

PART 5.—EPIDEMIC OF INFLUENZA IN A RESIDENTIAL COLLEGE.

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Soon after the commencement of the first term of the present year (1928) an outbreak of influenza occurred in the school under review. The school is largely a residential one, there being 233 scholars in residence and forty day boys in attendance. The residents are divided into four houses, which we will designate A, B, C, and D. House A has fifty-five boys in residence. These are divided into three dormitories, accommodating nineteen, eighteen, eighteen respectively. House B has fifty-seven boys, each dormitory having nineteen boys in it. House C has fifty-five boys, the dormitories containing nineteen, eighteen, eighteen respectively. House D has sixty-six boys with four dormitories, housing sixteen, sixteen, seventeen, seventeen each respectively.

Each dormitory has good cross-ventilation, and each bed is placed between two windows, the distance between adjacent beds being about 3 ft. There is no overcrowding on space. The school year is divided into three terms. At the beginning of the term the school boarders consisted of fifty-six new boys and 174 boys who had been in residence for twelve months and over. There were three boys who had been in residence for one term each. In most further calculations we shall discard these three boys, and then we can divide the population into two main groups—namely, a group of fifty-six boys who at the time of the epidemic had no experience of the school, and a group of 174 boys who had at least three terms experience.

During the middle term of the year 1927, the medical officer of the school, after obtaining the consent of the parents and guardians, decided to carry out an inoculation campaign against influenza, his experience being that influenza was always more prevalent in the school during the latter half of the year. The vaccine he used contained (per cubic centimeter) *Staphylococcus aureus hæmolyticus*, 500 million; *Pneumococcus*, 100 million; *M. Catarrhalis*, 50 million; *Streptococcus*, 20 million; *B. influenzae*, 20 million. The strains used in the manufacture of this vaccine were what may be called "New Zealand" strains. The first dose was 0.5 c.c., and was followed seven days later by a dose of 0.75 c.c.

Of the 174 old boys attending the school this year, no less than 159 were given the vaccine. Therefore the school population at the beginning of the year can be divided into two groups—namely, boys inoculated with vaccine, 159; boys not inoculated with vaccine, 74.

Thus for the purposes of this investigation we divide the population firstly on a residential basis, and secondly on an inoculation basis, as follows—Total population, 223: 56 new boys (plus 3 with one term's residence), 174 old boys (with over three terms' residence); 159 boys inoculated with vaccine, 74 boys not inoculated with vaccine.

Accommodation for Sick.—Attached to the school is a small sanatorium where all the sick are accommodated. At the time of the epidemic under review this was not nearly sufficient. Two dormitories were therefore emptied and the boys distributed throughout the other dormitories. This fact makes it almost impossible to trace the course of infection in any one dormitory. This meant, except for the few boys who were treated in the sanatorium, that the population of the remaining dormitories was not sensibly reduced, because it was augmented by boys removed from the first dormitory used as an isolation ward, and, second, by the boys from the second dormitory put to use as an isolation ward. Moreover, as the population of the remaining dormitories was augmented, there was constant alteration in position of beds.

Day Boys.—There were at the beginning of the year forty day boys in attendance. These day boys come in contact with residents in the class-rooms, in the assembly-hall, and for the midday meal in the dining-room.

Source of Infection.—The probable source of infection was one boy who returned to school at the commencement of the term and was suffering from a slight cold and gave a history of having been in contact with a case of influenza. The school reopened early in February. Within a few days (the 8th) the first case was admitted to the sanatorium.

Type of Disease.—The type of disease was mild, and practically all the symptoms were confined to the nose and throat and adjacent sinuses. The temperature persisted for three or four days and then settled down. The only complications were sinusitis, tonsillitis, conjunctivitis, and one case of bronchitis. Unfortunately, no bacteriological examinations were made, so that no information is available as to the bacterial flora.

Isolation.—The cases were all kept in bed until the temperature had been normal for three days; thereafter they were kept in isolation for a further period of five days. The procedure was that as far as possible the sanatorium was kept for acute cases; the convalescents were drafted back into one of the two dormitories. While convalescing in the dormitory ward the boys were allowed to take meals in the dining-room, but at separate tables. All leave was stopped during the epidemic.

Course of the Epidemic.—The following table gives the number of cases occurring on each day.

		Table A.																												
		February.																												
Date		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29							
Number of cases		1	..	1	5	8	15	15	12	17	8	9	13	9	2	4	8	1	..	1	..	4						
		March.																												
Date		1	2	3	4	5	6	7																						
Number of cases		..	1	1	1	1																					

This table shows that of the total number of cases, 110, or 90 per cent., occurred between the 13th and 24th of the month. Three days later there was a slight recrudescence, and then the epidemic