

the liver increases in the blood serum an enzyme which like that of the fresh liver digests in acid; the alkalinity of the blood serum is capable of inhibiting this enzyme. A second enzyme capable of digesting in alkali is perhaps discharged by the degenerating liver; the blood serum acquires an increased ability to inhibit the action of similar enzymes. It is probable that increase of this antibody is the means by which the body protects itself from its own enzyme.

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**A preliminary note upon experimental lobar pneumonia with a demonstration of specimens.**

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Soon after the relationship of the pneumococcus to lobar pneumonia was established, a great many attempts were made to produce lobar pneumonia in animals. As early as 1888 Gama-léia claimed to have succeeded in producing pneumonia regularly in sheep and dogs by injecting pneumococci directly into the lung through the chest wall; but he failed when he made the injections into the trachea. From then until 1903 the attempts of all investigators have been successful in producing a pneumonia in only a relatively small number of experiments, and the inflammation has been usually of the lobular type. Wadsworth in 1903 was able to produce pneumonia with regularity by intratracheal injection only in immunized rabbits.

Dogs were used in our experiments. Under anesthesia a small stomach tube (as used in the intra-tracheal method of artificial respiration by Meltzer and Auer) is introduced through the larynx into a bronchus and from 5 to 10 c.c. of a broth culture of a very virulent pneumococcus injected through the tube. The animals quickly recover without untoward results. Until now fifteen animals have been so treated. Of these four are under observation; nine have been killed at various periods of time after the injection—from one to six days; and two have died. All of the eleven animals which came to autopsy had pneumonia with consolidation of from one-half of one lobe to complete consolida-



tion of three lobes. The consolidation is quite similar in character to that occurring in lobar pneumonia of human beings. The lesion is a diffuse and evenly distributed (not patchy); exudative inflammation is attended by hemorrhage and the formation of fibrin. The pneumococci multiply in the affected part and they have been found to persist in those animals which were allowed to live longest (six days). In the nine animals which were killed the lesion was confined to the right lung. In the two which died there was involvement of both lungs. One died two days after the injection of a large amount of culture. Three lobes were completely consolidated and there was a generalized fibrino-purulent pleurisy and pericarditis and septicemia. The other animal, which had fever before the injection was made, died at the end of six hours. There was a generally distributed congestion and edema of both lungs, consolidation of one-half of the posterior right lobe and septicemia. None of the animals which were killed had septicemia.

Considering the regularity with which pneumonia has been thus produced it would seem that the method should afford valuable opportunity for studying pneumonia experimentally.

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### **The effects of resection of one vagus upon serum anaphylaxis in guinea-pigs.**

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In a previous communication by Lewis and myself<sup>1</sup> it was demonstrated among other things that the death of guinea-pigs in immediate anaphylaxis was due to the production of a stenosis in the pulmonary air passages so that air neither left nor entered the lung and we brought forward evidence which pointed to a tetanic contraction of the muscles of the bronchioles due to peripheral action as the immediate cause of this stenosis. This view has since been shared by Anderson and Schultz<sup>2</sup> and by Biedl and Kraus.<sup>3</sup>

<sup>1</sup> Auer and Lewis: *Jour. of the Amer. Med. Assoc.*, 1909, liii, 458. Auer and Lewis: *Jour. of Exper. Med.*, 1910, xii, 151.

<sup>2</sup> Anderson and Schultz: *Proc. of the Soc. for Exper. Biol. and Med.*, 1910, vii, 34.

<sup>3</sup> Biedl and Kraus: *Wiener klin. Woch.*, 1910, xxiii, 385.