preparation of the sections was the same as described before.[1] The size of the Negri bodies varies from 3x4μ to 6x8μ. Not infrequently, 2 or 3 Negri bodies were seen in the cytoplasm of one neurone cell.

It is of interest to note that, from brains of hamsters dead of the infection, the virus (hamster passage virus) could be recovered, which was still infective for rabbits and white mice. But in contrast to the high infectivity of the original dog brain virus, the hamster passage virus, when inoculated intracerebrally in normal hamsters in concentration of 1:400, caused deaths of only 3 of 10 animals inoculated. These 3 animals died within 18-22 days with typical symptoms. The remaining 7 animals remained alive for over 5 weeks without showing any symptoms. Examination of the brains of the three dead animals and of three of the surviving animals killed by ether 4 weeks after inoculation of the virus, showed the presence of numerous Negri bodies only in the animals that died.

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Distribution of Precipitin in Serum Globulins of Different Species of Animals.

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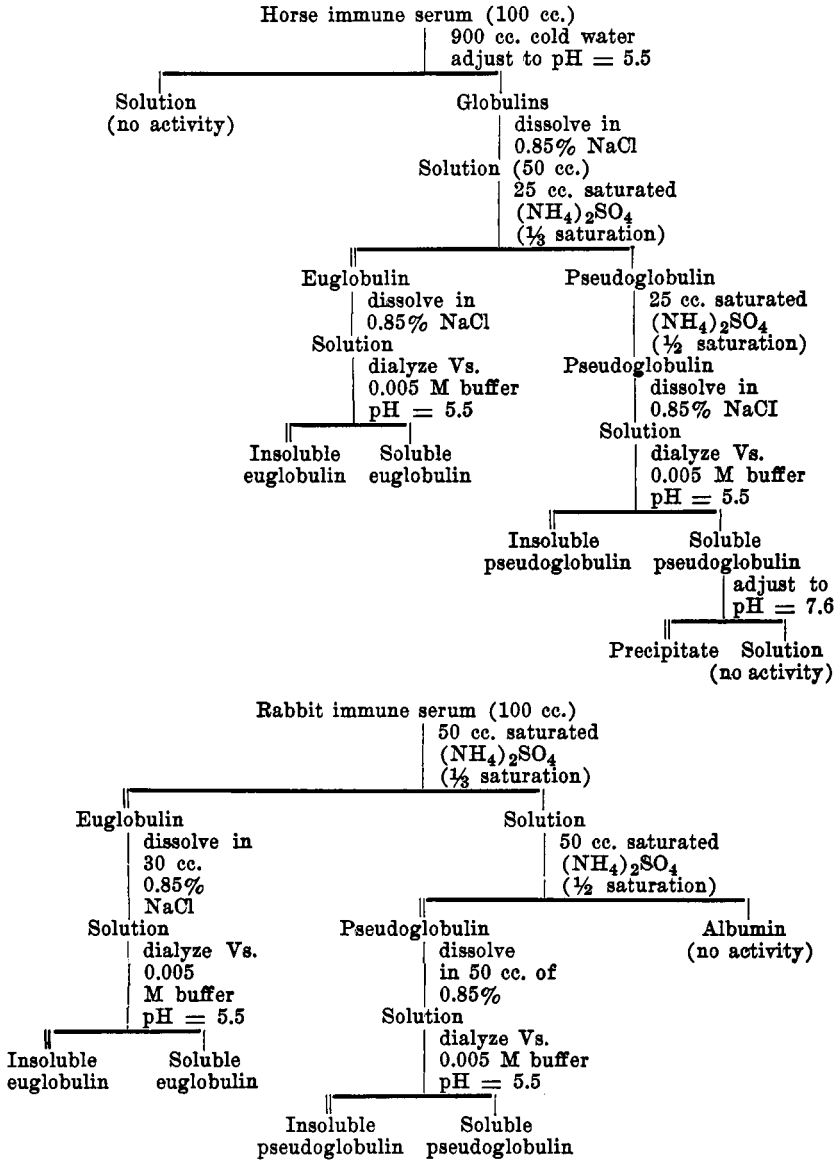
Through the extensive investigations in different laboratories the antibodies in antipneumococcus horse serum (Type I) have been isolated in a relatively pure form,[1] and the chemical groupings responsible for the biological activities have been determined. Comparatively few studies have been made on the corresponding type of rabbit immune serum.

That immune rabbit and horse sera possess different immunological properties is well known, and their distinguishing characteristics have been summarized.[2] It is therefore of interest to find out whether the antibody is similarly distributed in the pseudo- and euglobulin fractions of the two sera. Thus globulins from the 2 immune sera, which contain all the antibody were fractionated into pseudo- and euglobulin portions. The amount and the biological activity, as measured by the maximum amount of protein precip-

1 Chow, B. F., and Goebel, W. F., *J. Exp. Med.*, 1935, **62**, 179.

2 Horsfall, F. L., and Goodner, K., *J. Exp. Med.*, 1935, **62**, 485.

itable by the homologous polysaccharide,[3] were quantitatively determined[4] for each fraction. A horse and several rabbits were immunized in the usual manner with the same strain of heat-killed pneumococci (Type I) and finally with live cultures. Freshly prepared sera from the 2 species of animals were used for the fol-



[3] Chow, B. F., PROC. SOC. EXP. BIOL. AND MED., 1935.

[4] Heidelberger, M., and Kendall, F. E., *J. Exp. Med.*, 1929, **50**, 809.

lowing experiments. Felton[5] has shown that practically all antibodies of antipneumococcus Type I immune horse serum are precipitated by a 10-fold dilution with water. This globulin fraction was therefore used as starting material for fractionation with ammonium sulfate. In the case of immune rabbit serum, only a small portion of the total globulin was precipitated with a 10-fold dilution with water. Unlike the immune horse serum, the precipitable globulin contained no activity. The eu- and pseudoglobulin fractions were obtained directly from the immune serum at ⅓ and ½ saturation of ammonium sulfate, respectively. The schemes of fractionation are shown on the preceding page.

The relative quantity and the maximum amount of protein precipitable by the homologous polysaccharide in each fraction are shown in Table I.

TABLE I.

	Horse immune serum		Rabbit immune serum	
	% of the total serum protein	% of protein precipitable by the polysaccharide	% of the total serum protein	% of protein precipitable by the polysaccharide
Insoluble euglobulin	3.0	10.0	8.3	16.5
Soluble euglobulin	1.5	11.5	11.9	29.6
Insoluble pseudoglobulin	2.0	20.0	9.1	5.0
Soluble pseudoglobulin	8.0	65.0	10.2	26.0

The results of this comparative study bring out two striking differences between the immune sera of the two species of animals. The first is that in horse serum the antibody in pseudoglobulin fraction soluble in a buffer (0.005 M) at pH = 5.5 is completely precipitated when the pH of the solution is adjusted to 7.6. Whereas from a corresponding fraction of the rabbit immune serum no trace of precipitate is obtained. The second difference is that in the case of immune horse serum, the main part of the antibody is concentrated in the pseudoglobulin fraction, whereas the opposite is true with the immune rabbit serum, that is, the euglobulin fractions contain the major portion of the antibody.

[5] Felton, L. D., *Boston Med. and Surg. J.*, 1924, **190**, 815; *J. Infect. Dis.*, 1925, **37**, 199, 309.