OPPORTUNITY FOR PREVIOUS EXPOSURE BY CASES OF POLIOMYELITIS

UNTIL recently[1] epidemiologists have assumed that during an outbreak of poliomyelitis in a community, the virus is disseminated very widely and results in ready immunization. It ought to be interesting, therefore, to inquire whether positive cases of the disease have likely had previous occasions to become exposed. In Syracuse, outbreaks of poliomyelitis have occurred practically every other year in the decade from 1921 to 1930.[2] Upon the suggestion of Dr. George C. Ruhland, commissioner of health, such an investigation was carried out during the 1930 outbreak.

Since the largest previous epidemic occurred in 1924, children past their seventh birthday were investigated for this purpose. In the 1930 outbreak, there were 43 poliomyelitis patients 7 years old and over, and for 37 of these reliable information was obtained. Twenty-five had lived in the city the greater part of their lives or their entire lives. It was ascertained that they had been in the city during the summers when previous outbreaks had occurred. There were 2 individuals in the age group 10 to 19 who lived in Syracuse only the last 6 or 7 years. The remaining had been in Syracuse 3 years or less. One 7-year-old child was not in the city during the 1926 outbreak, but has lived here since. An eight-year-old had lived across the street from two children who had the disease in 1928. One of the adults was in Syracuse during the 1924 outbreak, but not since; another adult had not previously lived in Syracuse, but had lived in Utica all her life, where outbreaks have likewise occurred in 1921 and 1924. An even more striking instance in connection with this point is the family in which a girl, aged 6, had her onset on July 14 and died 5 days later. She remained at home the initial 4 days and during this time her brother, aged 5, was apparently exposed. He remained well, however; but two months later, actually on September 21, had his onset of a paralytic attack. Similarly, there was an instance of a child of 7 whose brother had had the disease in 1926, and both remained at home, yet he escaped at that time but did come down in the 1930 outbreak.

It is true, of course, that even in measles and chickenpox with their extremely high secondary attack rates, occasional instances are found in which a sibling escapes the disease despite home contact with a brother or sister, only to come down at a later time. Except when exposure results in an attack there is usually no way of telling when contact has produced effective exposure. Moreover, the factors in susceptibility or resistance to poliomyelitis are still to be elucidated.

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THE ISOLATION OF HEXURONIC ACID[1]

THE methods of Szent-Györgyi[2] and of Grettie and King,[3] Svirbely and King,[4] and Smith and King,[5] and Waugh and King,[6] have been tried for the isolation of hexuronic acid from orange juice. The method of Szent-Györgyi was found to be extremely complicated and fraught with difficulties. Better results were obtained by the less troublesome methods proposed by King and his coworkers.

The following difficulties were encountered, however, which require emphasis and should be brought to the attention of others working in this field.

The lead acetate used should be free from traces of copper, as this metal catalyzes the oxidation of the hexuronic acid.

When orange juice was fermented, metabolic products of the yeast were introduced which were carried through with the hexuronic acid. Thus succinic acid was formed which melts at about the same temperature as the hexuronic acid and forms needle-like crystals in the final preparation. In later experiments on unfermented juice, this difficulty was not encountered.

Finally, working in the humid climate of Washington, much trouble was had with the condensation of moisture. The hexuronic acid appears to be quite hygroscopic, and to achieve the best results absolutely dry reagents and a dry room in which to work are necessary. The exclusion of air by keeping the preparation in a vacuum or in an inert gas is also necessary.

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[3] Grettie and King, *Jour. Biol. Chem.*, 84, 771–6, 1929.
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CORDYLOPHORA IN MASSACHUSETTS

ON September 11, I took a colony of the freshwater hydroid, *Cordylophora lacustris* Allman, under circumstances which seem worthy of record. This colony was attached about the umbilicus of a living snail, *Planorbis trivolvis*, and consisted of a dozen or so small individuals without gonosomes. The specimen came from the Charles River at Gerry's Landing, Cambridge. This is 4.4 miles above the dam at