CONCLUSIONS.

1. In tissue cultures of rabbit spleen there are present the two varieties of mononuclear phagocytes which were demonstrated by Sabin, Doan and Cunningham in material obtained directly from the spleen of the rabbit under anesthesia. Both cells grow as reticular tissue with cytoplasmic processes which connect the individual phagocytes.

2. Since the rosette variety of phagocyte is constantly present in the tissue cultures of rabbit spleen in such large numbers, lymphoid reticulo-endothelium of the type found in lymph nodes is thought to be present in the normal spleen.

[1] Sabin, F. R., Doan, C. A., and Cunningham, R. S., PROC. SOC. EXP. BIOL. AND MED., 1924, xxi, 330.

[2] McJunkin, F. A., *Am. J. Path.*, 1925, i, 305.

[3] McJunkin, F. A., *Arch. Int. Med.*, 1925, xxxvi, 799.

[4] Naegeli, O., *Blutkrankheiten und Blutdiagnostic*, Berlin, 1923.

[5] Cunningham, R. S., Sabin, F. R., and Doan, C. A., *Contrib. to Embryol.*, 1925, lxxxiv, 227.

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Reaction Produced by Lipoid Solvents in Animals Fed Diets Deficient and High in Vitamin A.

LOUIS H. JORSTAD AND CHARLES G. JOHNSTON.
(Introduced by M. T. Burrows.)

From the Research Laboratories of the Barnard Free Skin and Cancer Hospital, and the Department of Surgery, Washington University School of Medicine, St. Louis, Missouri.

Lipoid solvents introduced into the subcutaneous tissue of rats fed a diet deficient in vitamin A remain well encapsulated by a zone of fixed tissue cells. This zone of tissue undergoes hyalinization after a period of thirty days and the mass of lipoid solvent remains encapsulated and quiescent within this zone.[1] The livers removed from these animals present a normal appearance grossly and microscopically.

The lipoid solvents introduced into the subcutaneous tissue of rats fed on a diet rich in vitamin A break up into numerous smaller droplets, each of which is surrounded by actively dividing fixed tissue cells. After a period of sixty to ninety days nests of actively growing cells are dispersed among the remainder of the tissue in this zone, which has undergone hyalinization during this period.[1] The livers removed from these animals present a brownish-yellow appearance in the gross. Microscopically, the liver parenchyma shows a diffuse and general infiltration of fat droplets.

Lipoid solvents are encapsulated by a similar zone of fixed tissue cells in animals fed a balanced dietary.[2] In a few cases we have noted a partial breaking up of the solvent around its periphery. The liver is normal in appearance.

These lipoid solvents absorb the ergusia of the cell. Vitamin A is or furnishes the ergusia. If vitamin A is withdrawn from the system, the lipoid solvent becomes encapsulated in the subcutaneous tissue and remains quiescent. The tissue around the solvent undergoes hyalinization due to the absorption of the ergusia by the lipoid solvent.

When vitamin A is added to the system the lipoid solvent remains active for a long period of time. The lipoid solvent absorbs ergusia until it is saturated, then breaks up into droplets and migrates to other organs in the body. A fatty infiltration of the liver occurs under these conditions.

There is no evidence that part of the whole mass of lipoid solvent enters the general circulation and produces the change in the liver, but probably it is the more mobile portions or more volatile fractions dissolved in them. Coal tar, washed with ether and heated, does not produce this change. An early and complete hyalinization takes place about drops of this substance introduced into the subcutaneous tissue. It absorbs all the ergusia from the cells with which it comes in contact. This indicates that it is the light oil in the coal tar that causes the tissue change as noted above.

Lipoid solvents treated with ultra-violet light, mixed with extracts of old cultures of *B. tumefaciens* or the Allen-Doisy hormone produce the same changes in the tissue about the drops, excepting that the cells do not degenerate so readily and they show much more proliferation.

That lipoid solvents cause anaemia and fatty infiltration of the liver is well known. Benzol is in this class. It has been possible for us to show that such substances do not act or cannot be transported so they can act except when the system is saturated with vitamin A.

[1] Jorstad, L. H., *J. Exp. Med.*, 1925, xliii, 221.
[2] Jorstad, L. H., *J. Cancer Res.*, 1925, ix, 232.

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The Effect of Vitamin Feeding on the Growth of Cancer.

MONTROSE T. BURROWS.

From the Research Laboratories of the Barnard Free Skin and Cancer Hospital, and the Department of Surgery, Washington University School of Medicine, St. Louis, Missouri.

Cramer[1] states that the removal of one or the other of the vitamins from the diet of animals with transplanted and growing tumors has little or no effect on the growth of the tumors. The animal alone suffers from the deficiency. We have noted a similar result excepting when very large doses of vitamin B are given in a diet deficient in vitamin A. Rats inoculated with the Jensen sarcoma were used for these experiments. Rats given very large doses of vitamin B in a diet deficient in vitamin A suffered a marked anemia with a rapid disappearance of the tumor in a few cases and an early death of the rats in most cases. Tumors in two men broke down with this diet much the same as with X-rays. The tumors were lip cancers metastasizing to the neck. These patients also suffered marked anemia and it was necessary to stop the treatment after a short time, not only on account of the anemia, but because of a developing parenchymatous nephritis.

Quite different from the animals, men with malignant tumors have responded more readily to small changes in the vitamin A content of the diet. A man with a melanoma arising from a birthmark on his head and a large mass of metastases on one side of his neck, recovered from his cachexia and anemia com-