dietary factors just mentioned can be made a limiting factor in the rate of regeneration, if the hemorrhage is sufficiently severe. Experiments are now in progress to determine the rôle of iron in blood regeneration.

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Studies on the lytic agent of Bordet and Ciuca.

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We owe to the kindness of Doctor Bordet a strain of *B. coli* with which he carried on his studies, a certain quantity of the corresponding lytic agent and a typical mucoid strain of his modified *coli*. With this material we have observed the following facts.

1. The inhibition produced by the lytic principle on the growth of *B. coli* is greatly influenced by the reaction of the medium: faint in a slightly acid (P_H 6.8) or neutral (P_H 7.0) or even slightly alkaline broth (P_H 7.4), it is much stronger in a more alkaline medium (P_H 8.0 or 8.5).

2. We have isolated from the original strain of *B. coli* two types of organisms: the one, Type S,[1] is sensitive to the lytic agent; the other, Type R,[1] is much more resistant. These types are distinguished also by other characteristics: type S grows quickly in artificial medium and is non-motile; type R grows more slowly, is extremely motile, much less phagocytable and more virulent. Both types ferment carbohydrates, saccharose excepted; type R decolorizes neutral red, type S does not. Both types keep their individuality even after passage through a guinea pig.

3. The original lytic agent was found to be specific; it acted exclusively on the coli with which the guinea pigs had been injected. By allowing this original lytic principle to act on broth cultures of our two types of *B. coli*, we have obtained two new filtrates. The first, resulting from dissolution of the sensitive

[1] S = sensitive; R = resistant.

strain S, is specific as is the original filtrate. But with the second, obtained from the resistant strain R, Doctor Wollstein of the Rockefeller Institute has found a marked action on Shiga, on Flexner and on Hiss dysentery bacilli. In consequence of this observation, we have been able, by a method of successive passages through appropriate strains, to extend the lytic power to other species, as typhoid and paratyphoid bacilli, and have obtained by this somewhat different technique results similar to those recently published by Bordet and Ciuca.[1]

4. We have observed also that the modified *coli* of Bordet and Ciuca, *e.g.*, the *coli* which has resisted the lytic action, contains two types of organisms: a mucoid and fluorescent type, *coli* M 1, and a non-mucoid and translucent type, *coli* M 2. Both types, once isolated, keep their individuality after many passages in artificial media, but if the non-mucoid *coli* M 2 is submitted again to the lytic agent, we find amongst the organisms which resist a certain number of mucoid bacilli.

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A dietetic production of rickets in rats and its prevention by an inorganic salt.

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The occurrence of rickets in white rats maintained under laboratory conditions has been well known to pathologists since the first publication of Morpurgo in 1900; and the essential identity of the lesions with those of human rickets has been established by the work of Morpurgo himself, of Schmorl, of Weichselbaum, and especially by the detailed histological studies of Erdheim. One of us (A. M. P.) also has had opportunity to become familiar with the disease in rats, in the course of an investigation of the possible influence of the thymus upon the teeth and skeletal system. In none of these investigations, however, were the dietary conditions of the rats standardized and controlled.

[1] *C. R. Soc. belge Biol.*, T. 1921, lxxxiv, 278.