Sometimes embedded in the gland but more often separated from it are the accessory or parathyroids originally described by Sandstrom in 1880. They vary in number anywhere from two to six and are variously situated. They may occur close to the hyoid bone or as low down as the aortic arch. They are usually paired and at the present time the subject of great interest and painstaking study.

Histology.

Instructure the thyroid gland consists of closed vesicles held together by interstitial connective tissue. Vesicles vary in size, considerably, their walls are made up of cubical or columnar epithelial cells without a basement membrane. Interior of vesicle is filled with a yellow glairy fluid, the so-called colloid material towards the periphery of the vesicles vacuoles are seen. The interstitial connective tissue contains plasma cells and is bathed in glandular secretion, and it is here that the vessels and lymphatics are found. The whole gland is enveloped in a capsule which is continuous with the interstitial tissue. The parathyroids are made up structurally of epithelial columns embedded in stroma of connective tissue and like the thyroid has its own secretion which, however, differs materially from it in its staining qualities and as we will see later on its physiological action.

Physiology.

Complete removal of thyroid and parathyroids means death not from trauma but from loss of the gland secretion. As we have seen the difference in histological structure between the thyroid and parathyroids so is there a difference in substance secreted, which is shown in various ways. The thyroid secretes a substance which shows chemically three forms of proteid, viz., nucleo proteid, globulin and albumen, together with other substances of lesser moment, viz., the extractives, zavthin, kreatin and kreatinin. In the normal gland the globulin is much in excess of the other proteids, and is the active physiological constituent. This proteid is in combination with iodine and can be isolated as such. When the thyroid gland is removed and its secretion is lost to the system we produce a condition of cachexia strumipriva or cretinism. By the administration of thyroid gland by the mouth or thyroid feeding as it is called the cachexia strumipriva is cured. Instead of the thyroid gland in its described form we can administer the thyro-iodine or the thyro-globulin and the same result obtains. Administration of the thyroid gland in a normal individual produces a condition akin to exophthalmic goitre, although it does not produce the disease for reasons which I will attempt to explain later.