

out these statements. Referring to the operation on the calf, Copeman points out that on the fourth day the pustule is mature, and that the lymph is then taken and treated, thereby showing that with glycerinized lymph the evolution of the vesicle is the same as with the lymph unglycerinized. It may be further remarked that in the experimental work of Chambon and Beclere, of the Animal Vaccine Institute of Paris, the history of normal vaccination is the same as that given above. The immunity of bovines and of children and of monkeys thus vaccinated to revaccination is not only relative, but for several years practically absolute. Of the protective qualities of vaccination against exposure to small-pox in the persons of physicians and nurses, it is unnecessary to dilate, as we have personal knowledge of the facts in the case of hundreds during the past twenty years, as well as the protection up to the fourth day by immediate vaccination of exposed persons. Copeman gives many illustrative examples of the same fact. That in a whole series of cases with relatively inert vaccine such immunity does not exist against even mild small-pox has been brought to our knowledge in different outbreaks within the last few years, and further, that persons with no cicatrices from a previous vaccination, have within periods from a month to a year thereafter, been revaccinated with perfect success.

Copeman, speaking of the necessity for efficient vaccination, points out in a study of recent statistics compared with those of former years, "that we are taught a variety of lessons of which the most important is that while infant vaccination affords an almost absolute immunity from small-pox up to ten years, to do so it must be efficient." Absolute immunity, he further states, is practically obtained with a revaccination after ten years. He points out that the more closely the vaccination of patients in recent epidemics has been studied, the more obvious has it become that a deplorably large proportion of the nominally vaccinated have been most inefficiently vaccinated, and are consequently almost unprotected against small-pox, and says: "So long as medical men, in their mistaken good nature, are found ready to yield to the ignorance or vanity of applicants for vaccination, and to make only one, or perhaps two, insignificant insertions of lymph in a child's arm, and to certify cases of that kind as successfully vaccinated, so long shall we have to struggle against the fallacies and sophistries of anti-vaccinationists." Asking further how efficient vaccination is to be secured, he states: "That the Local Government Board prescribe that public vaccination shall in all ordinary primary cases produce at least four goodsized separate vesicles not less than half an inch in diameter. The total should not be less than half a square inch.