When you inject it intravenously you get an immediate full dose in the blood. What is necessary to get protection of the body. The poisons have been absorbed in the tissues and have gone into the lymph and the blood, and scattered throughout the body. In tetanus, say, they have done this and already we have got the main nerve centres involved. The toxin is in contact with the cells of the body. Every minute in tetanus counts, and every hour in diphtheria. How can we get the antibodies in contact with the poisons? We not only want to get the protection in the blood, but also in the tissues. The ordinary way even in tetanus, is to give a subcutaneous injection. Also in diphtheria this is the ordinary way. Many men have shown why we should use intravenous methods. Henson Smith points out the extreme slowness with which antitoxins are taken up by the lymph and carried to the blood. Other workers soon gave new weight to this by experiments. Thus in subcutaneous injections, in five hours only two per cent. reaches the blood. After fourteen hours only twenty per cent; at thirty hours, sixty per cent; at forty hours, ninety per cent., and at seventy hours, one hundred per cent. Thus it took seventy hours before the doses of antitoxin gave together, a full effect.

In duplicating this, I recently had two rabbits injected with 10,000 units, one receiving it intravenously and the other subcutaneously. At the end of five minutes, the rabbit that received intravenous inejction showed seventy units per cc., while after thirty minutes the one that received the injection subcutaneously, showed only a trace. After six hours, the first had fifty units, the other fifteen.

There is also a great deal of difference in the clinical results between intravenous and subcutaneous injections. Therefore, in conferring passive immunity, always give the first injection intravenously. After that subcutaneous injections may be given as they will add to the declining first injection in the blood.

One other point which is of interest is the inheritance of acquired immunity. Natural immunity is inherited from both parents. Acquired immunity is only inherited through the mother, the transfer being a purely chemical transfer, as is well proved in the difference between homologous and heterologous injections. The question is, when is the immunity passed, whether in utero or through the milk. There have been rather conflicting ideas on this point, although all agree that some immunity is transferred both before and after birth. Some of the work done seems to show that the milk is the important transferring agent rather than the circulation of the mother. Erhlich used mice, and in these the greater transfer seemed to take place before birth. As a parallel we may quote that most children never have measles before five months of age, if the mother has already had the disease.

A male and female goat were injected, the latter before delivery, and while they both produced antitoxin, the male stopped at a certain point whereas the female went on beyond this point, and when the kids were born their immunity was the same as that of the mother. The milk of the mother contained much antibody, which, however, dropped very quickly. The first few ounces contained a large quantity, but the amount that the kids received from their mother was so slight that one of them being put on cow's milk, and the other being left