12 experiments on 6 dogs caused a uniform and considerable rise in the blood urea nitrogen. (2) The increase seemed due primarily to absorption of digested blood. No evidences of starvation, dehydration, anemia, hypochloremia or shock were present in these dogs to explain the phenomenon. (3) It seems logical to assume that much of the rise in blood urea nitrogen observed in clinical cases of bleeding peptic ulcer is due to the same phenomenon, the resultant azotemia being of the alimentary type.

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Influence of Sex Hormones and Desoxycorticosterone on Melanophore Differentiation in Birds.

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Recently, it was found that explants of skin ectoderm from embryos of New Hampshire Red fowl occasionally yielded black melanophores, but red ones differentiated rarely, and a majority of the cultures were entirely negative. Since an examination of regenerating feathers from the adult (in which the plumage is predominantly red) showed that there was an abundance of red melanophores, it seemed desirable to find out what factors influence the differentiation of these pigment cells. The purpose of this report is to summarize some of the results which have been obtained by using sex hormones and a hormone of the adrenal cortex.*

In these experiments, a piece of skin was removed from the dorsal midline of a 6-day chick embryo (New Hampshire Red or Rhode Island Red) and divided into bilateral halves. One of these was explanted into a clot made up of embryonic extract mixed with plasma containing the sex hormone, and a control culture was made of the other half. Crystalline hormones were shaken up in blood plasma. Sesame oil, olive oil, and hormones dissolved in them were emulsified with plasma. Concentrations of hormones ranged from 20 to 300 γ per cc.

Red melanophores differentiated in cultures treated with sex hormones within 24 to 48 hours, and were similar to those in the

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TABLE I.
Summary of the Action of Sex Hormones, Sesame Oil, and Olive Oil on the Differentiation of Red Melanophores.

Test substance	No. of embryos sampled	Total No. of treated explants	% of explants containing red melanophores	
			Treated explants	Control explants
Estradiol dipropionate in sesame oil	47	148	37.8	6.0
Estradiol monobenzoate in sesame oil	10	19	63.2	10.0
Estrone (cryst.)				
Sample 1	4	13	30.8	0
Sample 2	21	43	23.3	13.6
Testosterone propionate in sesame oil	13	30	60.0	0
Sesame oil	37	73	31.5	2.6
Olive oil	10	38	23.7	15.8

regenerating feathers of adult birds. They were slightly smaller than black melanophores, and contained sub-spherical, orange-red granules which partially dissolved in alcohol or xylol after the cells were fixed. The rapid, almost vibratory, movement of these granules within the living cell indicated that the cytoplasm must be extremely fluid. Black melanophores contained dark-brown or black, rod-shaped granules which moved very slowly in living cells and were insoluble in alcohol and xylol. They differentiated *in vitro* at approximately the same time as the red melanophores. The percentages of explants which contained red melanophores due to the action of sex hormones are summarized in Table I.

Testosterone was far more potent in its action on melanophores than any of the female hormones. It not only affected 60% of the cultures, but also caused differentiation of a greater number of red melanophores in each separate explant.

The data show that sesame oil had a marked influence on the differentiation of red melanophores, but in every case solutions of hormones in the oil were much more active, so that there can be no doubt that the hormones had an action of their own. Furthermore, crystalline hormones, though practically insoluble in plasma, produced a measurable effect.†

Explants of skin from embryos of the New Hampshire Red, White Leghorn, and Barred Rock breeds of fowl were grown in clots containing the cortical hormone of the adrenal gland, desoxycorticosterone acetate (Cortate), in concentrations of 50 to 333 γ per cc.

† The cause of the discrepancy in the results obtained from the two samples of estrone is not known. The preparations were obtained from two different sources and apparently differed only in the much smaller size of the crystals in sample 1.

No melanophores of any kind differentiated in treated explants from New Hampshire Red embryos, even though there were occasional cases in which red melanophores appeared in the corresponding control cultures. Similarly, all hormone-treated White Leghorn explants were entirely negative, although the controls contained the usual numbers of black melanophores which are short-lived though capable of synthesizing and depositing melanin granules. In the case of the Barred Rock, which possesses a relatively more viable pigment cell, the result varied with the age of the explanted tissue. When skin was taken from a 6-day embryo or younger, no differentiated melanophores were present at the time of explantation, and few or none of the melanoblasts developed pigment granules in the presence of the hormone. Skin from 7-day embryos or older already contained many black melanophores at the time of isolation. When it was grown in the corticosterone-plasma the melanophores which were present retracted their processes, rounded up, and died, and new ones were not differentiated to take their places. The reaction was not always complete; occasionally, expanded melanophores persisted in older explants or were newly differentiated in younger ones, but there were never many of them. Control cultures always contained great quantities of black, expanded melanophores.

The action of the cortical hormone, then, is apparently that of a suppressor of melanin formation, which causes degeneration of melanophores and inhibits the differentiation of new ones. This result may be of interest in view of the fact that clinically it is observed that Addison's disease is accompanied by a darkening of the skin as though the normal inhibitor of pigment formation had been removed with the destruction of the adrenal cortex.

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Activation of Pitressin by Acetic Acid.*

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In the process of development of a technic for the extraction of pitressin from tissues as a preliminary to its assay, the effect of acetic acid on pitressin *in vitro* was studied.

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