beyond 50 to 60 days no further differentiation could be expected from them. They were subject to violent attacks of tetany, which occurred spontaneously or could be induced by ether anesthesia. This made taking measurements of body and tail length at frequent intervals impractical.

The testis weights of the thyroidectomized animals were far below normal, but microscopically the differentiation in experimentals and controls was similar up until the 23rd day, at which time spermatocytes appeared in the periphery of the tubules and a few large degenerating sells were seen in the center. Animals operated on the first or second day of life have not been found to progress beyond this stage, the microscopic appearance of their testes being unchanged at the age of 50 days; whereas the controls by that time show complete spermatogenesis.

In the female the course of follicular development at first resembles that of the normal, but in the experimentals development was arrested after partial antrum formation (14 days).

The thymus was extremely diminished in size, consisting of but a few shreds of tissue. A qualitative examination of the adrenals indicates a reduction of cortical tissue.

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Action of Merthiolate on Gonadotropic Effect of Anterior Pituitary Extract.

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The germicide, "Merthiolate"* ($C_2H_5H_8S\ C_6H_4COONa$), should be included in the growing list of substances which may enhance the gonadotropic effect of anterior pituitary extract. In using merthiolate as a germicide in aqueous solutions of gonadotropic pituitary hormone, we discovered by accident that the gonadotropic changes were markedly potentiated because of the presence of low concentrations of the drug.

If a dose of anterior pituitary hormone in aqueous solution at a pH of about 7.4 is administered by subcutaneous injections distributed over several days to immature female rats and causes a

* The merthiolate was furnished us through the courtesy of Prof. M. S. Kharasch and the Eli Lilly Co.

moderate but clear-cut increase in ovarian weight, the same solution containing 1-5000 merthiolate (total dose 0.8 mg.) causes twice to three times as great a change as judged by the increase in ovarian weight. The merthiolate is added each day just before injection; it causes no change in the appearance of the water-clear hormone solution. An increase in the effect, roughly proportional to the change in concentration, is produced by increasing the concentration of merthiolate. Maximal potentiation occurs in immature rats receiving toxic but sublethal doses of merthiolate (0.077% or 1-1300; total dose 3.08 mg.). Concentrations of 1-10,000 or lower are without effect.

The effect of anterior pituitary extract on the testis of the immature male rat (change in seminal-vesicle weight) is also clearly potentiated by merthiolate. However, the germicide increases neither the proportion of rabbits ovulating nor the number of ruptured follicles in individual rabbits if the effects of the intravenous injection of a solution of an anterior-pituitary extract with and without merthiolate (1-5000 or 1-3000) are compared. Moreover, it does not increase the effect of even crude preparations of prolan on the ovary or testis (seminal vesicles) of the immature rat.

The potentiating effect of merthiolate appears not to be due to any action on the immature animal's own pituitary, for (1) the administration of the germicide alone has no gonadotropic effect, (2) the germicide is without action if it and anterior pituitary extract are administered simultaneously but in different subcutaneous sites, and (3) the potentiating effect is absent if the merthiolate-hormone solution is administered intraperitoneally. Possibly the drug alters the rate of absorption of the hormone (the tissues about the injection-sites appear fibrosed) although other changes under investigation may be important.

The conclusions outlined in the foregoing account are based on experiments in more than 300 immature rats and 70 rabbits.