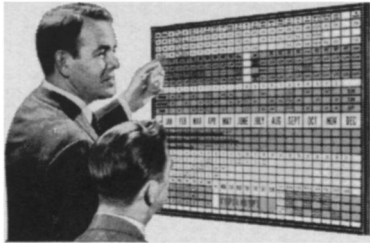


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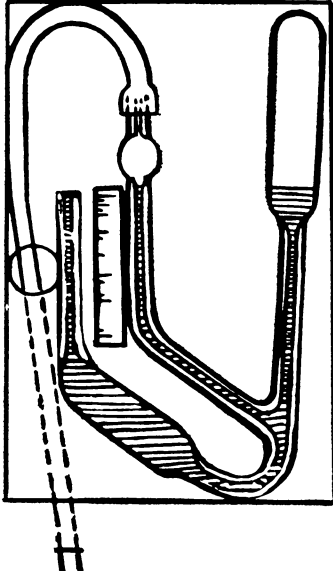
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BACTERIA

Flu, pneumonia and toxins

The Hong Kong flu is moving rapidly across the United States. Confined at first to Marines in Hawaii and San Diego, it spread to a civilian population in Needles, Calif., traveled north to Oregon, then south to Utah, later striking Colorado where public health officials expect it will sicken more than 100,000 persons. Isolated cases have occurred in New Jersey. In Connecticut the flu felled 450 Yale men.

By January, U.S. Surgeon General William Stewart predicts, it will be causing disease in epidemic proportions. To the young and healthy, the Hong Kong flu is no more dangerous than other strains of A2 influenza viruses that have been around for a decade. It makes them miserable for three or four days and then goes away. But to the elderly and chronically ill (some 30 million persons), this new type of flu virus presents a serious threat.

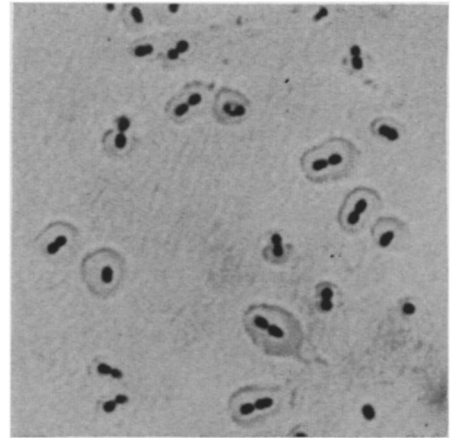
Since September, drug houses have been working around the clock to prepare a vaccine effective against the Hong Kong virus. Already some batches have been licensed, but it will be January before the industry can meet its goal of 17.5 million doses—precisely the time the epidemic will reach its peak.

The flu itself probably will not kill either the elderly or the chronically ill, but complications that follow it might.

Pneumococcal pneumonia is the complication doctors are worried about. In 1957, when the first outbreak of A2 influenza struck New York City, instances of pneumococcal (bacterial) pneumonia rose 300 percent, according to Dr. Robert Austrian of the University of Pennsylvania at Philadelphia. During the 1957 epidemic, 60,000 persons in the United States died. During the first six weeks of this year, pneumonia-influenza killed 1,200 individuals.

Pneumococcal bacteria, Dr. Austrian explains, are quite common. Most individuals harbor them at one time or another, but they are usually cleared by the lungs without incident. However, after a bout with the flu, the lungs' clearing mechanisms are likely to be worn down, giving the pneumonia-causing bacteria a chance to take hold.

Once, pneumonia was a dread disease. When a vaccine was developed in the 1940's, scientists hailed it as a triumph. But at about the same time, penicillin came along, with a more dramatic ability to cure pneumonia by rapidly killing all types of pneumococcal bacteria. Both doctors and the public considered the problem solved. Prevention was ignored in the face of cure,



Rockefeller University

Pneumococcal bacteria still threaten.

and E. R. Squibb and Sons, manufacturers of the vaccine, took it off the market for lack of sales.

But the wonder drugs were not a perfect solution. Dr. Austrian periodically issued warnings that pneumonia was still a lethal disease that could cause irreversible damage to organs before treatment started. In fact, it kills 15,000 to 25,000 persons every year. However, his reports were largely ignored until recently when the National Institutes of Health established a pneumonia vaccine development program. "Dr. Austrian has been a lone voice crying in the wilderness for 16 years," says Dr. Edwin M. Lerner II, director of the NIH project.

Now, Drs. Austrian and Lerner and others are working to revive the discarded vaccine, hoping it will be available within two years. Unlike vaccines against virus diseases, usually made from live or killed viruses, this vaccine is essentially a chemical product, made from sugars secreted at the surface of the pneumococcal organism. Dr. Lerner recommends it as standard preventive medicine, to be given to all individuals on their fifty-fifth birthdays. It is effective for five to eight years.

"We live in uneasy equilibrium with bacteria," Dr. Austrian observes, stressing the urgency of preventing pneumonia rather than settling for an imperfect cure.

Although he knows that pneumococcal bacteria can cause irreversible damage quickly, he does not know exactly how they do it and therefore has no approach to repairing damaged organs. "We have no evidence that pneumococci produce toxins as some bacteria do," he says. "We really don't know what they do, and for a long time, few persons have been trying to find out."