

ABSTRACTS OF THE COMMUNICATIONS,  
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21 (1603)

**Experimental bronchopneumonia and empyema in the rabbit.**

By **F. P. GAY** and **BERNICE RHODES**.

*[From the Department of Pathology and Bacteriology, University of California.]*

Gay and Stone have described an experimental streptococcus empyema in rabbits which presents advantages for the study of preventive and curative measures against this condition. It resembles in all details human streptococcus empyema in that it is a process of infection by extension involving not only the side of the chest inoculated but the pericardium and the other pleural cavity. The infection apparently becomes septicemic only in its terminal stages. This experimental syndrome as produced by inoculating into the pleural cavity of rabbits differs from the human process only in its method of origin which in man is by an extension of the streptococcus down the respiratory tract with more or less involvement of the lungs in the form of a bronchopneumonia.

Our early attempts to produce streptococcus pneumonia in rabbits were unsuccessful owing, we believe, to the fact that we employed a culture of a streptococcus that had not been passed through the pleura of rabbits as is the one we now uniformly employ to produce empyema by intrapleural injections. And secondly, in our earlier attempts the culture was injected between the cartilages of the trachea by means of a hypodermic needle. We have now succeeded in producing bronchopneumonia and empyema by means of our passage streptococcus culture, grown in blood broth and injected into the trachea through a catheter in the manner described by Winternitz and Hirschfelder, followed by forcible insufflation with air. This method of injection is

difficult, but in the four animals that we have injected in this manner and which have died or been killed in from one to five days, definite consolidation of the lungs was evident in all and a sero-fibrino-purulent pleurisy occurred in all but the 24-hour case.

A histology study of the lungs in these cases apparently shows the characteristics described by MacCallum in his interstitial broncho-pneumonia, namely, plugging of aveoli with polymorphonuclear leucocytes, red blood corpuscles, serum and fibrin in definite relation to bronchi which are also filled with a purulent exudate. There is a definite infiltration of polymorphonuclear leucocytes and lymphocytes about the bronchi and blood vessels and marked desquamation of the bronchial epithelium. A further study will show in what respect, if any, this experimental pneumonia in rabbits differs from that produced by the pneumococcus.

22 (1604)

**The bactericidal action of rabbit bile on certain strains  
of streptococci.**

By RUTH L. STONE (by invitation).

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The phenomenon here described was noted during the course of a series of experiments on rabbits designed to test the pathogenicity of a certain strain of hemolytic streptococcus. It was found that, although at autopsy the various organs of the peritoneal cavity were filled with living streptococci, the bile was always sterile. This led to the testing, in vitro, of bile from other rabbits as well as from various other animals, to find out, whether they possessed bactericidal action on this strain of streptococcus. All samples of rabbit bile proved to be bactericidal, whereas the bile of the ox, sheep, cat, dog, pig, guinea pig, and human exerted no deleterious effect on the streptococci.

The strain of streptococcus used (Strain "H")<sup>1</sup> in these preliminary experiments was, according to Holman's classification, *Streptococcus pyogenes*—a hemolytic, non-mannite fermenting strep-

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<sup>1</sup> Gay and Stone, *J. Infec. Dis.*, 1920, xxvi, 265.