action on the sexual organs.[1, 2] In intact females, treatment with 4 mg of progesterone daily proved equally ineffective.[3] In the light of the present experiments, it appears, however, that the negative results previously reported were merely due to the administration of insufficient doses of the hormone, and that if suitable amounts are administered progesterone exerts all its characteristic actions without sensitization by estrogens.

Summary. Experiments in spayed rats indicate that daily administration of 15 mg of progesterone produces progestational changes in the endometrium vaginal mucification and mammary gland development similar to that seen in late pregnancy. It is concluded that, contrary to the generally accepted conception, progesterone can exert all its characteristic actions in spayed females without sensitization by estrogens.

11191 P

Effect of Sulfapyridine Upon Growth, *in Vitro*, of Tubercle Bacillus.

HENRY GREEN. (Introduced by A. J. Goldforb.)

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The purpose of this investigation was to determine the effect, if any, exerted upon the growth of the tubercle bacillus of varying concentrations of sulfapyridine.

The culture medium employed was a meat broth prepared from fresh meat and adjusted to a pH 7.2-7.6. Glycerol was added to make a 4% solution. The media was put in flasks and sterilized in the autoclave for 20 minutes at 15 pounds per square inch pressure. After the flasks were cooled, weighed amounts of sulfapyridine were added. Since sulfapyridine is soluble only in dilutions of 1-1000 and less, dilutions of the following concentrations were made: 1-1000, 1-2000, 1-4000, 1-6000, and 1-10,000. After the addition of the sulfapyridine, the flasks were immersed in a water bath for 30 minutes at 65°C. The flasks were then ready for inoculation.

1 Astwood, E. B., Geschickter, C. F., and Rausch, E. O., *Am. J. Anat.*, 1937, **61**, 373.

2 Astwood, E. B., and Geschickter, C. F., *Arch. Surg.*, 1938, **36**, 672.

3 Selye, H., Browne, J. S. L., and Collip, J. B., PROC. SOC. EXP. BIOL. AND MED., 1936, **34**, 472.

Inoculation was performed by floating a single loop of surface growth from a stock float culture of human tubercle bacilli carried in the laboratory.

A control flask of glycerol broth, prepared and carried exactly as noted above, was utilized.

After inoculation, the flasks were incubated at 37°C.

The experiment was performed 3 times with the findings as noted in the accompanying graphs.

From these it can be seen that there is no growth in concentrations of sulfapyridine of 1-1000 and 1-2000; definite retardation of growth in 1-4000; and a slight or no retardation in growth in concentrations of 1-6000 and 1-10,000.

Besides absence of growth in concentrations of 1-1000 and 1-2000, it was noted that the physical characteristics of the float changed from its usual "healthy" dry, creamy yellow appearance to become brown and moist.

In order to determine whether the organisms were killed or merely inhibited in the concentrations of 1-1000 and 1-2000, the floats in these concentrations were removed from the culture media at the end of the experiment, washed in sterile normal saline and then planted on solid slants of standard gentian violet-egg media and incubated. In no instance was growth noted at the end of one month.

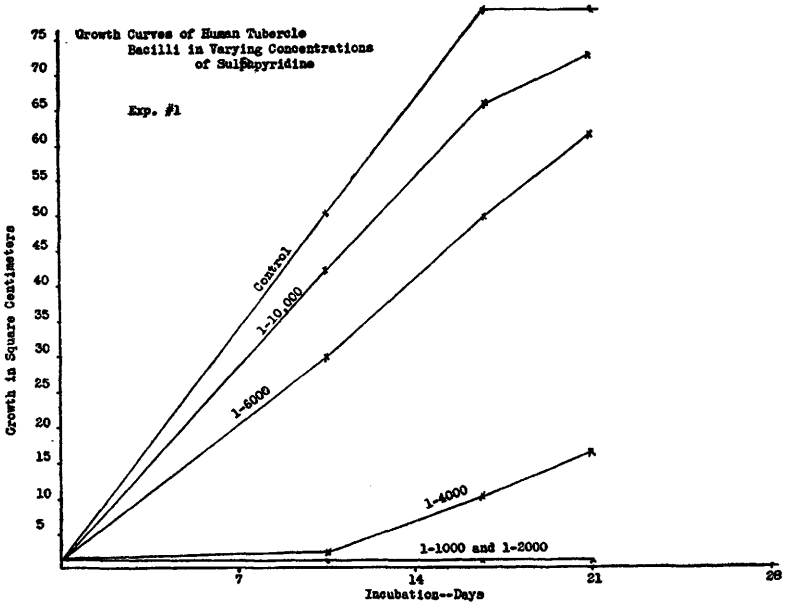

FIG. 1.

