

## THE MICROSCOPY OF POWDERED DESICCATED ENDOCRINE GLANDS.\*

(ABSTRACT.)

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Studies have been made by the author upon the microscopy of certain powdered desiccated glands of internal secretion obtained from cattle and hogs and, in the case of the thyroid and pituitary, also from sheep with a view toward providing microscopical standards for these biological products which are being more and more employed in modern organotherapy.

Without microscopical descriptions of these products they would be prone to adulteration with undesirable materials by unscrupulous persons.

Descriptive microscopical standards are presented for powdered desiccated thyroid, suprarenal, whole pituitary, anterior pituitary, posterior pituitary, ovary, ovarian residue and corpus luteum.

Various stains and reagents have been employed in the identification of the different histological elements occurring in each and the reactions of these elements to them are discussed.

Powdered desiccated thyroid may be identified by its smooth to striated, hyaline fragments of colloid, some of which contain granules, minute vacuoles, crystalloidal bodies and cells together with the numerous, irregular fragments of follicular epithelium, both of which stain brown with a mixture of Mallory's stain and 1% solution of phosphotungstic acid.

Powdered desiccated suprarenal may be identified by its numerous, characteristically stellate to irregularly shaped chromophile (chromaffin) cells which take a brown coloration with chromic acid test solution together with its characteristic cortical cells as examined in Delafield's hematoxylin and alcoholic eosin.

Powdered desiccated whole pituitary may be identified by the numerous large, polyhedral or chromophile cells which show a coarse granulation and which show a distinct affinity for acid stains, acid fuchsin coloring them a deep red, the presence of many chromophobe cells of more or less cubical, rounded or pyriform shape with few or no fine granules whose nuclei are colored blue and cytoplasm a paler blue with either Delafield's hematoxylin or a mixture of eosin and methylene blue solution, the mossy neuroglia cells with their many, slender branching processes clearly visible in a mixture of 1% phosphotungstic acid and Delafield's hematoxylin and by the presence of bipolar nerve cells.

Powdered desiccated anterior pituitary can be identified by the presence of characteristic chromophile and chromophobe cells and the absence of mossy neuroglia and bipolar nerve cells.

Powdered desiccated posterior pituitary may be identified by the very numerous mossy neuroglia cells and bipolar and multipolar cells and the absence of chromophile and chromophobe cells.

Powdered desiccated whole ovary or "ovarian substance" is characterized by the presence of more or less distorted cubical to low columnar epithelial cells whose nuclei take a deep blue and cytoplasm a pale purple or pink color with Delafield's hematoxylin, by the rounded to irregular masses consisting of primary oocytes surrounded by connective tissue elements, the rounded to oval interstitial cells containing granules and fat droplets staining bright red with red acid dyes, the numerous fibroblasts with forked ends, the numerous lutein cells, often in masses, which appear yellowish in water mounts together with an abundance of dense connective tissue consisting mostly of narrow collagen fibres which swell and are colored yellow in a mixture of 1% picric acid and 1% acetic acid solution.

Powdered desiccated ovarian residue shows a similar microscopic picture to powdered desiccated whole ovary except for the almost complete absence of corpus luteum material.

Powdered desiccated *corpus luteum* is characterized by its numerous lutein cells, isolated or in masses, the individual cells somewhat polyhedral with spheroidal central nucleus and numerous lutein granules and fat droplets, the groups of lutein cells intermingled with fine collagen fibres and appearing yellowish or greenish yellow in water mounts.

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