serum of normal rabbits, and physiological salt solution did not agglutinate the modified bacteria at all.

So under certain conditions, antigenic modifications of typhosus are evident.

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Researches on the antigenic modifications of bacillus paratyphosus B.

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In this series of experiments we have sought to determine whether *B. paratyphosus B* undergoes the same antigenic modifications as *B. typhosus*[1] when it is influenced by the fluid of the organism; in this particular case in contact with the oxalated blood of the normal rabbit.

In these experiments, emulsions of 24 hour agar cultures were heated at 60° C. for one hour. Six rabbits, "a", received two subcutaneous injections of this vaccine 7 days apart (0.5 and 1.0 cc.). Four rabbits, "b", were inoculated, time and quantity the same, with emulsion that had been kept in contact for 5 hours at 37° C. with oxalated blood of normal rabbits. Five days after the last injection the four rabbits of series "b" and two of series "a" were bled. The serum of rabbits "a" agglutinated the original *B. paratyphosus B* after 24 hours at 37° C. in dilutions of 1:100 to 1:200. That of rabbits "b", under the same conditions, either did not agglutinate at all, or in a dilution of 1:20, which has no significance. Ten days after the last inoculation the animals were again bled, and we tested their agglutinins as before. The serum of rabbits "a" agglutinated in a dilution of 1:200 to 1:400, while that of rabbits "b" agglutinated in dilution 1:20, or not at all.

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* Introduced by W. L. Holman.

[1] Combiesco, D., PROC. SOC. EXP. BIOL. AND MED., 1924, xxi, 490.

At the same time we tested the precipitins, using two antigens, one being the filtrate of ten day bouillon cultures of *B. paratyphosus B;* the other being prepared from emulsions of 24 hour cultures on ordinary agar shaken for 24 hours, and filtered like the first antigen, using a mandler filter candle, Nos. 10 and 11. Neither the serum of rabbits "a" or "b" precipitated in the presence of these antigens.

With the above two antigens, and a third prepared by heating a bacterial emulsion for one hour at 60° C. we tested for specific sensitizers by the Bordet-Gengou method. We made dilutions of the serum up to 1 :200, the quantity of the antigen being fixed, and representing half the dose which alone does not fix the complement. The results were observed after one hour at 37° C. and after 24 hours at 6° C. to 7° C. The serum of rabbits "a" sometimes fixed the complement in dilutions as high as 1 :100, and almost always in a dilution of 1 :50, that of rabbits "b", when used undiluted 0.1 or 0.15 cc. or 0.2 cc. sometimes fixed the complement, but there were rabbits (2 of our 4) whose serum did not fix the complement even when used in this quantity in the presence, of course, of the specific antigen.

In addition we also tested the specific sensitizers by the Bordet-Gengou reaction with the serum of 26 rabbits, of whom eleven (1) were vaccinated with emulsions of T. Bacillus in physiological salt solution, the rest, fifteen, (2) with emulsions treated with oxalated rabbit plasma as we described in the previous paper. The serum of rabbits (1) fix complement in the presence of the specific antigen in a dilution of 1 :30 to 1 :200, the serum of two rabbits of the eleven, even in a quantity of 0.2 cc. of undiluted serum did not fix the complement at all. These two rabbits had received two subcutaneous injections of 0.1 and 0.2 cc. of emulsion at seven day intervals. The serum of rabbits (2) either fixed the complement when used in quantity 0.10, 0.15, or 0.20 cc. of undiluted serum or not at all, as shown in 12 of the 15 rabbits vaccinated in this way.

However, in the conditions under which we worked, the antigenic properties of *B. typhosus* and *B. paratyphosus B* were modified, although perhaps to a less marked degree, even in their power to influence the organism in the production of fixing sensitizers.

As we have said in a previous article,[2] the resistance of animals tested with a definite lethal dose is at least comparable.

We believe that these experiments can explain up to a certain point why micro-organisms recently isolated from the body, especially from the blood of the patient, are not always agglutinated by their specific serums, and that passage through ordinary culture media is necessary in order to demonstrate their agglutinative properties.

These experiments agree very well with the observations of Patrick[3] concerning the agglutination of *B. typhosus* isolated from the body of patients.

We cannot here speak of microbic mutation in the sense of H. de Vries, these antigenic modifications taking place with microbes heated to 60° C. as well as with living microbes.

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The rôle of the skeletal musculature in the maintenance of the asphyxial rise of blood pressure during bulbar anemia.*

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In an analysis of the cardio-vascular mechanism of the cat by means of the changes in blood pressure and pulse rate taking place under the conditions of medullary anemia caused by temporary ligation of the carotid, vertebral and subclavian arteries, it was considered desirable to ascertain, if possible, the extent of the rôle played by the skeletal musculature in the maintenance of the high pressures which the animals show.

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[2] Combiesco, D., *Compt. rend. Soc. de biol.*, 1924, xc, 752.

[3] Patrick, A., *J. Hyg.*, 1914, xiv, 163.

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