protein has been confirmed by means of complement fixation reactions. It has been possible to adsorb all of the nucleo-protein precipitating antibodies from an anti nucleo-protein serum by means of nucleo proteins of both homologous and heterologous strains of green streptococci and also by means of one prepared from a hemolytic streptococcus. The results indicate, therefore, that hemolytic and non-hemolytic streptococci and pneumococci all contain a nucleo-protein with common antigenic properties.

Work is also in progress on staphylococcus nucleo-protein. The determination of its relationship to the other nucleo-proteins studied awaits the preparation of more potent sera.

57 (2580)

Local passive immunity against anthrax infection.

By C. IONESCU-MIHAESTI and D. COMBIESCU. (Introduced by Frederick P. Gay).

[*From the Department of Bacteriology, College of Physicians and Surgeons, Columbia University.*]

Owing to the varying results obtained in our previous work in which we used guinea pigs as the test animal, the following experiment was carried out on rabbits. Anti-anthrax serum from Mulford & Co. was used with normal horse serum as control.

Ten control rabbits were prepared with normal horse serum: 2 intravenously, 4 subcutaneously, and 4 intradermally; each animal receiving 3 cc. Ten other animals were given anti-anthrax serum by the same routes and in the same dosage.

Thirty hours after the serum injection the resistance of each animal was tested by intradermal inoculation. The rabbits prepared by intravenous injection of the serum were inoculated intradermally over the abdomen. The rabbits prepared subcutaneously or intradermally were inoculated intradermally either at the same point or on the opposite side.

Two to four fatal doses of *Bacillus anthracis* were given. Previous titration of this culture showed that 1/5000 of a 24 hr. agar slant was consistently fatal for rabbits weighing from 1500

to 2500 grams. Two control rabbits, having received no previous treatment of serum, were inoculated intradermally with one and two fatal doses respectively.

Of all the animals prepared with normal horse serum only one survived. This rabbit had been prepared intradermally and later received two fatal doses in the same region.

Both of the animals prepared by intravenous injection of anti-anthrax serum died. Of the four animals prepared by subcutaneous injection of the anti-anthrax serum, one survived. This rabbit had received two fatal doses in the same region as the previous subcutaneous injection of serum.

Of the four animals prepared intradermally with anti-anthrax serum, two survived. These rabbits had received two and four fatal doses respectively, in the same region previously prepared. The two prepared intradermally elsewhere, died.

The rabbits that did not survive, together with two control rabbits that received one and two fatal doses respectively, showed considerable gelatinous oedema around the region of injection and died from 36 hours to 4 days.

This experiment shows that anti-anthrax serum will protect rabbits against otherwise fatal infection of *B. anthracis* under certain conditions. In our experiment the specific anti-serum is preventive only when it has been injected in the area that is subsequently infected. To a less extent normal horse serum will protect a limited area against subsequent infection in that area. It is suggested, therefore, that the prevention of intradermal anthrax infection may be accomplished by local stimulation of cells in the infected area, and this protection is enhanced by the specific properties of an anti-serum.