lungs of normal mice, but were unable to produce antisera against these agents.

Serum from laboratory workers in contact with mice and also from some human beings who have had no contact with mice neutralized 500 lethal doses of the virus. The serum of normal mice from certain breeders was also capable of neutralizing the virus. Cross-neutralization tests with numerous antisera against ferret, mouse, and tissue-culture strains of epidemic-influenza virus and against mouse and tissue-culture strains of this pneumonia-virus of mice have been difficult to assess. With certain of these antisera reciprocal cross-neutralization has been observed when 1 :2 dilutions of the sera were tested. The evidence available suggests the presence of a common minor antigenic component in both viruses.

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Black Widow Antivenin Production in Rabbits.

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Antiserum against the venom of the black widow spider has been successfully produced in sheep.* The size of this animal makes it necessary to use large numbers of spiders, about 3,000 per sheep over a 6 months' period. The death of an immunized animal consequently represents a considerable loss. In view of the ability of the rabbit to produce highly potent antipneumococcal sera we felt it worth while to investigate this animal's possibilities as a producer of antivenin.

Spiders were collected in the vicinity of Denver and the glands removed by the method previously described.[1] The venom-glands were macerated in saline, the debris removed by filtration through cotton and injections made subcutaneously. Three adult male rabbits, weighing approximately 4 kg, were immunized as follows: Injections were made every other day; for the first 2 weeks one-fourth the venom in one spider was given; for the next 2 weeks, one spider per injection; for the next 2 weeks, 2 spiders per injection and for the last 5 weeks 8 spiders per injection.

Tests for neutralizing power were made by adding varying amounts

* Anti-Black Widow Spider Serum, Squibbs.

1 D'Amour, F. E., Becker, F. E., and Van Riper, W., *Quart. Rev. Biol.*, 1936, **11**, 123.

of serum to solutions containing known amounts of venom, permitting the solutions to stand overnight, and then injecting intraäbdominally, into young rats weighing about 50 g. Control solutions of venom, unneutralized, were injected into litter-mates.

Results. Serum obtained at the end of the 5th week showed little if any neutralizing power. Table I shows the results obtained after 11 weeks' immunization, each rabbit having received the venom from approximately 150 spiders. For comparison, results previously obtained[2] with sheep serum are given. The sheep serum was obtained after about 6 months of immunization, some 3,000 spiders having been used per sheep. The average lethal dose (A.L.D.), that is, the amount of venom necessary to kill 50% of the rats, was determined at each assay and was one-fourth the amount of venom contained in 1 spider.

TABLE I.

No. of Rats	Material Injected per Rat	% Surviving
4	2 A.L.D. venom plus 1 cc non-immune serum	0
4	4 " " " .1 " serum (best rabbit)	50
4	2 " " " .1 " " " "	100
4	4 " " " .1 " " (poorest rabbit)	0
4	2 " " " .1 " " " "	100
10	10 " " " .1 " sheep serum	30
10	5 " " " .1 " " "	50

Conclusions. Rabbits produce black-widow antivenin which, taking into account the shorter injection period and the relatively small number of spiders necessary, compares reasonably well with that produced in the sheep. This finding may be of importance in the production of antivenin commercially, where only small amounts of readily available serum are desired.

[2] D'Amour, F. E., PROC. SOC. EXP. BIOL. AND MED., 1936, **35**, 262.