

VACCINES

Prevention better than Cure

ON the heels of the epidemic of Hong Kong flu which has swept with unexpected speed through thirty states in the United States, the National Institutes of Health's Institute of Allergy and Infectious Diseases at Bethesda, Maryland, has launched a programme aimed at preventing rather than curing one of the main complications of influenza—pneumonia. A contract worth \$214,000 has been awarded to Eli Lilly and Co. of Indianapolis to develop and make, for experimental use, two million doses of vaccine against the main pathogenic types of pneumonia bacteria. This is to be backed up, to the tune of \$400,000, by a nationwide surveillance programme involving 400,000 people and ten hospitals or health organizations, in which the bacteria which should first be attacked and the types of people who should first be immunized will be defined.

Interest in a vaccine against pneumococci was first shown in the United States towards the end of the Second World War, when E. R. Squibb and Son (now a subsidiary of Squibb Beech-Nut, Inc.) started to produce vaccine commercially against six types of pneumococci. As penicillin came into general use, however, emphasis was placed on cure rather than on prevention and the project was dropped. Since then, vaccines have been produced on a small scale only against other causes of pneumonia, namely, the pleuropneumonia-like organisms and several viruses, none of which respond to penicillin.

Figures for the United Kingdom of the number of cases of pneumonia caused annually by pneumococci are not available. In the United States, however, there are between 300,000 and 500,000 cases and about 40,000 deaths, most of them caused by types 1-8, 14 and 19. Although pneumococci are still extremely sensitive to penicillin, the drug is not effective for up to 5 days when most of the damage takes place. An effective polyvalent vaccine developed from the type-specific polysaccharides of most of the harmful pneumococci would overcome this problem.

Testing of the vaccines on humans is expected to take place next autumn, and a polyvalent vaccine for mass-vaccination of high-risk groups should be ready by 1970. If the vaccine comes up to expectation, it could reduce deaths from pneumococcal pneumonia by 60 per cent, and could save \$50 million to \$100 million in hospitalization and medical costs. The most desirable pneumonia vaccine would be one effective against pneumococci, pleuropneumonia-like organisms and viruses, but this would introduce the problem of the volume of vaccine which would have to be injected.

SEWING MACHINES

The Great Emancipator

THE sewing machine was probably the first domestic appliance. As such, it probably gave the woman of a hundred years ago as much liberation as the pill has today. The Smithsonian Institution, the US National Museum, has produced a handsome and surprisingly

moving book on the invention of the sewing machine¹. It was written by Grace Rogers Cooper, curator of textiles at the Museum of History and Technology. The photographs are largely from the Smithsonian collection, many of them showing the original machines presented for patent.

A German mechanic living in London in 1755 was the first to make a needle with an eye near its point on which mechanical sewing was later based. For nearly a century after, various inventors in Britain, France and the United States tried to use this in a device to imitate the motions made by the hand in sewing. There were several American patents issued, but none of the machines was demonstrably superior to the tailor. The bulk of the credit for inventing a workable machine goes to Elias Howe, jun., a poor Massachusetts machinist. His efforts, both in America and Britain, to gain recognition for his discovery, after it was patented in 1846, were heartbreaking in the classic manner. In despair, poverty stricken in Britain, he sold the British patent rights for £250 and returned to the United States in 1849, pawning his US patent papers for passage, arrived home, and borrowed money from his father to get to his wife's death-bed. His return was not cheered by the fact that other inventors were now manufacturing sewing machines for sale. Howe fought his competitors in the courts, won, by and large, and was a millionaire by his death in 1867.

The machine created the American garment industry, then the shoe industry. By the time of the Civil War, the Union Army had agreed to allow its men to be clothed in machine stitched uniforms. Machines appeared in every home that could afford them—prices dropped from about \$125 to \$50, and some brave manufacturers offered "fairy" machines—light-weight models for house-to-house seamstresses—for \$5. Competition was so intense that, in 1854, manufacturers pooled their patents and their profits (with extra royalties for Howe). The main elements of the machine are still the same today; the eye pointed needle used with a shuttle to form a lock stitch, the vertical moving needle above a horizontal workplate and a continuous feeding device by belt or wheel.

One reason why Singer has become synonymous—or almost synonymous—with sewing machines, apparently, was precociously brilliant marketing. At a time when women were shy of salesrooms, Singer made its shops oases of gentility, carpeted like living rooms with pretty young salesgirls. And why Clarks, the Scottish manufacturers who built a large mill in New Jersey in 1860, has become a big name in sewing cotton was the invention of a good six-ply cotton which resisted breaking. Our New Thread, it was called, and "O.N.T." still appears on some sewing cotton. The machine gave rise to the ready-to-wear business and to more elaborate clothes—frills, seams, ruffles all within the common reach. But for simple freedom from tedium, it must rank with the jet engine. One of the most fascinating tables in this carefully documented book is a comparative time study, published in 1861. A gentleman's shirt, stitched by machine, took 1 hour and 16 minutes; by hand, it took 14 hours and 26 minutes.

¹ *The Invention of the Sewing Machine*, by Grace Rogers Cooper, United States National Museum Bulletin No. 284 (Smithsonian Institution Press, Washington, DC).