

of subjective end points or that they are unreliable, expensive, too complex, or even dangerous. They report on the results of a method which depends on the discernment of a brilliant yellow color in the lower palpebral conjunctiva after the intravenous injection of sodium fluorescein. Through an 18-gauge needle, 4 c.c. of 10 per cent or 3 c.c. of 20 per cent sodium fluorescein solution is injected into the antecubital vein. In the darkened room with a portable ultraviolet source and a Wood's filter, the light is directed to one of the eyes. The first appearance of a brilliant yellow color in the palpebral conjunctiva is noted. The time from the injection to this end point is designated as the "circulation time." In individuals without cardiac decompensation, this varied from 7 to 15.6 seconds. In cases of cardiac decompensation, the circulation time ranged from 16 to 25 seconds or even longer. The authors obtained closely approximating results with the magnesium sulfate and the calcium method.

**Recent Observations on Hay Fever in Children,** Stoesser, A. V.: *Lancet* 62: 174, 1942.

The author summarizes his observations and results of treatment of 413 children with seasonal hay fever from 1936 to 1941, at the outpatient department of the University of Minnesota. Of this number 180 began their symptoms before the age of 5 years. The long preseasonal and perennial forms of pollen therapy gave the best results. Coseasonal treatment was unsatisfactory. Those receiving higher maximum doses obtained better results on the average. Out of thirty-six children receiving oral pollen therapy, thirty-three had complete failures. Histaminase orally in twenty-one patients during the season failed completely. Of forty-four children receiving potassium chloride therapy, nineteen had fair results. In none of three cases in which coli metabolin was tried was there any benefit.

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## Immunology

UNDER THE DIRECTION OF MATTHEW WALZER, M.D., AND  
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**Sensitization to Horse Serum by Means of Adjuvants.** Freund, J., and McDermott, K.: *Proc. Soc. Exper. Biol. & Med.* 49: 548, 1942.

Guinea pigs were sensitized by combining horse serum with a lanolin-like substance (aquaphor) and suspending the combination in paraffin oil containing killed tubercle bacilli. They were tested by the intracutaneous injections of different dilutions of horse serum at various time intervals following the sensitizing injection. A control series of guinea pigs was injected with horse serum alone. The adjuvants influenced the sensitization to horse serum in a manner similar to that produced when living tubercle bacilli and horse serum were used. Sensitization was much more easily accomplished when the antigen was combined with aquaphor and then suspended in paraffin oil containing killed tubercle bacilli than when aquaphor was omitted as part of the adjuvant. It was concluded that the use of adjuvants modified the sensitization to horse serum in guinea pigs in several ways: (1) The reaction following the intracutaneous injection of horse serum was usually necrotic and lasted longer than forty-eight hours; (2) The length of time during which the animals remained highly sensitive was usually prolonged; (3) The precipitin titers in the blood were higher in animals sensitized with the use of adjuvants.