year, with a much larger proportion of females where the nutritive conditions are better or extend over a longer period, as indicated by the size attained during the first year, it is assumed that the sexuality of the animal is closely correlated with its nutrition. The observation that males are more frequent among closely clustered groups than among isolated individuals may likewise be indicative merely of different nutritive conditions at the critical period of sex differentiation, and is not considered proof that the early male phase is retained because of the hormonic influence of a neighboring individual.

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AUTOLYZED LIVER THERAPY IN PERNICIOUS ANEMIA

FRESH beef liver from slaughter house was ground and $\frac{1}{50}$ Normal HCl added in the proportion of 2,000 gms minced liver to 5,000 cc $\frac{1}{50}$ Normal HCl. Chloroform was added as a preservative. This mixture was placed in an incubator at 37° C. and allowed to undergo autolysis for an average period of 10 days. Portions of this autolyzed liver preparation after partial concentration under reduced pressure were fed by mouth to 3 otherwise untreated cases of pernicious anemia, showing classical clinical features with symptoms indicating cord changes, typical blood picture and achlorhydria. Reticulocyte responses characteristic of the treatment of pernicious anemia with potent material varying from 10 to 16 per cent. followed the oral ingestion of the equivalent of 500, 750 and 800 grams of liver, respectively, in the three cases studied.

The following figures summarize the finding in Case II of the reticulocyte response to autolyzed liver.

Date	Reticulocytes per cent.	Grams autolyzed liver fed
June 3, 1932	1.0	60
4	.5	150
5	2.0	300
6	1.0	300
7	1.5	
8	3.0	
9	7.0	
10	13.0	
11	9.0	

Riddle and Sturgis[1] report that the equivalent of approximately 3,000 grams of liver when fed in single massive doses by mouth in the form of Lilly's Extract No. 343 was required to induce a maximal reticulocyte response.

A comparison of the amounts of liver reported in the literature necessary to invoke a maximal reticulocyte response with the amounts of liver used above suggest that autolysis may increase the potency of the liver preparation.

This is of interest in relation to the recently reported findings of the influence of gastric juice and extracts of stomach on beef and liver.

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[1] Matthew C. Riddle and Cyrus C. Sturgis, *Am. J. Med. Science*, Vol. 180, page 1, July, 1930.

A NEW METHOD FOR THE DEMONSTRATION OF ANTIGEN-ANTIBODY COMBINATION

THE method for demonstration of antigen-antibody interaction is as follows:

A rabbit sensitized to some animal protein (blood serum, egg albumin, etc.), receives an intradermal injection of 0.25 cc of undiluted bacterial filtrate of ascertained skin-preparatory potency.[1] Twenty-four hours later the rabbit is injected intravenously with the same animal protein. From four to five hours later there appears severe hemorrhagic necrosis at the prepared skin site. The lesion is characteristic of the phenomenon of local skin reactivity to bacterial filtrates[2].

Inasmuch as the necessary state of sensitization can be obtained by a single injection of a protein and one-week incubation period is sufficient, the method offers the advantages of speed and simplicity. The readings are reliable and clear-cut, since the incidence of positive results is high (*i.e.*, with some proteins about 85 per cent. of rabbits tested after a single sensitization) and since the severe hemorrhagic necrosis makes the reaction unmistakable. The test is highly sensitive (*i.e.*, dilution 1:10.000 of human serum elicited the necessary sensitization) and strictly specific unless repeated sensitizing injections are made. Because anaphylactic shock in rabbits is difficult to elicit, the test injection of animal protein has no lethal effect on these animals.

It is also possible to elicit a severe reaction in prepared skin sites of non-sensitized rabbits receiving separate (one half hour apart) intravenous injections of antigen and antibody (*i.e.*, passive transfer).

The test is to be clearly differentiated from the

[1] G. Shwartzman, Proc. Soc. Exp. Biol. and Med., 26, 843, 1929; *J. Inf. Dis.*, 44, 232, 1929.

[2] G. Shwartzman, *J. Exp. Med.*, 48, 247, 1928.