GENERAL SUMMARY
Summary: Chapter - I

"Studies on the renal organ of the percoid teleost fish, *Hiodon*. I. Morphohistological and histochemical considerations".

(Gegenbaurs Morphologisches Jahrbuch, Leipzig, Vol. 120(3), 1974: 345-355)

The kidney of *Hiodon* is remarkable for the presence of adrenomelanogenic tissue and the mucous bodies. The nephron shows the neck, proximal I, proximal II, intermediate, distal and collecting segments. There is a diminishing gradient of alkaline phosphatase activity from neck and proximal I segment towards the proximal II segment and the intermediate segment. PAS positive granules are present in the proximal I segment. Secretion of the goblet cells is mucin which also contains acid mucopolysaccharides. Ascorbic acid granules are present in the nephron all along the cell membrane but in the proximal II segment they are also aggregated round the nuclear membrane.
Summary: Chapter - II

"Histochemical observations on the adrenal tissue of the teleost fish, Nandus".

(Folia Morphologica, Prague, 1974. --- In Press)

The adrenocortical and the chromaffin tissue of Nandus are normally located round the posterior cardinal vein and its tributaries in the anterior kidney. Two types of adrenocortical cells can be distinguished. In one variety the cytoplasm is dense and acidophilic while in the other variety, the cytoplasm is hyaline, granular and scarcely reactive to stains. The adrenocortical cells react positively to PAS, Sudan Black B, ascorbic acid test and contain fuchsinophilic particles. The chromaffin cells are positive to PAS and Sudan Black B but are negative to ascorbic acid test. The histochemical tests point to the presence of Noradrenalin in the chromaffin cells.
Summary: Chapter III

"Histochemical evidence for the existence of adrenomelanogenic tissue in the teleost fish, Mordus."


A number of capsulated bodies containing melanin granules are found in the kidney of Mordus. The tissue inside these capsules reacts positively to the chromaffin test, Wiesel's stain and Giemsa stain for chromaffin tissue, Iodate test for noradrenalin, melanin test, PAS and Sudan Black B. It also shows dopa oxidase activity. It is thus a new physiologically double purpose tissue producing both noradrenalin and melanin. Hence the term adrenomelanogenic tissue is justified on the basis of the available histochemical evidence.
Summary: Chapter - IV

"Effect of whole pituitary extract on the adrenal tissue of fasting HROID".


The injections of the whole pituitary extract bring about important changes in the adrenocortical cells in HROID even under fasting conditions. Primarily, growth is seen in the nucleus. The cytoplasm uniformly becomes granular in all adrenocortical cells. There is change in the pattern of distribution of the ascorbic acid and mitochondria. In mitochondrial preparations a clear space appears round the nucleus. There is overall increased physiological activity in the adrenocortical cells. However, there is apparently no change in the chromaffin tissue.
Summary : Chapter - I

"Effect of Reserpine on the adrenal tissue of fasting Lophius (percid teleost fish)."


The effect of reserpine was observed in the female specimens after injecting 0.25 mg. in 27 hours. The most suitable dose was found to be 0.05 mg./0.5 ml. A single dose of 0.5 mg. and even of 0.1 mg. of reserpine brought about death within four hours. General hypotrophy of the cells was apparent in the adrenocortical and chromaffin cells. Whereas in the control tissue there are two varieties of the adrenocortical cells, in the experimental tissue only one variety with acidophilic cytoplasm was visible. This change is considered here as a metabolic response. Nucleoplasm becomes basophilic and more chromatin granules appear in it.

The chromaffin cells lose the typical staining behaviour (Giemsas stain and chromaffin reaction).
"Investigation of the presence of chromaffin tissue in the spleen of Nandus".


The spleen of Nandus nandus contains irregular capsulated bodies. The cells inside such bodies are positive to Wiesel's stain and Giemsa stain for chromaffin tissue. They also give test for noradrenaline. The membranous capsular wall is hyaline and gives test for glycoprotein with PAS. These chromaffin capsules lie in intimate association with splenic blood vessels.
Summary: Chapter VII

"Localisation of Alkaline phosphatase activity in the ovary of the percoid teleost fish, Haplochilus".


Alkaline phosphatase activity which was up till now known only on the periphery of ova was found to be present not only on the periphery but also on the nuclear membrane of the early oocytes (diameter ranges 30 μ to 60 μ) in the fish ovary. Activity of this enzyme on the nuclear membrane points to the transference of material from the nucleus to the cytoplasm in the early oocytes.
Summary: Chapter - VIII

"Investigation of the presence of chromaffin tissue in the ovary of the percoid teleost fish, Mandua".


The ovary of Mandua shows chromaffin tissue at different sites below the tunica albuginea, along the ovigerous lamellae and near the oocytes. The tissues can be mistaken for interstitial cells as it shows intense sudanophilia. That it is chromaffin tissue is confirmed by its positive reaction to all the usual histochemical tests for chromaffin.
"Hypertrophic changes in the ovarian chromaffin tissue (catechol storing tissue) under the influence of the pituitary and its theoretical implications in the teleost fish, *H. nasus* nasus".


Evidence is presented in this work for the existence of a special chromaffin tissue in the ovary of the percoid teleost fish, *H. nasus* and its hypertrophy under the influence of the pituitary extracts. The relationship between the pituitary and the ovary has been discussed from various viewpoints and the secretions of the ovarian chromaffin tissue and the interrenal are suggested as the possible mediators in the process of maturation and ovulation in the teleost fishes.