5 to 10 times the minimal amount of extract which will cause morphological changes, the degree of response did not exceed stage 3. This was interpreted as being due to the inhibitory effect of contaminating estrogenic hormone on progestin effect. Hisaw reports that 10 rat units of estrin will mask the progestational response of one rabbit unit progestin.

While it is evident that the human organism contains significant amounts of progestational hormone during pregnancy, there is present on the basis of present information relatively little during the normal ovarian cycle. Clauberg[5] reported atypical but definite progestational rabbit uterine proliferation with extract of human corpora lutea corresponding to 55 gm. fresh tissue. Pratt[6] obtained a positive reaction with the equivalent of 60 gm. fresh tissue in one experiment and 75 gm. in another, estrogenic substances being separated. Most of the corpora were from cases in the latter half of the intermenstruum. Thus from these scanty data there is present in the human (single mature corpus luteum) but .03 rabbit unit of hormone whereas a mature hog ovary may contain 30 times as much. Despite the small amount of progestin present in the nonpregnant human ovary as compared to that in ovaries of other species, no little significance may be attached to the importance of this hormone during pregnancy on that basis. While the corpus luteum may not be essential for continuance of human pregnancy, one cannot conclude that the luteal hormone is dispensable from that observation alone since the placenta may produce its own progestin.

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Renal Excretion of Cyanol in the Sculpin.

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On the basis of previous work from his laboratory, Höber[1] postulated that cyanol would not be excreted by the aglomerular kidney, and obtained negative results in a few experiments on the

[5] Clauberg, C., Thiel, H. W., and Ziecker, R., *Arch. f. Gynäk.*, 1932, **152**, 61.

[6] Pratt, J. P., *Arch. Path.*, 1935, **19**, 380.

[1] Höber, R., *Pflüger's Arch.*, 1930, **224**, 72.

goosefish. Marshall and Grafflin[2] reported that cyanol is not excreted by the aglomerular kidney of the toadfish at low dosage, but that at high dosage a small amount is excreted. They further found that when the sculpin, a glomerular marine teleost, was rendered functionally aglomerular by large doses of phlorizin, cyanol failed to appear in the urine. In view of Höber's negative results on the goosefish, the following experiment on this species (*Lophius piscatorius*) at rather high dosage is of interest. The specimen, weight 12 kilos, was given 1.5 gm. of cyanol intramuscularly, and 17 hours later showed a plasma concentration of 15.8 mg.%, urine 2.6 mg.%. A second urine taken an hour later contained 2.5 mg.%.

Four experiments upon the excretion of cyanol in the sculpin (*Myoxocephalus octodecimspinosus*) at rather high plasma levels are summarized below. The animals (167 to 305 gm.) received 40 mg. of the dye intramuscularly from 4 to 17 hours before the beginning of the urine collection period, which varied from 8½ to 17½ hours in length. Blood was drawn at the beginning and end of the period, and the mid-period concentration calculated. Plasma (P) and urinary (U) concentrations of cyanol are expressed as mg. %, urine flows as cc. per kg. per 24 hours. When the U/P ratios are compared with Clarke's[3] figures for xylose in the sculpin, it is apparent that glomerular filtration alone seems adequate to account for all of the cyanol excreted in the urine. This conclusion is reinforced by the more recent finding that xylose gives measures of the glomerular filtrate which are too low.

1. (P) 23.3, (U) 57.7, U/P ratio 2.4, flow 11.6 cc.
2. (P) 18.7, (U) 34.7, U/P " 1.9, " 17.0 "
3. (P) 32.0, (U) 43.0, U/P " 1.3, " 25.5 "
4. (P) 14.9, (U) 25.0, U/P " 1.7, " 46.5 "

Two experiments in which glucose and cyanol were compared under phlorizin are particularly interesting in view of Cope's[4, 5] previous observations upon rabbits. In unphlorizinized animals he found the clearances of xylose and cyanol to be essentially identical in 10 out of 13 experiments. Under phlorizin, however, while the glucose clearance equalled that for xylose, the cyanol clearance dropped markedly and averaged only 42% of the xylose clearance. From our experiments it is clear that a similar depression of cyanol excretion under phlorizin occurs in the sculpin. The data upon one

[2] Marshall, E. K., Jr., and Grafflin, A. L., *J. Cell. and Comp. Physiol.*, 1932, **1**, 161.

[3] Clarke, R. W., *J. Cell. and Comp. Physiol.*, 1934, **5**, 73.

[4] Cope, C. L., *J. Physiol.*, 1933, **80**, 238.

[5] Cope, C. L., *J. Physiol.*, 1933, **80**, 253.

TABLE I.
Sculpin No. 88; 475 gm.

	Glucose	Cyanol
Plasma	473	12.1
Urine	708	12.8
U/P ratio	1.50	1.06
Plasma	446	10.9
Urine	748	13.9
U/P ratio	1.68	1.28

animal are given in the accompanying table. This sculpin received glucose and cyanol intramuscularly on the day before the experiment, and 12 mg. of phlorizin (in the range of dosage recommended by Marshall and Grafflin) was administered intramuscularly 2½ hours before the first urine collection period was started. Blood samples were drawn at the beginning of the first and at the end of the second period, and the mid-period plasma concentrations calculated. The periods were approximately 3½ hours in length. Glucose and cyanol are expressed as mg.%. In this animal the cyanol clearance was in the first period 77%, and in the second period 76% of the simultaneous glucose clearance. In the second experiment the percentages were 75% and 67% in the 2 consecutive periods.

The interpretation of this depression of cyanol clearance under phlorizin has been discussed by Cope and no satisfactory explanation can yet be offered. It is striking that it holds true at both ends of the vertebrate scale: on the one hand in the rabbit, with its complex nephron, and on the other hand in the sculpin, whose nephron possesses, in addition to the glomerulus (and neck), only the analogue of the proximal convoluted tubule (brush border segment) of the mammalian nephron.