

THE FIRST FORTY YEARS

1914-1955

CONNAUGHT MEDICAL RESEARCH LABORATORIES

UNIVERSITY OF TORONTO

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Chapter 7

THE EMERGENCY OF EPIDEMIC INFLUENZA 1918 - 1919

In August and September 1918 cases of "Spanish influenza" were reported in Boston and elsewhere in the New England States. Its occurrence in Europe and other parts of the world was also reported.

The outbreaks in the United States and Canada were characterized by a very high incidence - a third of the population being attacked - and by a high mortality. The largest number of deaths occurred in young adults. In Ontario more than 10,000 deaths from influenza were recorded from October to the end of April. The disease struck with suddenness, and 3,015 deaths were registered in October, 2,608 in November and 1,568 in December. In January the number was 1,514 and it further declined to 812 in February, 703 in March and 478 in April. The epidemic occurred in all the provinces and throughout the United States, and was the most devastating pandemic of modern times.

During the 1891-92 outbreak, Pfeiffer isolated a bacillus from patients which was considered to be the causative agent. In the United States, where the first outbreaks on this continent occurred, attempts were made to prevent the disease by using a vaccine prepared from strains of B. influenzae isolated from current cases. The New York City Department of Health Laboratories prepared such a vaccine, and details and cultures were generously supplied for the preparation of a vaccine in Canada.

In the absence of Dr. FitzGerald, who was serving in France, Dr. Defries undertook to make available an influenza vaccine. In the preparation of the vaccine eighteen New York strains were used, and other strains were added. Solid culture medium consisting of human blood (cooked) agar was used. The production of the large quantities of vaccine required was undertaken in the very limited quarters of the Antitoxin Laboratory in the Medical

Building. The work was conducted day and night during the weeks of the emergency. Dr. A.H. Graham and Miss Leila Hanna gave valuable assistance. The vaccine was supplied without charge by the Laboratories. It was furnished in large quantities to all the provincial departments of health, to the Armed Forces, to hospitals and other public services. It was emphasized that no claims were made for the vaccine, and the keeping of records to permit evaluation of the results was urged.

In connection with the preparation of the vaccine, the work of the Base Hospital Laboratory in the old Toronto General Hospital was of importance. As Dr. Defries was serving part-time in the C.A.M.C. and was attached to the Base Hospital Laboratory, it was possible to obtain freshly isolated strains of B. influenzae, to observe clinical cases and to correlate laboratory findings. Of special interest was the use of serum from recovered patients in the treatment of desperate cases. The results were often dramatic, with almost immediate improvement and recovery in many cases.

As the months passed, increasing doubts were expressed as to the role of B. influenzae. Widespread prevalence of streptococci was recorded and evidence accumulated that the influenza bacillus was not the primary cause of the disease. It was not, however, until 1933 that Andrewes and Laidlaw in England established that the disease was due to a virus.

The effort of the Laboratories to be of service was greatly appreciated by the provincial departments of health. The appalling nature of the pandemic with its enormous attack-rate and its tragic toll of deaths occasioned nationwide fears. Private and public services were disrupted. The preparation and trial of vaccine was fully warranted by the existent knowledge of the disease and its etiology.

Without question, the wide-spread use of the vaccine was helpful, contributing to the restoring of morale of hospital and institutional staffs and, indirectly, of the public. The contribution of the Laboratories in this national emergency helped to establish the Laboratories as a national public health centre in the minds of physicians and the public health authorities.