

types show, in high dilutions, precipitation by the homologous type serum. This fraction corresponds therefore to the S or soluble specific substance of other organisms.

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Immunological Differences Between a Strain of Monkey Virus and Human Poliomyelitis Virus.*

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Having succeeded in producing potent antiserums to monkey poliomyelitis virus by the injection of horses with increasing doses of a suspension of infected spinal cords, the occasion of the recent epidemic of polio in New York City has made it possible to determine the potency of these antiserums as neutralizing substances for freshly isolated strains of virus. It has been shown¹ that concentrates from these antiserums were of very high titre and were effective in protecting monkeys already infected with poliomyelitis virus of monkeys as well as bringing about virus neutralizations (*in vitro*) in very high dilution. In this respect these serums were approximately 5 times as potent as human convalescent serum. With continued injection of horses and continued passage of the virus through monkeys a serum has been evolved which neutralizes monkey virus in a dilution upward of 1:500 in spite of the fact that the virus is now more infective for monkeys than it was previously (5% virus, M.L.D. 0.05 cc.) while human convalescent serum neutralizes

TABLE I.
Amount of Antiserum Required to Neutralize.

	Human Convalescent Serum	Horse Concentrate
Monkey Virus No. 1 in 1930, 5% emulsion	20:1	100:1
Monkey Virus No. 1 in 1931, 1% emulsion	5:1	200:1
Monkey Virus (Nasal) No. 2 in 1931, 5% emulsion	20:1	500:1
Human Virus 1931 epidemic, 5% emulsion	50:1	20:1

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¹ *J. Exp. Med.*, 1931, **53**, 553.

this virus in 1:20 only. On the other hand, human strains recently isolated fail to be neutralized in as low as 1:20 by the otherwise powerful serums. Convalescent serum from past epidemics neutralizes the new human strains in dilutions up to the neighborhood of 1:50. These relative values may be set down in tabular form. (See Table I.)

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Nutritive Properties of the Seed of the Tobacco Plant (*Nicotiana tabacum*)*

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Although every part of the tobacco plant has been reported to contain nicotine, this alkaloid could not be detected by Vickery and Pucher in the fully ripened seed of Connecticut shade-grown tobacco by chemical methods.¹ Ilyin,² who has studied the distribution of nicotine in the plant, found that immature seed, and particularly the ovules at an early stage of development, contained small proportions, but that, as ripening progressed, the alkaloid content diminished until finally none could be demonstrated. In view of the toxic properties of nicotine it seemed that a simple physiological test for its presence in tobacco seed would consist in feeding trials on small animals. We therefore offered to albino rats a ration that consisted either of ground tobacco seed 98%, Osborne-Mendel salt mixture³ 2%, or ground tobacco seed 99%, sodium chloride 0.5%, calcium carbonate 0.5%; cod liver oil was administered as a supplement at the rate of 10 drops per day. The diet was consumed with avidity and without any evident untoward consequences; the animals grew at a satisfactory rate and appeared to be normal in every respect. This somewhat surprising outcome led to a detailed study of the nutritive properties of the tobacco seed.

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¹ Vickery, H. B., and Pucher, G. W., *Conn. Agri. Exp. Station*, 1930, Bull. 311, 234.

² Ilyin, G., *U. S. S. E. State Inst. for Tobacco Research*, 1929, Bull. 57.

³ Osborne, T. B., and Mendel, L. B., *J. Biol. Chem.*, 1919, **37**, 572.