

cholesterol (free and ester) and iodine numbers were determined in the extracted albumin and globulin fractions as well as in the whole fluid.

The proteins were removed in their respective fractions by means of ammonium sulfate, heat coagulated at the isoelectric point, and washed free from the salt. The fatty acids were determined by Bloor's oxidative method, the lecithin by oxidation and formation of the blue ammonium phosphomolybdate, the cholesterol by a modification of the Okey oxidative method, and the iodine numbers by Gibson's micro method.

Comparisons were made between the total lipid content and the lipid associated with the proteins, also the distribution of the latter between albumin and globulin was determined. Since the protein ratios are not consistent and the amounts of globulin and albumin are not equal, calculations on the basis of mg. percent do not give the true relation between the lipids and the respective protein lipid fractions. However, on the basis of mg. per gram of protein the figures can be compared.

The variations between cases were not sufficient to offer a suitable means for clinical diagnosis. Increased lipid content of the plasma or fluid was reflected in respective increases in the protein fractions. The plasma globulins had the greatest attraction for fatty acids and lecithins while the cholesterol was fairly evenly distributed. Whether this is a physical or chemical union cannot be stated as yet. In the edema fluids, the relative amounts of lecithin and cholesterol associated with the globulin fraction were much greater than in the case of the plasma.

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### Reproduction and Lactation on Simplified Diets.

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Guest, Nelson, Parks, and Fulmer<sup>1</sup> showed that on certain synthetic diets containing various grains as the sole source of vitamins B and G growth and reproduction in the rat were normal but mammary function was decidedly abnormal. Daniels and Hutton<sup>2</sup>

<sup>1</sup> Guest, A. E., Nelson, V. E., Parks, T. B., and Fulmer, E. I., *Am. J. Physiol.*, 1926, **76**, 325.

<sup>2</sup> Daniels, A. L., and Hutton, M. K., *J. Biol. Chem.*, 1925, **63**, 143.

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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