

SCIENTIFIC PROCEEDINGS.

New York Meeting.

Columbia University, May 18, 1927.

3541

Effect of Organ Extracts on Blood Regeneration.*

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We wish to report the results of some experiments made to determine the effects of various organ extracts on blood regeneration in animals made anemic by bleeding. This work was begun three years ago, but the contradictory findings at different times made it seem unwise to make an earlier report.

The preparations used consisted of (1) 75 per cent alcoholic extracts of the stomach, liver and spleens of calves; (2) saline suspensions of the cells of the same organs of rabbits; (3) hemoglobin solution; (4) fat-soluble non-saponifiable material from calves' livers; (5) saline extracts of these organs of rabbits which had been made anemic by bleeding.

Rabbits were used in all the experiments. They were made anemic by bleeding from the heart. The blood removed constituted about 3 per cent of the body weight, about 60 per cent of the total volume. Several blood counts and hemoglobin determinations were made before the bleeding and at frequent intervals afterwards. Our interpretation of the results of the injections of the different substances was based upon the rapidity with which the normal count was restored, as compared to a series of similar untreated anemic animals.

The results obtained with these various extracts were not very promising. At times we felt that the liver extracts were active in

* This work was aided by a grant from the Eli Lilly Company.

stimulating blood regeneration, but subsequent experiments made it evident that we were not justified in this assumption. Our most positive findings were with the alcoholic spleen extracts. In every instance this extract prevented blood regeneration and if the injections were continued the animal died.

Our results are particularly interesting in view of those obtained with the feeding of liver by Whipple¹ in the experimental anemias of dogs, and by Minot and Murphy² in pernicious anemia. Several explanations of the discrepancies are possible. First, rabbits may not respond to the liver treatment; second, the active substance may have been destroyed by the heat used in drying our alcoholic extracts, though it did not exceed 45° C., or it may have become oxidized; third, our preparations were given by subcutaneous injection, theirs by mouth.

¹ Robsheit-Robbins, and Whipple, G. H., *Am. J. Physiol.*, 1925, lxxii, 408.

² Minot, G. R., and Murphy, W. P., *J. Am. Med. Assn.*, 1926, lxxxvii 470.

3542

Effects of Repeated Injections of Toxins of Intestinal Bacteria on Blood Regeneration in Rabbits.*

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There is doubt as to how much significance should be attached to the belief that certain pathological conditions are due to the absorption of intestinal toxins. Similar doubts are expressed concerning the value of interpretations based on the experimental work done, since most of it has been done with either a pure culture of bacterium isolated from the intestinal tract, or with extracts of the feces. It seems possible that mixtures of bacteria grown in the presence of protein or carbohydrates may produce toxic substances not to be found in pure cultures, and it is also possible that some unknown organism may grow under such symbiotic conditions and produce its specific toxin. The following experiments were conducted to determine the effect of toxins of the intestinal bacteria on blood regeneration.

The culture medium consisted of bouillon containing either finely

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