

Etiology of Zymotic Enteritis.

Dr. Ralph Vincent, Senior Physician to the Infants' Hospital, Vincent Square, S.W., has written a most interesting paper on the above subject, which is published by Messrs. Ballière, Tindall and Cox. In the preface the author states that in the course of the last ten years he has been engaged in an investigation of the conditions of disease as found in infants. Seven years ago he had provisionally determined the essential causes of zymotic enteritis, or "epidemic diarrhoea," as it is officially named, but was not then prepared to offer any precisely formulated explanation of the relationship existing between the organisms responsible for the disease and the processes by which the disease attacks the infant. Three years later he conceived the explanation advanced in the paper under consideration, but was unwilling to publish statements so diametrically opposed to current opinion and practice until he had tested them by check and counter-check.

Dr. Vincent says, in part, that zymotic enteritis is the most fatal disease of infancy, and despite the advances which sanitation has made in this country, no corresponding improvement is observable in the infant mortality rates. On the contrary, it has been clearly shown by Newman that epidemic diarrhoea (the official name of the disease) is steadily increasing as a factor in the causation of death among infants under one year of age.

'Diarrhoea, which formerly caused the death of 10 per cent. of dead infants, has increased in half a century to 15 per cent.; respiratory diseases have risen from 16 to 18 per cent.; and prematurity from 17 to 29 per cent. . . . Other children's diseases are vanishing or have vanished. There has been a vast improvement in the general environment surrounding their lives, but the problem of infantile mortality still remains because of the increase in these diseases—prematurity, pneumonia, and diarrhoea.'

The group of conditions broadly indicated by the terms immaturity, prematurity, or congenital defect are of great importance, for they show that ante-natal conditions are responsible for a large proportion of deaths occurring in infancy. These deaths are sharply distinguished from those arising from causes that affect the infant after birth by the fact that the deaths arising from congenital defect occur for the most part in the first few weeks of life, and practically all of them within the first three months. The great increase in the proportion of deaths caused by "epidemic diarrhoea" cannot, however, be so accounted for. The disease may attack the infant at any age, but

its greatest intensity of attack is not exercised upon the youngest infants, but upon infants between the ages of four and eight months.

The increase in the proportion of deaths from respiratory disease is probably closely connected with the increase in diarrhoea.

With regard to zymotic enteritis, it is necessary to lay stress upon the fact that the disease is an extremely acute one, and is widely removed in its clinical characters from the chronic digestive derangements from which infants commonly suffer as the result of improper feeding.

The infants most liable to suffer from the disease in its most violent and fatal form are those in whom alimentary disorders have been established for some time. Their condition is one in which the processes of zymotic enteritis find their unfettered opportunity. In some cases it may be difficult to establish the line of demarcation between the simple and the toxic enteritis; nevertheless the clinical types are essentially distinct. The disease is so fatal that the consideration of its etiology, and of the methods by which it may be prevented, is of much greater moment than that of the therapeutic measures to be adopted when the infant is attacked. For, with the most expert treatment available, the recovery of the infant is in reality dependent upon the dose of poison the infant has received, the precise degree of virulence of the poison, and the constitutional vigour of the infant. The disease is most prevalent and most fatal during the third quarter of the year. The higher the temperature of the late summer, the greater the prevalence of the disease, especially if this high temperature be associated with but little rain. In other words, meteorological conditions involving a high temperature with much dust are those which promote the conditions which accompany the greatest incidence of the disease. Other authorities—notably Dr. J. T. C. Nash, of Norwich, and Dr. Niven, of Manchester—have drawn attention to the part played by flies in the dissemination of the disease. Dr. Vincent draws attention to three conclusions of Dr. Newsholme as being of particular importance:

1. Epidemic diarrhoea is chiefly a disease of urban life.
2. Epidemic diarrhoea, as a fatal disease, is a disease of the artisan, and still more of the lower labouring classes to a preponderant extent. This is probably largely a question of social status, *per se*; that is, it is due to neglect of infants, uncleanly storage of food, industrial occupations of mothers, etc.
3. The fundamental condition favouring epidemic diarrhoea is an unclean soil, the particulate poison from which infects the air and is swallowed, most commonly with food, especially milk.

Dr. Vincent believes that in the first place

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