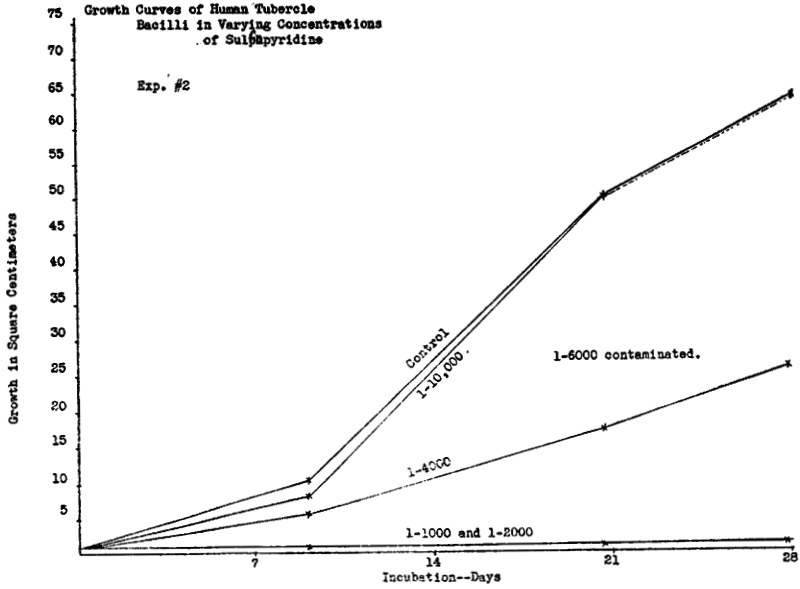

FIG. 2.

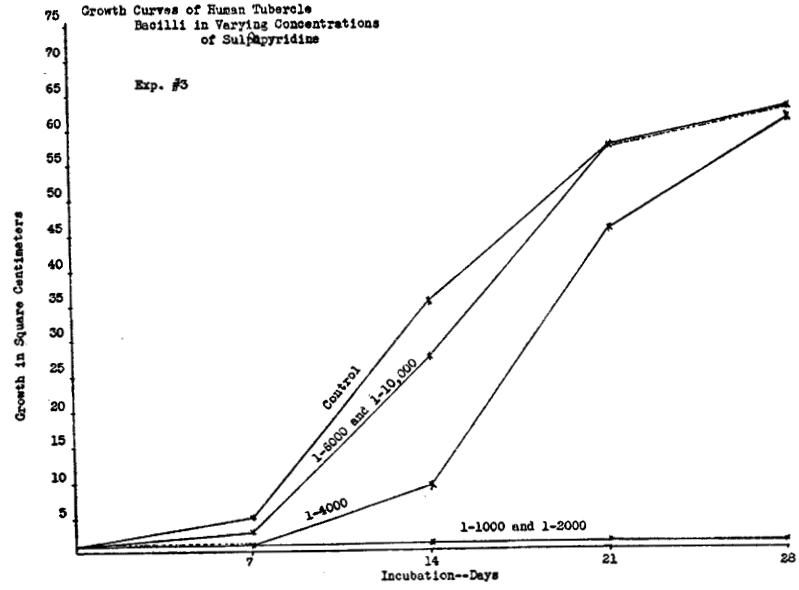

FIG. 3.

Conclusions. Under the conditions of the experiment, sulfapyridine in concentrations of 1-1000 and 1-2000 allows no growth of human tubercle bacilli. At the end of 3 to 4 weeks of incubation, the floats from these concentrations do not grow when planted on suit-

able media. Sulfapyridine in concentrations of 1-4000 definitely retards the growth of human tubercle bacilli. Sulfapyridine in concentrations of 1-6000 and 1-10000 affects little, or not at all, the growth of the organism.

We wish to express our appreciation to Dr. S. A. Petroff for his valuable advice.

11192 P

Insulin Hypoglycemia and Epinephrine Output from the Adrenal Glands.

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It has been shown that the severity of experimental pancreatic diabetes is not modified by reduction or suppression of the epinephrine output from the adrenal glands.[1] The insulin requirement under these conditions is not different from that of diabetic animals whose epinephrine secretion is not interfered with. Furthermore, it was found that depancreatized dogs, not subjected to interference with the adrenals, sooner or later develop reduced or suppressed secretion of epinephrine, which appears to be due primarily to the diabetic state.[2]

Our experimental investigations in progress have yielded results which indicate that epinephrine, when introduced intravenously at a constant rate in amounts corresponding to the ordinary rate of liberation from the adrenals in normal dogs, can elevate the level of blood sugar. The influence of similar amounts of epinephrine in animals previously subjected to operations for reduction or suppression of secretion from the adrenals is under investigation.

Although epinephrine secretion is not concerned primarily with the cause or progress of experimental pancreatic diabetes, it might, nevertheless, play a rôle, perhaps not indispensable, in normal carbohydrate metabolism. Cannon, McIver and Bliss[3] have suggested that epine-

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3 Cannon, W. B., McIver, M. A., and Bliss, S. W., *Am. J. Physiol.*, 1924, **69**, 46.