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.

A. CLEMENT SILVERMAN

COLLEGE OF MEDICINE
SYRACUSE UNIVERSITY

[1] S. D. Kramer and W. L. Aycock, Proc. Soc. Exp. Biol. and Med., 29, 98–99, 1931.
[2] A. C. Silverman, *Am. Jour. Dis. Ch.*, 41, 829–861, 1931.

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.

E. K. NELSON

[1] Food Research Division Contribution No. 163, Bureau of Chemistry and Soils, U. S. Department of Agriculture.
[2] Albert Szent-Györgyi, *Biochem. Jour.*, 22, 1387–1409, 1928.
[3] Grettie and King, *Jour. Biol. Chem.*, 84, 771–6, 1929.
[4] Svirbely and King, *Jour. Biol. Chem.*, 94, 483–90, 1931.
[5] Smith and King, *Jour. Biol. Chem.*, 94, 491–6, 1931.
[6] Waugh and King, *Jour. Biol. Chem.*, 97, 225–31, 1932.

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

the mouth of the river, but at the present time the chloride in the water is equivalent to .224 per cent. NaCl. Associated with the above animals were the decapods, *Palaemonetes vulgaris* and *Rhithropanopeus harrisi,* which ordinarily occur in salt or quite brackish water. While this occurrence of *Cordylophora* is rather similar to those described in the Biological Survey of the Woods Hole Region, it also raises the question as to the exact conditions under which the animal occurs in the interior states from which it has been several times reported.

CHARLES H. BLAKE
DEPARTMENT OF BIOLOGY AND PUBLIC HEALTH
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SCIENTIFIC MEETINGS

THIRTEENTH ANNUAL MEETING OF THE AMERICAN GEOPHYSICAL UNION

THE thirteenth annual assembly of the American Geophysical Union and of the meetings of its sections on April 28 and 29, 1932, was held at Washington, D. C., in the building of the National Academy of Sciences and National Research Council, except for two of the three meetings of the Section of Hydrology, which were held in the conference room of the Geological Survey in the building of the Department of the Interior.

The individual section meetings were marked by numerous progress reports on geophysical activities, not only in the United States, but also in Canada and in Mexico. The Section of Geodesy, following such progress reports, discussed gravity work, isostasy, instrumental developments, the moon's influence on latitude and aerial photogrammetry.

In the Section of Seismology the meeting was given over to a "Symposium on the Application of Seismology to the Study of Ocean-Basins."

In the Section of Meteorology accounts of the programs arranged for the Second International Polar Year of 1932–1933 and for the solar eclipse of August 31, 1932, were followed by papers bearing on winds in the upper atmosphere and in the antarctic, on atmospheric turbidity and water-vapor, on interrelations between air- and ocean-temperatures in California and the northeast Pacific, on weather-charts of the northern hemisphere and on a half century of American rainfall.

In the Section of Terrestrial Magnetism and Electricity the reports of 17 organizations regarding American activities in its fields during the past year were followed by papers relating to ionization of the upper atmosphere, its radio exploration and geophysical significance, to conducting-layer measurements at Little America, to periodicities in radio-transmission phenomena, to cosmic radio correlations, to slow-moving ions of the atmosphere, to lightning discharges and the electrical fields of thunder-storms and to instrumental progress.

The communications to the Section of Oceanography, besides progress reports showing the development of oceanographical work in the United States by governmental and private organizations, included discussions of light penetration into the sea, of formation of submarine valleys, of oceanic surveys of temperatures and the temperature gradients in oceanic waters, of Arctic and Atlantic interchanges, of radium content of ocean-bottom sediments, of microbiology and marine limestone and of oceanographic centers and methods of northwest Europe.

In the Section of Volcanology the papers dealt with Central American volcanoes in 1932, with volcanic developments in 1931–32 and with volatility of silica with steam.

The Section of Hydrology devoted the morning, afternoon and evening of April 28 to hearing reports of its nine permanent committees and 21 papers submitted by authors from federal governmental, state governmental, university and consulting engineering organizations. These covered numerous investigations and developments in scientific hydrology throughout the United States. They serve also to illustrate how wide-spread and how effective is the cooperation of American hydrologists.

At the business meeting which preceded the scientific session of the general assembly of the Union on April 29, 1932, the general secretary reported a total membership of 274 as of the date of May 1, 1932. This report gave some account of the relations of the union with the International Union of Geodesy and Geophysics and of the bearings of the union's activities in international geophysical expeditions as, for example, the International Scientific Expedition to the Bahamas during February and March, 1932, and the Arctic Expedition of the *Graf Zeppelin* in July, 1931.

The following resolutions, as proposed by the union and by its several sections, were unanimously approved:

(*I*) *Resolution on the Urgent Need of Continuing Oceanographic Work without Material Curtailment*

(Proposed by General Assembly)

Whereas, The great value of the oceanographic survey work conducted by various bureaus of the Government is universally recognized, and