

3. In countries where there is much vaccination and re-vaccination relative-ly to the population, there is little small-pox.

In Prussia both vaccination and revaccination are compulsory, and small-pox mortality is almost abolished.* Beginning with the year 1816, it is found that in that country previous to the law of 1874 the small-pox death-rate was 309 per annum per million of population. Since then, ending with 1892, it has been 15, and in the last ten years of the period only 7. Moreover, the compulsory vaccination age is the second year of life, and investigation showed that in 1886-90 more than two-fifths of the few deaths that occurred from small-pox were under two years of age. In Austria where vaccination is not compulsory, the rate instead of being 7 per million as in Prussia, was 458 in the same period. In Belgium also vaccination is not compulsory, and in 1875-84 it had a rate of 441 per million as compared with Prussia's 22 in the same period. In Italy since 1888 vaccination of infants has been compulsory, as has revaccination of children attending *public* schools. Already a great improvement is indicated. In 1881-90 the small-pox death rate was 355 per million per annum, and in 1891-94 it was only 65. At the time of the European epidemic of 1870-75 Scotland, England, Sweden and Bavaria had a compulsory vaccination law, and their small-pox rates per million in the worst years were 1,470, 1,830, 1,660 and 1,660 respectively. Prussia, Holland and Austria had no general compulsory vaccination, and their rates in the worst years were 5,060, 5,490, and 6,180. Coming to 1877-86, with vaccination not compulsory in Austria, with only infantile vaccination compulsory in England, and with vaccination and revaccination compulsory in Prussia, the average death rate per million from small-pox in the capitals of these three countries was in Vienna 670, in London 250, and in Berlin 10. In London the rate would have been less but for the disease spreading from the small-pox hospitals that it then contained.

4. In classes among which there is much vaccination and re-vaccination there is little small-pox.

In epidemics, as in London, Sheffield, and Warrington, re vaccinated postman and policemen remained safe in the midst of exposure to infection. Sir Charles Dilke stated in 1883 that the average strength of the permanent postal service in London was 10,504 in 1870-80, and yet during all that period including the great epidemic, there was not a single death from small pox, and only ten slight cases. In 1891-94, the employees of the General Post Office were over 55,000, yet there was only 17 cases of small-pox and one death, though postmen owing to the nature of their duties are specially exposed to infection.

In the Army and Navy, where a large majority of the men are successfully revaccinated, there is very little small-pox—very much less than before revaccination become so prevalent.

No persons are so terribly exposed to infectious diseases as are the nurses in fever and small-pox hospitals. As regards fever nurses, Dr.

*As regards the Prussian vaccination laws see BRIT. MED. JOUR., 1894, vol. ii, p. 1213 and Dr. Edwards in *The Practitioner* of May, 1896