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Preliminary report on the influence of lecithin and cholesterin upon the growth of tumors.

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From the Rudolph Spreckels Physiological Laboratory of the University of California.]

Sixty-one white rats, obtained from local sources and hereafter designated "Local" were inoculated in the axillary region with portions of a Flexner-Jobling carcinoma which was obtained from the Rockefeller Institute for Medical Research through the kindness of Dr. Peyton Rous. The number of successful inoculations, determined after 19 days, was 42, or 69 per cent.

Sixty-four rats obtained from dealers in Chicago and hereafter designated "Chicago" were similarly inoculated with portions of a Flexner-Jobling carcinoma which had been obtained from the Rockefeller Institute for Medical Research early in the year and propagated through four generations of rats in this laboratory. The number of successful inoculations, determined after 18 days, was 55, or 86 per cent.

Both sets of tumors grew rapidly, attaining average diameters of 15.0 and 11.9 millimeters after 19 and 18 days respectively.

Beginning upon the 19th day in the case of the "Local" and upon the 18th day in the case of the "Chicago" animals, each of the two groups of animals was sorted without selection into three batches, of which one (consisting of 12 animals in each case) served as controls, another (10 "Local" and 13 "Chicago") received 1 c.c. of a 3.9 per cent. suspension of cholesterin in N/10 sodium oleate solution, which was injected hypodermically directly into the tumors every 2d or 3d day (three times a week); the third batch (20 "Local" and 30 "Chicago") received 1 c.c. of a 2 per cent. aqueous emulsion of lecithin similarly injected into the tumors upon the same days.

It was found that in the pre-metastatic stage cholesterin causes a very notable acceleration of the primary growth, the gain in diameter between the 19th (18th) and 24th (23d) days being 11.6 mm. in the "Local" and 11.4 mm. in the "Chicago" animals as

compared with 4.8 mm. and 2.9 mm. respectively in the controls. The acceleration of the growth of the primary tumor by cholesterin is not very evident in the metastatic stage (31st to 38th days), but the tendency to form metastases and the rate of metastatic growth are very markedly increased.

Lecithin, on the contrary, diminishes the tendency to form metastases, retards metastatic growth when it does occur and, in some instances (the "Local" animals) also retards the growth of the primary tumor in the post-metastatic period.

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Note on the cock's comb test for the activity of ergot.

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The cock's comb test has become a popular method of determining the activity of ergot preparations. It was introduced because gangrene frequently occurred in epidemics of ergot poisoning, and because bluing of the cock's comb was believed to be due to arterial constriction. This view was supported by von Recklinghausen's interpretation of the microscopical examination of the comb in chronic ergot poisoning of cocks. We were impressed by the fact that in ergot poisoning often the only pathological feature was venous dilatation and we believe that venous dilatation is probably the real cause of the bluing of the comb. It is admitted that the intravenous injection of epinephrin causes a rise in blood pressure, mainly from vaso-constriction and we have found that it will blue the cock's comb, but the bluing only comes on as the blood pressure falls and persists for an hour or two; in other words it occurs at a time when arterial-constriction has subsided. Large doses of paraldehyde given per os, or the inhalation of amyl nitrite, will also cause bluing of the comb.

On subcutaneous injection neither adrenalin nor p. oxyphenylethylamine caused this bluing. Dale claims that much of the activity of ergot preparations is due to p. oxyphenylethylamine. Now while the subcutaneous injection of 25 mg. of p. oxyphenylethylamine caused marked symptoms in cocks, there was no bluing, hence one would argue that the subcutaneous injection