tent of methionine in the liver, aid the biosynthesis of choline which results in the increase of phospholipid, and thus may prevent the rise of C/P ratio and atherosclerosis. Besides this, hydrolyzed GCA and Vit. B_{12} may be helpful in cholesterol metabolism.

Summary. The effect of Vit. B_{12}, unsaturated fat and hydrolyzed glucose cycloacetoacetate (GCA) on total plasma cholesterol levels and on excretion of fecal bile acids in rats with hyperlipemia induced by feeding saturated fat has been studied. These substances have been found to increase the output of fecal bile acids with a concomitant fall in total plasma cholesterol levels, thus indicating their important role in increasing the metabolism of cholesterol in the living system through its conversion to bile acids. Hydrolyzed GCA was found to be most effective in this process.

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Received June 7, 1961. P.S.E.B.M., 1961, v108.

Sex Differences in Maximal Hematocrit Values in the Rat in Response to $CoCl_2$ Administration.* (26932)

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The effect of gonadal hormones upon erythropoiesis has been studied in many different species and several facts are generally agreed upon. Hematocrit levels, erythrocyte counts and hemoglobin content: (A) are higher in the intact male than in the intact female; (B) fall in the male and rise in the female following castration; (C) rise in the castrated male following testosterone administration and fall in the castrated female following estrogen administration. Furthermore, Finkelstein, *et al.*(1) have shown that the male rat recovers from hemorrhagic anemia faster than the female and that androgen accelerates while estrogen delays the recovery time. More recently Mirand, *et al.*(2)

* This study was supported by Grant from Nat. Inst. Health, U.S.P.H.S., Bethesda, Md.

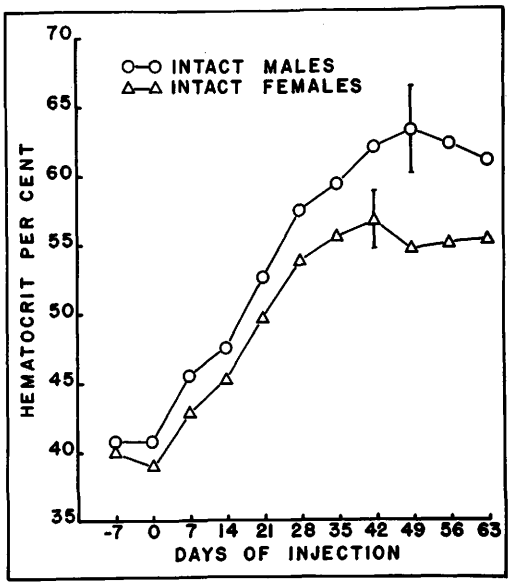
† Summer Research Scholar on a grant from Kentucky Heart Assn.

have demonstrated that uptake of Fe^{59} by the normal rat is inhibited following estrogen treatment. From these observations it might be predicted that maximal erythropoietic response to a strong erythropoietic stimulus would be greater in the male than in the female. During an experiment in which $CoCl_2$ was used to produce polycythemia we noted significant sex differences in maximal hematocrit values which to our knowledge have not been previously described.

Methods and materials. Albino rats of the Wistar strain were obtained from the Harlan Industries, Cumberland, Ind. *Experiment 1.* Ten males and 10 females were injected intraperitoneally with 10 mg $CoCl_2$ (2.5 mg elemental cobalt)/kg body wt/day for 63 consecutive days, beginning at 65-70 and 75-80 days of age respectively. *Experiment 2.* Seven males and 8 females were castrated at 63-68 days of age and after 20 days were injected with 10 mg $CoCl_2$/kg body wt/day for 63 days, exclusive of Saturdays and Sundays. Eight intact males and 7 intact females received the same treatment, beginning at 92-97 days of age.

Hematocrit determinations were made weekly on all animals. Blood was obtained by clipping the tails while the rats were under light ether anesthesia. Van Allen hematocrit tubes (1.6% aqueous sodium oxalate was used as a diluent) were employed and were spun for 30 minutes at 2750 rpm in a size 1, Model SBV (head #240), International Centrifuge.

Results and discussion. In Exp. 1 (Fig. 1) the maximal hematocrit value reached by the males (63.3%) was significantly higher ($p<.001$) than that attained by the females (56.7%). A significant difference ($p<.001$) was also observed between the intact males (66.7%) and intact females (59.5%) in Exp. 2 (Fig. 2). In contrast, hematocrit values for the castrated males and females were almost identical—64.0% and 63.7% ($0.9>p>0.7$) respectively. In both experiments maximal hematocrit value was attained after 6 weeks of treatment for the intact females and after 7 weeks for the intact males. On the other hand, maximal hematocrit values were reached at the end of the seventh week by both castrated females and males.



