

One day after, the residual film was moistened with water, and a child successfully vaccinated with it.

This experiment was repeated, but the mixture, instead of being used to vaccinate one day after its preparation, was laid aside for ten days, in order to see whether more prolonged contact of potash and lymph would annul the latter's infecting powers, in accordance with the law that alkalies hasten the oxidation of organic matter. The remaining film was moistened with water, and a child vaccinated with it. The operation was unsuccessful.

I shall now consider what does not destroy the infecting power of vaccine lymph. Melsens, in the *Journal de Pharmacie et de Chemie*, 1870, shows that vaccine lymph retains its activity when exposed to the intense cold of -80° centigrade. In my own experiments alluded to, I found that the concentrated vapors of carbolic acid, chloroform, camphor, ether, and iodine, had no impression on lymph. This result was more expressive with carbolic acid, as through an inadvertency it was allowed to act on its lymph twelve hours longer than were the other bodies on theirs. As this was confirmatory of previous effects obtained from carbolic acid, I resolved to investigate the matter further, more especially as Lemaire states he found that vaccine mixed with carbolic acid failed to vaccinate. Also, that in infants, when immediately after vaccination the puncture was touched with carbolic acid, no vaccinal vesicle resulted. Crookes also says that a trace of carbolic acid annuls the infecting power of vaccine lymph. Besides, as you are aware, this body has been extolled as the *ne plus ultra* of antizymotics.

I accordingly made the following amongst other experiments:

(1) A tube of vaccine lymph was mixed with one minim of a one in fifty aqueous solution of carbolic acid, exposed to common air for ten days. The resulting film was then moistened with water, reaction neutral, and a child successfully vaccinated with it.

(2) A tube of vaccine lymph was mixed with two minims of a one in twenty aqueous solution of carbolic acid, equal to one-fifth grain of pure acid. The mixture was bulky from coagulation of the lymph, and was at once sealed in tubes. Five days after a child was vaccinated with it. The operation was unsuccessful.

(3) The second experiment was repeated, but the mixture of lymph and acid, instead of being immediately sealed in