

diphtheria, measles, etc., in the present century. And in epidemics in the present century, whether they be mild or severe, whether the fatalities be few or many, and whether there be much or little vaccination in the community, it is found that both the attack rate and the fatality rate are much greater in the unvaccinated than in the vaccinated in proportion to their numbers.

9. The degree of protection conferred by vaccination corresponds to the thoroughness with which the operation has been performed, three or four marks being much better than one or two, and a large mark much better than a small one.

In Dr. Glayton's 10,403 cases at the Homerton Hospital, 2,085 had good marks, and the fatality rate was 3 per cent.; 4,854 had indifferent marks, and the fatality rate was 9 per cent.; 1,295 were alleged to be vaccinated, but had no marks, and the fatality rate was 27 per cent.; and 2,169 were unvaccinated and the fatality rate was 43 per cent. Taking "good" marks only, and attending to their numbers, Dr. Gayton found that with one mark the fatality rate was 4.1 per cent.; with two marks, 3.3 per cent.; with three marks, 2.3 per cent.; with four or more marks, 1.5 per cent. The cases on which these percentages are founded were 529, 649, 518 and 389 respectively. Taking nearly 7,000 cases observed in recent years, the Royal Commission found that the smallpox fatality rate in persons with one mark was 6.2 per cent.; with two marks, 5.8 per cent.; with three marks, 3.7 per cent.; and with four marks, 2.2 per cent.

It is comparatively seldom that cases come to hospital with the smallpox eruption so far advanced and profuse as to obscure the vaccination marks, but in hospital statistics in this country a column is provided for "doubtful" cases, and if the figures for any large hospital be examined it will be seen that the inclusion of such cases either as "vaccinated" or "unvaccinated" does not alter the lesson taught by the statistics.

10. Sanitation cannot account for the facts above set forth.

Whooping cough and measles deaths still belong to childhood as in the last century, while smallpox deaths have been removed from childhood to later periods of life. How could sanitation account for this differentiation? If it be suggested that because sanitation confers a special benefit on children it may have altered the age incidence of smallpox, the answer is got by looking at facts. In Germany, as we have seen, vaccination is not compulsory till the second year, and over 40 per cent. of all the smallpox deaths occur under two years of age. In Scotland the vaccination age is six months, and children under six months make just about the same contribution (138 deaths per 1,000 deaths) to the total smallpox deaths as they did (139 deaths per 1,000) before the vaccination law was passed. But in the next half-year of life—the half-year of vaccination—the contribution has fallen from 153 to 47. Surely this is vaccination and not sanitation. In a community attacked by