

neutralizing such a solution destroys its toxic power. Its toxic properties in solution are not destroyed by boiling. Blood serum solutions exposed to the air loses in time its toxic power. All the pollens thus examined and capable of bringing on hay fever attacks contain such amyloid rods, but they are also contained in many pollens which are not toxic. Ordinary starch is quite innocuous.

In order to further ascertain whether the poison thus isolated was a toxin capable of working within the body, and in thus getting an idea as to whether it was absorbed and then acted in the body, or whether its action was purely a local one, the experiment of injecting a small amount of the poison subcutaneously was tried. A doctor predisposed to hay fever and a normal person were each given one-tenth of a cubic centimeter of a solution of this toxin in one cubic centimeter of water. The result in the hay fever sufferer's case was a very severe and even serious attack of hay fever combined with other symptoms not typically occurring in hay fever, such as edema and congestion of the face, loss of voice with congestion of larynx, pain in the chest and inspiratory stridor. The symptoms quickly reached their climax and in some four hours the patient began to feel better, but was not well again for some two or three days. At the site of inoculation there was a burning pain and a marked swelling, which gradually extended over the whole forearm and hand. The normal person experienced only a slight burning pain and slight swelling at the point of injection.

The experiments with the toxin have been carried out on many different persons, and in all cases with successful results in those predisposed, negative results in normal persons, and many different plants have been examined for such a toxin, but from grasses only with the exceptions mentioned above, have toxins been obtained. Sir Felix Simon, in a communication to a recent number of the *British Medical Journal*, reports on an experiment in which the toxin seemed to produce an attack of hay fever while the antitoxin (mentioned below) relieved it.

With the highly successful series of experiments whose results and whose descriptions have been condensed in the preceding experiments, Dr. Dunbar was by no means satisfied, but went further and attempted to produce a specific antitoxin for the toxin he had isolated. With this end in view he gave rabbits a series of intravenous injections (three or more) either of the toxin prepared at first from rye or of pollen at intervals of three days. The animals stood the injections well. Four days after the third injection one of the rabbits was bled aseptically and clear serum obtained. One cubic centimetre of this serum was injected into the forearm of a hay fever sufferer. A swelling formed at the point of injection with a slight burning pain.