Summary

The present work was conducted on 55 normal and apparently healthy New-Zealand rabbit embryos and fetuses from 11 days post conception till full term. The whole fetuses from 11 days up to full term were prepared to obtain 3-5 um thick; serial and step serial paraffin sections of head region as a whole or the salivary gland and stained by different stains to be studied by light microscope. The present work revealed the prenatal development of the major salivary glands in New-Zealand rabbit fetuses.

I-The submandibular salivary gland:

The primordium of submandibular salivary gland was firstly appeared in 12 days-old rabbit fetuses. It appeared as bilateral solid epithelial buds invaginated from the linguo-gingival groove at the base of the developing tongue. At the13th day of fetal life, the submandibular buds grew deeply into underlying mesenchymal tissue forming solid epithelial cords. At the 15th day, the developing cords continued their deep down growth and showed compact terminal bulges forming the primitive acini which surrounded by large amount of primitive stroma with many fibroblasts and mesenchymal cells. The primitive ducts began to be canalized at the 18th day of prenatal life. They were lined by one to two layers of cuboidal to columnar cells housing rounded or oval nuclei surrounded respectively by pale basophilic cytoplasm. The acini were still illuminized. On reaching the 22nd day, the mesenchymal tissue became differentiated into primitive capsule and trabeculae that divided the gland into different lobes and lobules. From 27 days of intrauterine life till the end of prenatal life, submandibular gland became highly developed and became typical compound tubulo-acinar gland. The glandular lobules were increased on the expense of the interstitial tissue. The stroma became fully developed formed

mainly of collagen fibers and fibroblasts. The trabeculae showed interlobular ducts. The glandular acini became differentiated into mucous and serous acini. Both types of endpieces were surrounded by myoepithelial cells. During this stage, the fibrous stroma and the basement membrane of adenomeres and ducts showed positive PAS reaction, also, the cellular cytoplasm of some striated ducts showed strong positive PAS reaction, while the cytoplasm of acinar cells still showed weak reaction.

II-The parotid salivary gland:

The primordium of the parotid salivary gland was firstly appeared at 13 days-old of New-Zealand rabbit fetus as bilateral epithelial thickening near the corner of the stomodeum from the labiogingival groove. At the 14^{th} day of prenatal life, it showed deep down growth through the buccal wall forming solid epithelial cords. At the16^{th} day of prenatal life, the developing cords continued to develop deeply with terminal bulges surrounded by primitive stroma. At this stage, the primitive acini lined by multilayers of polyhedral cells with darkly stained nuclei and basophilic cytoplasm. The cells of both ducts and acini showed highly mitotic activity. On reaching 17 days-old rabbit fetuses, the parotid salivary gland showed progressive branching of developing ducts and acini which surrounded by mesenchymal tissue. The cells of developing ducts arranged into outer closely packed polyhedral cells and inner loose cellular masses forming primitive ducts and developing acini illuminized and surrounded by primitive stroma. In 18 days-old rabbit fetuses, the ducts showed begining of canalization. On reaching 22 days-old rabbit fetus, ducts and acini continued their progressive canalization. In 25 days-old, the capsule and septa were well developed and formed mainly from collagen fibers and fibroblasts. The acini were surrounded by myoepithelial cells which contract to squeeze secretion from secretory acini. Both fibrous stroma and basal lamina of acini

showed strong PAS positive reaction, while cells of both ducts and acini showed weak reaction. At full term rabbit fetus, the parotid salivary gland still illdeveloped and complete its development postnatally.

III-The sublingual salivary gland:

The primordium of sublingual salivary gland was firstly appeared in 14 days-old rabbit fetuses as two linear furrows in the linguogingival groove between the primitive tongue and mandible. It developed from paralingual sulcus lateral to the linguogingival one. In 15 days-old rabbit fetus, the primordium was developed and formed of clusters of closely packed cellular masses with illdistinct cell boundaries. On reaching 18 days-old, the sublingual cords grew deeply into the underlying mesenchymal tissue and showed compact terminal bulges forming the primitive acini which surrounded by large amount of primitive stroma with many fibroblasts and mesenchymal cells. At this age, the cells of both primitive duct and acini showed highly mitotic activity. In 19 days-old rabbit fetus, the developing ducts and primitive acini progressively branched and surrounded by mesenchymal tissue. On reaching the 21 days, the sublingual salivary gland showed different lobules separated by developing trabeculae. At the 25 day of fetal period, adistinct parenchymal lobulation were developed with well developed capsule and septa. These lobules occupied by mucous and serous acini. The mucous acini lined by polyhedral cells with flattend nuclei rested on basement membrane and serous ones lined by truncated pyramidal cells with basal oval nuclei. some serous demilunes were present. At this age, elongated curved myoepithelial cells were noticed around the acini. Both cells of acini and basal lamina showed positive PAS reaction and showed well developed capsule and septa composed of collagen and reticualar fibers. At full term, the sublingual salivary gland continued its progressive growth.