blackening of the animal as the layers of cornified skin remain in place) as removal of the whole gland.

The similarity of the appearance of the specimens of *Triturus viridescens* after thyroidectomy or hypophysectomy suggests that there may be some interdependence of these two glands in the control of the moulting process, and a series of experiments was devised to answer the following questions. (1) Does thyroid removal in itself cause the inhibition of moulting or does it affect the pituitary in some way so that it is a maladjustment on the part of the latter rather than absence of the former that is at the root of the difficulty? Or (2) does hypophysectomy in itself directly cause the inhibition or does its absence affect the thyroid in some way so that it is essentially an upset of the thyroid that is the real trouble?

The tests were made by grafting thyroid glands (in a few cases by injecting thyroxin) or pituitary glands (whole glands or pars anterior only) into (1) thyroidectomized, (2) hypophysectomized or (3) hypophysectomized-thyroidectomized animals, all of which had stopped moulting after the respective operations and were very definitely black with the piled up cornified epidermal layers. Briefly the results were as follows. Thyroid glands of normal animals transplanted into thyroidectomized or hypophysectomized or hypophysectomized-thyroidectomized animals will induce a complete moult of the many-layered cornified epidermis within a short time, usually as early as two days after the transplant. Transplantation of the thyroids of hypophysectomized animals into hypophysectomized or thyroidectomized animals will have the same effect. Injection of thyroxin or immersion in it will cause moulting in thyroidectomized animals, and injection is likewise efficacious in hypophysectomized ones, but it has not yet been tried on ones from which both glands have been removed. Pituitary glands (whole glands or anterior lobes) transplanted into thyroidectomized or hypophysectomized-thyroidectomized animals (ones from which the thyroids and pituitary had been removed simultaneously or from which the thyroid had been removed just prior to grafting) will not bring about the moult. (In a few cases thyroidectomized animals, which had blackened somewhat, moulted after pituitary grafts, but a careful search always revealed the presence of some thyroid follicles.) If thyroids are transplanted into these animals subsequently to the pituitary grafts, the animals shed their skins. Pituitary glands (whole glands or anterior lobes) transplanted into hypophysectomized animals will induce moulting within a few days.

This combination of results at once suggests that the key to the explanation of the inhibition of moulting lies primarily in the thyroid gland. Thyroid grafts are able to stimulate moulting in all the operated animals (thyroidectomized, hypophysectomized or hypophysectomized-thyroidectomized) because they supply the essential hormone, but pituitary grafts are able to do it only in hypophysectomized animals where the thyroids are still present and can be activated by such grafts. In the thyroidectomized animals an athyroid condition has been produced, and although cornification of the skin continues, sloughing is discontinued. In the hypophysectomized animals, a hypothyroid state (possibly a functional athyroidism) has been brought about by the removal of the pituitary gland (either whole gland or pars anterior only) and this hypothesis is supported by a histological study of the thyroids in such animals. Instead of the usual cuboidal cells bounding the follicle and a moderate amount of colloid within the follicle, the cells are flattened and a large amount of colloid distends the follicle. However, these thyroids contain the active hormone because when removed from hypophysectomized animals and retransplanted into the same animal, moulting occurs just as quickly (in two days) as if thyroids from normal animals had been used. Such thyroids also will cause moulting in thyroidectomized animals.

From these experiments it seems probable that the thyroid hormone is essential for the normal moulting mechanism and that the secretion of the anterior lobe of the pituitary in some way regulates the thyroid gland. A full account of these experiments will appear later.

A. ELIZABETH ADAMS
LEAH RICHARDS
ALBERTA KUDER

MOUNT HOLYOKE COLLEGE

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