increase in secretion by the ovary provides for the maintenance in the uterus of a higher number of embryos. Van Horn[7] found that the gonad-stimulating power of the hypophysis was increased in female rats hyperthyroid for several weeks. Halpern and Hendryson,[8] after brief daily treatment of non-pregnant adult rats with 0.5 g of thyroid, observed enlarged ovaries with increased corpus luteum development and suggested an activation of the "lutein-stimulating" hormone of the anterior pituitary. Hayashi[2] made similar observations with a lower dosage and described degeneration of the corpora lutea under long treatment.

Summary. The daily administration of 0.25 to 0.3 g of thyroid substance to adult female rats for 3 to 5 days during April, October and December, followed by mating within 4 days to normal males, resulted in an average litter size of 13.0, as compared to 9.0 in untreated littermates. Similar treatment during hot weather or an increase in thyroid amount proved deleterious to reproduction.

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Significance of Sex Hormones in Tanning of the Skin of Women.

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As illustrated in castrated and eunuchoid men, tanning of the human skin is abetted by the presence and negated by the absence of effective levels of male hormone substances in the body tissues and fluids.[1] Pending completion of analyses of urinary hormone titers and spectrophotometric study of skin pigmentation, the present report will serve to indicate that both the tanning process and its dependence on hormones for photograph-like "development" are (a) somewhat similar in women to those described for men, (b) capable of induction in women by male hormone substance, and (c) influenced by female as well as by male hormones.

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7 Van Horn, W. M., *Endocr.*, 1933, **17**, 152.

8 Halpern, S. R., and Hendryson, I. E., PROC. SOC. EXP. BIOL. AND MED., 1935, **33**, 263.

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1 Hamilton, James B., and Hubert, Gilbert, *Science*, 1938, **88**, 481.

Observations were made of the skin color of 5 women who received estrogenic or androgenic hormone substance. All complained of attacks of hot flushes and, with variation from individual to individual, some degree of additional malaise. Two of the women were considered to have reached the menopause and had not menstruated for the past 6 months. Two others had undergone bilateral ovariectomy, and the fifth had a hysterectomy done late in the third decade.

Three of the women received intramuscular injections of estrone† from 2 to 3 times weekly, a total of 14,000, 20,000, and 25,000 I. U., respectively, being administered over a period of one month in doses varied according to the degree of control over the hot flushes. The other 2 women were given testosterone propionate† by Doctor Edward Cravener as a possible treatment of arthritic conditions which had failed to respond to the customary therapeutic measures. The dose was 20 mg of testosterone propionate in 1 cc of peanut oil given intramuscularly from 1 to 3 times weekly for 3 weeks.

Increased coloration of the skin appeared within a few days in the women receiving either male or female hormone substances. All 5 women exhibited increased pigmentation of the skin of the body. One of them showed a distinct white tracing where the shoulder straps of a sun-tan suit had been worn. Since the woman had not worn a sun-tan suit for at least 2 months, it is indicated that the exposure to sunlight that was partly responsible for the tan of the body may have occurred before and not after the administration of the hormone. The hands, head and neck of the patients assumed a deeper tan than the body, possibly due in part to a greater exposure of these areas before and after administration of the hormone. Marked increase in pigmentation occurred on areolae and vulvae.

Vasodilation of the skin was especially striking in both of the women receiving testosterone propionate. One also commented upon the assumption of a darker color of the hair and upon a "weather-beaten" facial appearance, the latter seemingly due in part at least to increased prominence of the facial muscles.

† Estrone under the trade name Theelin was furnished through the courtesy of Parke, Davis and Co.; testosterone propionate under the trade name Perandren, through the courtesy of the Ciba Pharmaceutical Company, Inc.