern alligator. Working on the reassembly job are Dr. Stanley Olsen (left) of the Museum of Comparative Zoology, Harvard University, Walter Auffenberg, University of Florida graduate student who discovered the bones, and John Maxfield of the Museum staff.