ition incident to starvation was eliminated by the following procedure. The animals were fed a diet containing a minimum supply of vitamin "B". This, however, was adequate to maintain a perfect appetite and resulted in a gain in body weight. Nevertheless, frequent positive blood cultures were obtained. The dogs were then given large doses of vitamin "B"—containing material and the blood cultures remained negative for months.

As a result of other experiments in collaboration with Dr. C. J. Stucky, which will be reported elsewhere, the development of anhydraemia in "B" avitaminosis was observed. An attempt was made in these immunologic studies to see whether or not anhydraemia was a contributing factor resulting in an increased susceptibility to infection. These studies are in progress at present and will be reported on in the near future.

In general the results appear to indicate that nutritional factors deserve important consideration in immunologic studies, and that vitamin "B" in particular merits special attention.

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Respiratory Metabolism of Excised Normal and Diabetic Tissue.

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Studies were made of excised kidney and muscle tissue of normal and depancreatized dogs, in order to answer the following questions:

(1) With normal animals what is the respiratory metabolism of these tissues when removed from the body?

(2) In excised diabetic tissue (a) is the power to oxidize carbohydrate lost? (b) is the power to split carbohydrate into lactic acid lost?

The main features of the technique were (1) the employment of the Barcroft-Warburg manometers in the study of micro-respiration, (2) the comparison of tissues of normal and diabetic animals, (3) parallel determinations of the metabolism of the tissues of the same animal, and (4) the development of a technique for obtaining relatively untraumatized mammalian muscle, by stripping the fasciculi lengthwise, instead of mincing.

The results are as follows:

(1) The figures for oxygen consumption of kidney and muscle

were remarkably constant. For instance in normal muscle the extreme variations in 24 consecutive determinations were from 2.3 to 3.1 cu. mm. per dry mg. per hour. These correspond to values obtained in both tissues by the method of analyzing arterial and venous blood simultaneously in the intact organ. The respiratory quotients were all within physiological limits and indicated that various mixtures of foodstuffs were oxidized. In 11 triplicate determinations the highest figure was 0.911. This cannot be reconciled with the widespread idea that only carbohydrate can be oxidized by muscle.

(2a) The average respiratory quotients were as follows:

Kidney—Normal without foodstuff	0.812
With glucose	0.873
Depancreatized, without foodstuff	0.694
With glucose	0.684
With lactate	0.734
Muscle—Normal with glucose	0.874
Depancreatized, with glucose	0.728

These figures show that isolated diabetic tissue can oxidize only a small amount of carbohydrate.

(2b) Diabetic tissue retains the power of splitting carbohydrate into lactic acid. Therefore it is not a failure to glycolize which depresses the oxidation of carbohydrate in diabetes.

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Effect of Thyroxin on Formation of Sugar in Surviving Liver of Winter Frog.

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This study was made upon the perfused liver of the bullfrog *(Rana catesbiana)*. It was found that in the isolated livers, whether excised or left *in situ,* thyroxin as a rule produced a slight fall in the amount of sugar given off into the perfusate, as against the amounts of sugar obtained during the preliminary control periods.

When the body of the frog was perfused with thyroxin through the systemic aorta there was a marked rise in the sugar of the perfusate draining from the hepatic vein. (Graph 1.) This increase lasted only a limited length of time and was then followed by a grad-