Streptothrix organisms in the form of the typical pinhead-sized granules were found in the sputum of all six cases reacting to streptotricin. Two cases showed a positive reaction to both tests, and in the sputum of one, both organisms were present in profusion; in the other, only the streptothrix. All these cases reacting to the streptotricin show the characteristic organism in good sputum specimens.

The reaction in the cases so far observed is a bright red hyperemic area from 7–10 mm. in diameter, a slight induration in the center, but without any tendency to form the dense induration of some of the tuberculin reactions. Examinations were recorded 24 and 36 to 48 hours after vaccination, but later in some cases where there was quite a tendency to induration, lasting even a week. Observations are now being made on other cases and on presumably normal people to determine the range and reliability of the reaction.

24 (841)

Further note on the influence of cholesterol on the growth of tumors.

By THEO. C. BURNETT (by invitation).

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In previous papers it has been shown by Robertson and the writer, that cholesterol accelerates the growth of carcinoma in rats, and also, in view of the recent work of Wacker and of Ellis and Gardner, it may be a factor in the incidence of cancer.[1] In our original experiments the cholesterol was injected into, or around the tumor, and the criticism has been made, and justly too, we think, that the increase in the growth of the tumor might be due to the mechanical irritation of the injections, although we had previously controlled this possibility by injections of a balanced salt solution. We determined to test this matter further by making the injections on the opposite side of the body to that of the inoculations, and it has been the privilege of the writer to carry on these experiments in the absence of Robertson on sab-

[1] Robertson and Burnett, *Jour. Exp. Med.*, Vol. 17, No. 3, 1913, p. 344; PROC. SOC. EXP. BIOL. AND MED., Vol. 10, 1913, p. 140.

batical leave. Two sets of experiments were made, and may be briefly described.

Experiment 1.—Seventeen rats that had proved refractory to inoculation in April last (1913) were injected with 1 c.c. of a 2 per cent. emulsion of cholesterol in sodium oleate, on August 4 and 6, 1913. The injection was made on the left side. On August 6 they were all inoculated on the right side with the eighth generation of a Flexner-Jobling tumor. The injections of cholesterol emulsion were continued every alternate day thereafter, on the left side. On August 27, twenty-one days after inoculation, eight rats had developed tumors, ranging from 5×5 mm. to 13×15 mm. in size, the average for the eight being 9.7 mm. Bearing in mind that rats previously refractory may later become susceptible, and that tumors vary in virulence, this is not conclusive. The mistake was in not setting aside some of this lot as controls.

Experiment 2.—Forty "Chicago" rats were divided into two lots of twenty each. Lot *A* were injected with 1 c.c. of a 2 per cent. cholesterol emulsion on the left side, on August 11 and 13, 1913. August 13 both lot *A* and lot *B* were inoculated on the right side with portions of the same Flexner-Jobling tumor, eighth generation. It may be said in passing that this is the same strain of tumor used by us in our original experiments on the "Chicago" rats.[1] Lot *A* was then injected with 1 c.c. cholesterol emulsion every alternate day until September 3, 1913. Lot *B* were left untreated as controls. On September 3, twenty-one days after inoculation, thirteen rats in lot *A* had developed tumors ranging in size from 5×5 mm. to 25×10 mm., the average for the thirteen being 13 mm. Seven rats in lot *B* (controls) developed tumors ranging from 3×3 mm. to 20×11 mm. in size, the average for the seven being 9.5 mm. On September 15 the tumors were again measured, with the following result. Seven tumors in the "refractory" lot (one had retrogressed) gave an average diameter of 18.5 mm. Six tumors of lot *B* (one retrogressed) averaged 8.41 mm. Twelve tumors of lot *A* (one died) gave an average of 17.6 mm. The cholesterol-treated tumors have steadily increased in size, while the controls have just about held their own. Neither the "refractory" rats, nor those of lot *A* received any cholesterol after August 29.

[1] *Loc. cit.*

From the above results it is evident that our original conclusions are correct. Cholesterol has an accelerating action on malignant tumor growth, whether it be injected into the tumor, or carried to it by the circulation.

25 (842)

Nephritis in ground squirrels (Citellus Beechyi).

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In the course of the examination of about 250,000 ground squirrels for plague 6 cases were noted in which there were gross lesions in the kidneys and which on microscopic examination presented evidence of chronic nephritis.

In one of these the lesions were very much like those in the experimental uranium nephritis of rabbits. There were large areas of cellular infiltration and fibrosis with atrophy of the tubules. The capsules of the glomeruli in these areas were slightly thickened. Some of the glomeruli showed a marked cystic dilatation. Other parts of these kidneys were practically normal except for a partial necrosis of the epithelium.

Two other specimens resembled closely the type of spontaneous nephritis in wild rats described by us in the *Journal of Medical Research* (1912, XXVI, 249). There was the same granular degeneration, necrosis and desquamation of the epithelium in some places with marked regenerative proliferation of the epithelium in others. There was the same tendency to the formation of epithelial cysts. The glomeruli showed some enlargement and proliferation of the capsular epithelium and a slight fibrous thickening of the capsule itself. In the interstitial tissue we found irregular areas of cellular infiltration and more or less fibrosis.

The three remaining cases were the most interesting ones in that they showed an entirely different type of the disease associated with the accumulation in many, usually somewhat dilated, tubules