showed that successful reproduction and lactation may be obtained on a milk and soy bean diet which they attributed to the peculiar inorganic complex present in the soy bean. This work was undertaken to determine the effect of different levels of soy bean as the sole source of vitamins B and G on reproduction and lactation and the effect of various animal organs on the above functions.

Rats grow at a normal rate with 10, 20, 40, and 73.3% of either Manchu, Sable, or Virginia soy beans as the sole source of vitamins B and G. Reproduction was normal on the lower levels of the 3 different soy beans but on the higher levels reproduction slowed down. Satisfactory lactation was not obtained on any level of the 3 beans investigated.

Lung and spleen from hogs and beef thymus did not improve the lactation of rats on 15% of Virginia soy beans as the sole source of vitamins B and G. Hog pancreas and pancreas, brain, and heart from cattle improved somewhat the lactation observed on 15% of Virginia soy bean. Very marked improvement in lactation resulted on supplementing the 15% Virginia soy bean ration with liver from hogs and cattle and with hog kidney. The young on the liver and kidney showed a superior rate of growth. The lactating factor was destroyed in liver at 120°C. Ether extract of liver shows little or no lactating properties but the residue does.

Six to 10 females and 3 to 4 males were employed in each experiment on soy beans. Four to 10 pregnant females were used in the experiments on various animal organs.

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Studies on the Lactic Acid Content of Blood from Normal and Denervated Muscle.*

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These experiments were undertaken to determine whether skeletal muscle deprived of its nerve supply and undergoing the process of atrophy exhibited a lactic acid metabolism similar to that of normal intact muscle. A comparison was made of the lactic acid content of blood entering and leaving a denervated limb with that from the

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opposite normal limb under the conditions of rest, exercise and adrenalin administration. The studies were made on 5 dogs 2 to 3 weeks after denervation. Simultaneous drawings of blood were made from the femoral artery and femoral veins of dogs under amytal or local procaine anesthesia. The lactic acid was determined in duplicate according to the method of Friedemann, Cotonio and Shaffer.[1] Blood was drawn before and one hour after the subcutaneous injection of 1/5 mg. of adrenalin per kilo of body weight. The exercise was induced by the application of induction shocks at the rate of 2 per second to the muscle groups with needle electrodes. The legs were weighted with a light load to restrict the extent of movement. The exercise was continued for a period of 20 minutes and was in progress at the time the blood was drawn.

TABLE I.
Mg. of Lactic Acid per 100 cc. Blood.

	Arterial	Normal Venous	Venous Denervated
Resting	16.6	17.1	17.1
Exercise	17.5	15.1	17.1
After Adrenalin	37.1	37.6	37.2

A summary of the average results appears in Table I. They indicate that the lactic acid metabolism of skeletal muscle undergoing atrophy of denervation is essentially the same as that of normal muscle as far as can be determined by analysis of blood. The difference between the oxygen content of arterial and venous blood from the exercising limb was more than double the difference noted in the blood from the resting limb. These differences are the only index we have as to the degree of exercise. It is to be noted that the venous blood from the exercising limbs had a lower lactic acid content than the arterial blood. This difference is more pronounced in the normal than in the denervated limb. These findings on the lactic acid content of blood during exercise were not anticipated in view of the studies of Hill, Long and Lupton.[2] It is suggested that our results may be due to an improvement in the circulation of the muscle. The stimulus and exercise may have caused a greater opening of the capillary bed and an improvement in the oxygen supply to the muscle as a whole.

[1] Friedemann, T. E., Cotonio, M., and Shaffer, P. A., *J. Biol. Chem.*, 1927, **78**, 335.

[2] Hill, A. V., Long, C. N. H., and Lupton, H., *Proc. Roy. Soc. B.*, 1924, **94**, 438; **97**, 155.