the anterior lymph hearts, in addition to cardiectomy the alkaloids under discussion did not bring on any convulsions. I shall not enter here into a discussion of the entire subject. I merely wish to let you witness some indisputable facts. You see here a series of frogs from whom the thoraco-abdominal viscera have been removed, and in addition, the lymph hearts were destroyed by cauterization. All these animals were injected about an hour ago with strychnin; the injections were made in some animals into the dorsal lymph sac and in others into the femoral sacs of both thighs. You see that they respond to a tap with a tetanus. This shows definitely that the injected strychnin reached the central nervous system of these completely eviscerated frogs without the help of the anterior lymph hearts. But you see also that the trays holding the frogs are kept over ice. This is done because at the room temperature, I could not be sure of the success of my demonstration. It is possible that Abel's observations were made in May, when such experiments are apt to fail.

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Pulmonary lesions by intra-bronchial insufflation of cultures of B. megatherium. With a demonstration.

By MARTHA WOLLSTEIN and S. J. MELTZER.

[*From the Laboratories of the Rockefeller Institute for Medical Research.*]

The production of experimental pneumonia in dogs by means of intra-bronchial insufflation of bacterial cultures has now been carried out in several series of investigations. In the first series Lamar and Meltzer produced lobar pneumonia by insufflation of cultures of a virulent pneumococcus. In a second series we produced lobular pneumonia by insufflation of a virulent streptococcus and of the influenza bacillus. Besides the differences in the gross appearances of the lesions both pneumonias offered the following distinguishing points: In the lobar pneumonia of the virulent pneumococcus there was a mortality of about 16 per cent.; even in the non-fatal cases there was bacteremia present in the first twenty-four hours; the exudate was rich in fibrin and the framework of the lungs was invariably free from leucocytic

infiltration. In the cases of broncho-pneumonia produced by the streptococcus or by the influenza bacillus there was no mortality; at no time was there a bacteremia; the exudate contained very little fibrin, but the framework of the lungs was invariably and often very intensely infiltrated with leucocytes.

In a third series of experiments, which has not yet been published, we studied the effects of insufflation of a non-virulent pneumococcus. This organism also caused the development of a lesion which macroscopically resembled the lesion of lobar pneumonia produced by the virulent pneumococcus. However, there was no mortality, no bacteremia, and an exudate comparatively poor in fibrin; the framework of the lung was here again practically free from leucocytic invasion.

The results obtained with the non-virulent pneumococcus led us to a study of the intra-bronchial insufflation of such a non-pathogenic organism as the *B. megatherium.* Ten experiments were made. The insufflation brought on a definite pneumonic lesion in every case. From the gross appearance the lesion has to be considered as that of lobar pneumonia of a milder type. The entire process is essentially similar to the one caused by the non-virulent pneumococcus, but its course is even milder. The development is slower, the reaction is less intense and the resolution occurs sooner; there is practically no fibrin at all in the exudate and bacteria can only occasionally be cultivated from the exudate of 24 hours' duration. There is little involvement of the framework.

We show you here several lungs in the various stages of the inflammatory process; the lesions were produced by the intra-bronchial insufflation of twenty cubic centimeters of an eighteen hour old bouillon culture of the *B. megatherium.*