the garbage cans, all of which were covered. Two children who developed poliomyelitis on August 7 and 9, respectively, were admitted to the City Hospital on August 11 from one of these homes. Investigation on August 16 revealed that 2 of 4 siblings had been ill for one day (August 4) with signs and symptoms suggestive of abortive poliomyelitis and that between August 7 and 13, 7 other children in the homes facing on the same yard had minor illnesses compatible with a diagnosis of abortive poliomyelitis. There was also the story that about a month before (early in July when only a few cases of poliomyelitis had been reported in Cleveland) after a severe storm the sewage overflowed, ran down the street, and some of the children became contaminated in the course of play. There were so few flies about that it hardly seemed worth while to set out a trap. However, about 500 flies (not identified as to species—mostly large green ones and many house flies) caught between August 16 and 18 yielded the virus upon inoculation into a Cynomolgus monkey. An etherized extract was injected intraperitoneally, and the unetherized material was given both intranasally and by mouth. The monkey developed paralysis on the 9th day and was sacrificed on the 10th day when all extremities were affected. Typical neuronal and infiltrative lesions were present in the spinal cord and passage to another Cynomolgus monkey resulted in flaccid paralysis on the 5th day and prostration on the 6th day. Histologically, this passage monkey exhibited necrosis and neuronophagia of practically all nerve cells in the spinal cord with typical infiltrative lesions. This virus was not pathogenic for mice, guinea pigs or rabbits.

The second positive result with a Cleveland specimen was with flies caught in the back yard of a private home (many miles from first site at the other end of town) in which 3 children of one family developed poliomyelitis between July 25 and July 30; two were removed to the hospital on July 30 and one on August 4. The home was fairly clean inside, with suitable toilet facilities, but it housed 7 other siblings, 2 of whom had had questionable minor illness. Four other children in adjacent homes gave histories of having had minor illness compatible with abortive poliomyelitis between August 1 and 10. There were open garbage cans in the neighbors' back yard and many flies were present. A large number of flies were caught in our trap, which was set out in the yard between August 9 and 12. Material from a specimen weighing 31 gm and consisting mostly of large green flies, some small house flies and one bee produced paralysis (confirmed by positive histological findings) in a Cynomolgus monkey on the 9th day.

The Atlanta specimen weighed only 2.5 gm and consisted of 203 small house flies, 3 green flies, 2 large black flies, one moth, 1 caterpillar and one unidentified 4-winged insect. It was collected between July 30 and 31 and represented a pool of insects caught in two places, one more or less in the center of town and the other on the outskirts. One case of paralytic poliomyelitis occurred in each home, but the children had been in the hospital since July 18 and July 14, respectively. The inoculated Cynomolgus monkey became paralyzed on the 15th day and exhibited poliomyelitic lesions in the spinal cord and medulla. Passage into another Cynomolgus monkey resulted in paralysis on the 6th day. The virus was not pathogenic for mice.

The ease with which poliomyelitis virus can thus be isolated from flies caught in urban areas (where immediate contamination with feces in open privies is at least not obvious) suggests that they may play an important role in transmission of the virus and may perhaps be responsible for the special seasonal incidence of the disease. Among the many problems which these findings raise for future investigation, the question of whether or not the virus may actually multiply in the flies deserves the most careful attention.

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

THE USE OF MERCURY IN CONTACT WITH AMMONIA

IT has recently been called to the attention of the author that the use of mercury in contact with liquid ammonia or ammonia gas constitutes an explosive hazard, and that procedures involving the contact of these substances should be avoided. The author has been using mercury in contact with liquid ammonia and ammonia gas in various ways for more than twelve years. He has found mercury to be a most convenient substance for certain uses with liquid ammonia, and he has never found any combination of the two substances to be explosive under the conditions of his experiments. Several other workers known to the author have also used mercury and ammonia in contact without explosive reactions occur-

ring. Franklin,[1] in his description of ammono bases and basic nitrides, describes several explosive compounds that can be prepared in liquid ammonia. Among them is mercuric nitride, which detonates violently by impact or on being brought into contact with liquid water. Such compounds are generally prepared by metathetic reactions, however. He has recorded no reactions that might occur between metallic mercury and liquid or gaseous ammonia.

Two violent explosions that seem to have been caused by contact of mercury with ammonia have been described by Van Brunt[2] and by Henderson.[3] In both of these cases, however, the mercury was held in containers made entirely of iron or of iron and glass. Franklin[1] has not recorded any explosive compounds of iron that have been prepared in liquid ammonia, but he and several other workers, Ewan,[4] Miller and Roberts[5] and Nieuwland[6] have described the remarkable catalytic properties of iron and steel and of certain iron salts for some reactions that have been carried out in liquid ammonia. It seems possible then that the explosions in question have been brought about by the catalytic action of the metal containers. If any workers with liquid ammonia have in the past noted any explosive reactions between metallic mercury and liquid or gaseous ammonia wherein the reacting materials have been enclosed entirely in glass, the author feels that many workers would welcome the publication of such information.

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A TECHNIQUE FOR THE ELECTRON MICROSCOPIC EXAMINATION OF ENCAPSULATED BACTERIA

A STUDY of encapsulated bacteria is being carried on at the Institute of Paper Chemistry as part of an investigation of the causes for and the control of slime in paper mills.

The bacterial cells were seen, but neither the capsules nor the outlines of the capsules were visible when the specimens were prepared for the electron microscope by the ordinary technique of placing a drop of the bacterial suspension on the collodion film-covered specimen screen and drying. This failure to observe the capsules in the electron microscope is entirely analogous to the difficulty experienced in light microscopy when attempts are made to observe capsular material without the use of special and difficult staining procedures or without Gins India ink smear technique. In view of our failure to prepare satisfactory specimens for the electron microscope by the usual technique, the use of a method similar to Gins was clearly indicated. The following procedure was found convenient and satisfactory:

India ink is diluted with about an equal volume of distilled water and a drop of the diluted ink placed on a slide and mixed with a drop of the bacterial suspension. Smears are made as in Gins method. Without fixing and staining the smear, a few drops of a 2 per cent. solution of collodion in amyl acetate are placed on the slide outside of the area covered by the smear and the slide is tilted and turned to allow the collodion solution to run over the smear. The excess solution is removed by a blotter on which the end or corner of the slide rests and the thin film on the slide is allowed to dry. Immediately thereafter, the slide is gently lowered, film side up and with its length forming a 45-degree angle with the water surface, into a dish of distilled water. The collodion film separates from the glass and, carrying the smear with it, floats on the surface of the water. The specimen screens are then placed on the film and handled in the usual fashion for preparing specimens to be examined in the electron microscope.

The specimens prepared for the electron microscope in this way clearly show the outline of the capsules surrounding the bacterial cells.

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