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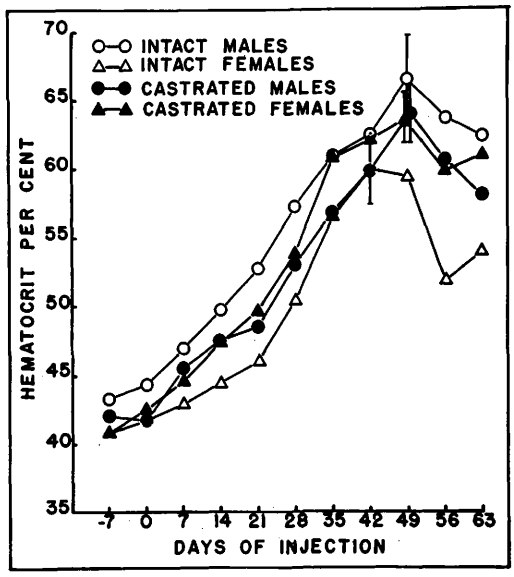

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FIG. 1. Erythropoietic response of intact male and female rats to inj. of $CoCl_2$ for 63 days. Vertical lines represent $\pm$ 1 stand. dev.

FIG. 2. Comparison of erythropoietic response of intact and castrated male and female rats following inj. of $CoCl_2$ for 63 days. Vertical lines represent $\pm$ 1 stand. dev.

Although hormone replacement therapy was not carried out in castrated animals, the data strongly suggest that the maximal re-

sponse elicited by the strong erythropoietic stimulus of $CoCl_2$ is affected by gonadal hormones. Since the values obtained for the castrated males and females fall between those obtained for the intact males and females, the data support the conclusion of previous investigators that testosterone stimulates and estrogen inhibits erythropoiesis.

However, when the probabilities of the differences found between intact and castrated males and between intact and castrated females were calculated, p was greater than .05 but less than 0.1 for the former and less than .01 for the latter, suggesting a greater inhibitory effect of estrogen than a stimulatory effect of testosterone.

It is of further interest that an estimate of the survival time of the erythrocyte formed in response to $CoCl_2$ stimulation may be made from the data presented. It is our interpretation that maximal hematocrit level is reached when rate of erythrocyte destruction equals rate of formation; further, that this level is attained when the cells formed in response to the initial $CoCl_2$ injections begin to be removed. Accordingly, from the curves in Fig. 1 and 2 it is estimated that survival time of the erythrocytes formed in response to $CoCl_2$ is 42-49 days for the female rat and 49-56 days for the male. Burwell, *et al.* (3) employing radioiron-tagged erythrocytes established survival time of normal red cells of the rat to be 45-50 days. Therefore, estimates of survival time of erythrocytes formed in response to $CoCl_2$ stimulation, obtained from the hematocrit curves, compare quite favorably with survival times of normal cells established by more elaborate procedures.

Summary. Following injection of $CoCl_2$ for 63 days, intact male and female rats attained significantly different maximal hematocrit values of 66.7% at the end of the seventh week for the former and 59.5% at the end of the sixth week for the latter. Intermediate levels of 64.0% and 63.7% were reached by castrated males and females respectively under the same stimulus, both at the end of the seventh week. Survival time of erythrocytes formed in response to $CoCl_2$ stimulation appears to be normal.

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Received June 14, 1961. P.S.E.B.M., 1961, v108.

Fluoride Metabolism in Pregnant Rats.* (26933)

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With increasing use of fluoride salts for prevention of dental caries, metabolic and storage studies of this element (F) in humans and animals have become ever more important. Such studies in pregnant women have shown that an accumulation of F takes place in the placenta(1,2,3,4,5) and that it is also transferred to the fetus(6). At a concentration of 0.5-0.6 ppm F in the drinking water this accumulation is reflected in decreased excretion of F in urine and saliva(7). Investigations carried out in pregnant rats fed diets of varying F levels indicate that about 10 ppm of F must be ingested by the mother rat before any appreciable increase in carcass F is found in the pups(8,9,10,11,12). The present study was initiated to investigate whether F changes in the diet during pregnancy of rats would noticeably affect maternal blood, urine, osseous structure and F storage in the fetuses.

Materials and methods. One hundred female white laboratory rats of the Hebrew

* Supported by a grant from Joint Research Fund, Hebrew Univ.-Hadassah Medical School.