supplying the 2 cc. of blood) were added to the other. Another white count was then made. The tubes, now properly corked, were then incubated in a water bath for 2 or 3 hours and white counts were made at hourly intervals from each tube. The blood was thoroughly stirred with a glass rod before the sample was taken for each counting.

The above experiment was made with the serum of 6 cases of kala-azar. It was observed that in all these cases there was always a reduction in the number of leucocytes after several times of washing and after prolonged incubation with repeated stirring. The degree of reduction in the number of the leucocytes of the blood incubated with kala-azar serum was approximately the same as that with normal serum. The reduction was apparently due to the fact that many of the leucocytes in the suspension became attached to the stirring rods and the wall of the incubating tubes, as demonstrated by the microscopic examination of the stained blood films on their surfaces and further proved by the fact that with very thorough cleansing or paraffin coating of the glassware the degree of reduction became much less noticeable. It was, therefore, concluded that in the kala-azar serum there is no such substance as leucolysin. The lack of any leucolytic substance was further confirmed by the direct observation under microscope of the leucocytes of normal blood mixed with kala-azar serum. These leucocytes were found to remain either actively motile or at least physically intact even after 3 hours' incubation.

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Pigmented Cells in Adrenals and Testes of Hypophysectomized Rats.

EUGENE CUTULY AND ELIZABETH C. CUTULY. (Introduced by D. Roy McCullagh.)

From the Department of Biochemical Research, Cleveland Clinic Foundation, Cleveland, Ohio.

Brief mention has already been made of the fact that hypophysectomy in the rat is followed by the appearance of yellowish pigmented cells in the interstitial spaces of the testis and in the reticular zone of the adrenal.[1] The pigmented cells which we have seen in the testis seem to be similar to those described by Rasmussen[2] as occurring in

[1] Cutuly, E., McCullagh, D. R., and Cutuly, E. C., to appear in *Am. J. Physiol.*

[2] Rasmussen, A. T., *Am. J. Anat.*, 1917, **22**, 475.

the involuted testis of the hibernating woodchuck, and those we have seen in the adrenal seem to be similar to those found by Zalesky[3] in the adrenals of castrated guinea pigs.

In our studies the adrenals and testes of numerous rats hypophysectomized for 5 to 100 days were fixed in Zenker-acetic, 10% formalin, Helly's or Bouin's fluid. Paraffin sections were cut at 5 or 10 micra and stained with ordinary hematoxylin-eosin or with iron hematoxylin and light green; some sections were mounted unstained. The structure and coloration of the pigmented bodies was the same regardless of the histological technique employed. These bodies were of different sizes and shapes and were characterized by the appearance of yellow pigment in the cytoplasm. The size of the pigment granules varied from fine particles to clusters as large or larger than nuclei of normal interstitial cells. Nuclei were sometimes entirely lacking from these cells. When present they showed varying degrees of pycnosis and were almost always eccentrically located, their position seeming to depend upon the amount of pigment laid down in the cytoplasm. At times this pigment was so abundant that the nucleus was displaced to the extreme periphery of the cell and actually protruded beyond the cell wall.

Pigment cells such as we have described are very rarely observed in the adrenals of normal rats, but in our experience never appear in the testes. Such cells have been found to occur invariably in the juxtamedullary region of the adrenals of rats hypophysectomized from 5 to 100 days. Greater numbers of these cells were visible in the adrenals of rats hypophysectomized for relatively long periods of time than in those hypophysectomized for only a short time. This observation suggests that there was accumulation of these structures in the reticular zone. In the testes the pigmented cells appeared indiscriminately throughout the intertubular spaces, but they were usually most numerous just subjacent to the tunic of the gland. While they have been seen in the testes of rats hypophysectomized for 5 to 69 days, their occurrence in these organs was not so constant as in the adrenals. Frequently these yellow bodies were few in number or entirely lacking in the testes of rats hypophysectomized for more than 20 days. Since these pigmented cells in hypophysectomized rats usually showed signs of nuclear atrophy, and because they accumulated in the reticular zone of the adrenal and tended to disappear from the interstitial spaces of the testis, it was believed that they represented a type of degeneration resulting after ablation of the anterior lobe of the pituitary. That removal of the anterior

[3] Zalesky, M., *Anat. Rec.*, 1936, **65**, 467.

pituitary alone was responsible for the appearance of the pigmented cells was demonstrated by the fact that the testes and adrenals of incompletely hypophysectomized rats possessing remnants of anterior lobe tissue alone did not show these changes.

Because of the morphological similarity between the pigmented structures in the adrenals and testes, it was thought that the cells in both the glands might be physiologically related. Various studies, however, have not lent support to this idea. Thus, hypophysectomized rats receiving pure gonadotropic hormone from a parabiotic partner[4] had testes which showed no sign of pigmented cells, while the adrenals of these rats contained many such structures. Similarly, pigmented cells have been prevented from appearing in, or have been caused to disappear from, the testes of hypophysectomized rats by injections of antuitrin-S; but these injections failed to have any preventive action on the pigmented bodies in the adrenal.

Further studies are being planned to determine the nature, origin and fate of the pigmented cells and their responses to various substances.

Summary. Hypophysectomy in the rat caused invariably in the reticular zone of the adrenal and sometimes in the intertubular spaces of the testis the formation of cells containing yellow pigment granules. The nuclei of the cells usually showed varying degrees of pycnosis or were absent. Gonadotropic hormone prevented or corrected these changes in the testis, but failed to have any apparent effect upon the pigmented structures in the adrenal.

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A Comparison of the Potencies of Some Androgenic Sterols.

D. ROY MCCULLAGH AND B. F. STIMMEL.

From the Department of Biochemical Research, Cleveland Clinic Foundation, Cleveland, Ohio.

This is a report of a study of the relative effects of six synthetic androgens* on the combs of capons. Some of these androgens had not been assayed previously by the procedure of Gallagher and Koch[1] which, in our hands, has proved to be the most satisfactory

[4] Cutuly, E., McCullagh, D. R., and Cutuly, E. C., *Endocrinology*, 1937, **21**, 241.

* These substances were supplied through the courtesy of Dr. E. Schwenk of the Schering Corporation.

[1] Gallagher, T. F., and Koch, F. C., *J. Pharm. and Exp. Therap.*, 1935, **55**, 97.