

lobes of the lungs of 13 dogs was accomplished. One of the dogs developed a lung abscess and lobectomy was performed upon 5 dogs at varying intervals following collapse of the lobe or of the corresponding lung. Roentgenograms were taken and examinations were made of the calcium and phosphorus and carbon dioxide content and of the H ion concentration of the blood serum of these dogs. In no instance were we able to demonstrate changes in the long bones similar to those described as pulmonary osteoarthropathy and there was no consistent change in the blood chemistry.

We were thus unsuccessful in our attempts to produce new periosteal bone by pressure upon a lung from a foreign body in the pleural cavity; stenosis of a primary or secondary bronchus; collapse or total absence of a lobe or of an entire lung; pleurisy with effusion; and solitary lung abscess. It should be pointed out, however, that none of the above procedures produced any marked respiratory embarrassment and that they were not attended by any definite changes in acid-base balance or in the calcium and phosphorus content of the blood serum. More extensive studies are being undertaken to explain this strange clinical phenomenon.

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Agglutinins Produced by the Injection of Related and Unrelated Antigens.

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In making observations upon the formation of agglutinins in response to injection with typhoid vaccine it was noted that there was a wide individual variation in the response. Some students who had repeatedly received typhoid vaccine on previous occasions failed to develop agglutinins when injected with typhoid vaccine in this department. Others who had never received typhoid vaccine previously developed high titers. The problem presented itself of determining whether this difference was due to a more responsive antibody-forming mechanism in general or due only to the individual's response to a particular antigen.

Forty-five students were given the routine 3 doses of TAB vaccine, and in addition were given 3 doses of a vaccine containing *Staphylococcus aureus* and a coccus isolated from the blood of a

case of measles by Drs. Duval and Hibbard. Macroscopic agglutination tests were performed for all 5 of the above organisms before injection, and again 10 days after the last dose of vaccine.

A glance at the parallel agglutination tests gave the impression that there was absolutely no relation between the ability to produce typhoid agglutinins and staphylococcus agglutinins, the latter being of course entirely unrelated to the typhoid bacillus. The impression was confirmed by the correlation coefficient ($-.00031 \pm .101$). On the other hand there appeared to be a high degree of relation between the ability to produce typhoid and *B. paratyphosus A* agglutinins, which are related antigens. This was likewise confirmed by the correlation coefficient ($+.302 \pm .091$). Unfortunately the *B. paratyphosus B* and the measles coccus were poor antigens, failing to stimulate a sufficient amount of agglutinins from which to draw conclusions.

These observations would seem to indicate that the response of an individual to an antigen depends not so much upon a sensitive immunity mechanism in general as to the sensitivity of the individual to the particular antigen.

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The Antibody Response to Injection with Typhoid Vaccine.

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Incidental to the investigation of another problem opportunity was afforded to check the results reported in a previous study upon the significance of the antibodies produced by typhoid vaccine.^{1, 2, 3} Forty five students were injected with typhoid vaccine. Agglutination reactions were performed before the injection, and again 10 days after the third dose of vaccine. The results were analysed in the same manner as in the previous study.

It was quite upsetting to note that in this case those who had not had previous vaccine responded by a marked agglutinin production (1/300) instead of a low average (1/66) as before, completely reversing one of the conclusions drawn in the former work. On the other hand, those who had had typhoid fever responded in

¹ Feemster, Roy F., *PROC. SOC. EXP. BIOL. AND MED.*, 1930, **27**, 636.

² Feemster, Roy F., *PROC. SOC. EXP. BIOL. AND MED.*, 1930, **27**, 911.

³ Feemster, Roy F., to be published in an early number of the *J. Infect. Dis.*