

the seat of extensive neoplastic growth, that presented the perfectly typical picture of infolding and budding of the parenchymal cells.

Alterations in the morphological character of the epithelium—for example, several layers of cells lining the alveolar walls, the flattened type of cell becoming columnar, the change in chromatin-content of the nuclei, etc.—we have not found constant for any one pathological condition of the thyroid gland. Whether the lining epithelium of the gland is columnar or flattened depends upon the amount of colloid material within the lumen. It is noteworthy, in parts of the glands that show distinct histological changes of a hyperplastic nature, to find a marked diminution of the amount of colloid; very often there is an apparent absence of this material. Though the epithelium shows no appreciable microscopical alteration in cell morphology, there is undoubtedly a decided change in cell function as evidenced by the lack of colloid production. The absence of acinal contents naturally permits of a columnar type of cell lining.

Only rarely in thyroid hyperplasia were we able to detect more than two layers of epithelial cells lining the acini. Not even in the extreme grade of exophthalmic goitre were the cells heaped up. Often what appeared as several layers of "focal budding" could be explained by the fact that the knife had sectioned the gland alveoli at various places.

Infolding of the epithelium may occur in any thyroid gland when active hypertrophy is going on, especially in the absence of colloid production, no matter what the cause. The same fundamental principle governing the phenomena is also met with in other glandular organs which are the seat of hypertrophy: for example, the prostate, where the infolding is sometimes beautifully illustrated.

In some instances three or more of the above described types of lesions occur in the same gland, while in others the histological change is confined to one type. It is especially noteworthy in the gland of exophthalmic disease to find multiple lesions, widely separated and distinctive in character, though