

carried, from an etiological standpoint this exception is of no moment. Later experiments to be referred to later in this review have shown that the pollen of the golden rod (*solidago*) and the golden rod (*ambrosia*) bring on hay fever attacks in some cases. These plants, however, do not occur in Germany, and do not bloom during the critical time of year for the hay fever patient, which is pre-eminently that of the blooming grasses. Among the pollens tried were many of those said by Blackeley to bring on attacks, and those of many other flowers, in particular those of the roses and linden, upon which suspicion had been cast by different writers on the subject.

In order to more nearly reproduce the natural conditions, of infection, two persons, one normal and the other a hay fever sufferer, entered a closed chamber to which air was supplied, each carrying a small dish with a little pollen in the bottom. On a given signal they blew into their dishes. In this way a comparatively small number of pollen grains were disseminated in the air. At the end of four minutes they left the chamber and shortly after the predisposed person began to have burning pains in his chest, which developed into a very severe attack of asthma of the hay fever type and from which he had never previously suffered. He only recovered from this attack after some two days. During the time of confinement he had, he remembered, been talking and breathing almost exclusively through his nose. At a later date the experiment was exactly repeated; the hay fever patient kept his mouth closed, breathed through his nose and as a result had all the subjective and objective symptoms of a typical hay fever attack. In both cases the normal person remained quite unaffected. As it had been suggested that the effect was brought about by an action on the end fibres of the teguments, two persons, normal and hay fever sufferer, were injected with pollen in the rectum. The hay fever patient suffered from a burning pain and irritation, the other was quite unaffected.

Dr. Dunbar having thus demonstrated that in predisposed persons the pollen of grasses brought about hay fever and that not in any mechanical way, nor by any local effect on peculiar mucous membranes, but evidently by some process of general poisoning, attempted to farther isolate the poison. In this he was aided by the failure of one of his experiments in which he used dried pollen and which led him to repeat the experiment, the only difference being that he ground the pollen and thus ruptured its thick outer coat of suberin, allowing its inner coat of cellulose, or its contents, to become free. In this case the result was quite successful. Observation showed that this rupturing of the outer coat usually occurred when the pollen was brought into water, tears, nasal secretion, blood serum or