

## ALL DISEASES MAY BE FOUGHT WITH SERUMS

Possible to Be Made Immune  
From Almost Every Human  
Affliction.

### DIPHTHERIA IS REDUCED

By FREDERIC J. HASKIN.

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Besides creating new biological products and safeguarding those on which the general public depends, the Government has one other duty in connection with them. That is to try to keep useless serums off the market. In this the Federal Government has only a limited control. It can, and does, refuse a license to a maker of a serum which is not safe or valuable or harmful, so that it cannot ship it out of the State in which it is made. This keeps him from doing an extensive business, but it does not prevent him from selling his goods throughout the States. That is a matter of practice.

Some time ago, a way was found to ascertain whether or not an individual can take diphtheria, and a means was developed, similar to vaccination against smallpox, to protect those who are liable to it. To produce a serum or vaccine is a long and tedious process, and to get people to accept it is still more difficult. New York has begun to test and the protective injections in its schools are now in use, and now the New York public schools are planning to see that every child belonging to the school system is immune from diphtheria.

The process, known as the Schick test, is a simple one. A few drops of a prepared diphtheria toxin are injected into the arm of the subject. If a red spot appears in two or three days, he is immune. Those who are liable to diphtheria are then safeguarded by injections of a mixture of diphtheria toxin, or poison, and anti-toxin. This vaccine does not pass out of the system in a few months as the anti-toxin given in diphtheria cases does. Its protective influence seems to be permanent, or at least to last a number of years.

#### AGES WHEN DIPHTHERIA MUST PREVAIL

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From tests so far made, the doctors conclude that a large proportion of babies are immune from diphtheria. When the third or fourth year is reached, the percentage of immunity has dropped to its lowest point. Children of that age are most liable to it. In older children the number of immune increases, and the majority of adults are not susceptible to diphtheria.

It will still require some time to popularize precaution against diphtheria, just as it too kito make vaccination accepted by all. Two hundred years ago almost everybody had smallpox at some time during his life. The vaccine was discovered, people were convinced of its value and now a case or two of smallpox in a town is a rare calamity. The same thing should be true of diphtheria when the Schick test and protective injections become part of the health regimen of the community.

So much depends on the quality and content of each dose of a serum or other biological product that the Government maintains a strict supervision over the production of those in constant use. In the case of some products—the pneumococci and meningococci serum and salvarsan, which is a remedy for diphtheria—a manufacturer must send samples out of every lot made to the public health service at Washington. Here they are analyzed and tried out on animals. If the animals die, or if the sample does not contain the exact proportion of ingredients as stated, it is sent back to the firm and the lot must be destroyed. As this means a serious loss to a firm, these products are made with great care. Comparatively little is rejected—about 5 per cent of salvarsan, for example, 15 per cent of pneumococci serum and almost none of anti-toxin.

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