

out other signs of smallpox. It seems, then, we must assume that some modification of the smallpox germ takes place either within or without the human body before it can give rise to cowpox. Copeman's experiments upon monkeys are most interesting and have apparently indicated in a general way the direction in which we must look for an explanation of these features of vaccination, which have been puzzling when considered in relation to immunity as known to be conferred in the case of infectious diseases other than smallpox. In these experiments monkeys were inoculated with lymph from varicellous individuals, with humanized vaccinia lymph and with bovine lymph, and it was found that any one of these lymphs rendered the animal inoculated, *proof against the others*. It has further been observed that infection of bovines with varicellous matter is much more readily brought about if the virus have been first passed through the monkey; usually, it is said, at the first attempt. We have, then, in forming our conclusions as to the relationship existing between smallpox and cowpox to take into account what we know of acquired immunity in general, the results of certain accidental transferences of the diseases and the results of purposive experiments, and on all grounds we must admit a very close relationship, if not identity.

The problem of the connexion between smallpox and cowpox while both scientifically and practically important, is, so far as the community is concerned much less so than that of the protection conferred from smallpox by vaccination. Anti-vaccinationists, though few in numbers, have always been strenuous in their opposition to the practice of vaccination and have in some countries—England for example—made their influence to be largely felt. Two chief reasons are advanced why vaccination should not be carried out: 1st. That it is futile as protective; 2nd, that it is frequently accompanied by accidents and complications, and may leave sequelæ which are disastrous to the individual, and may even terminate in death. In all matters affecting the State the "Safety of the Community is the Supreme Law." If it can be shown, and we do not doubt it can, that vaccination properly carried out, even though disastrous results to certain individuals may in some rare instances follow, is any considerable protection against the ravages and mortality of smallpox, then, till we can replace it by better means, vaccination we must make use of. And this involves the propriety of compulsory vaccination not merely the optional acceptance of something recommended. An appeal to statistics ought to be final in this matter, but here, as always where statistics are called in to witness, we find accusations of manipulation made by both sides.