SALIENT FEATURES
Detail osteomyology along with ligaments of cranium of six Indian percoid fishes have been studied with emphasis on descriptive and functional morphology. For ready reference three lists have been presented here which will indicate the cranial bones, muscles and ligaments of the fishes of present study. Nomenclatorial problems are also discussed when necessary. The salient features of present study in three parts are highlighted in the following points:

Part : Osteology

i. Present study has been undertaken in connection with a comparative survey of cranial osteology in six species of two families Sciaenidae and Pomadasyidae.

ii. Protrusibility is a general phenomenon of most of the percoid fishes. Sciaenids show a close relation between degree of protrusibility and the length of the premaxillary ascending process (spine) as C. aureus and D. albida show high degree of protrusibility but it is less in J. vogleri.

iii. Pomadasyid species - Pomadasys maculatus presently studied does not reflect the above condition. In this case the premaxillary ascending process is nearly equal in length with the total length of premaxilla. But here the mouth is non protractile or with less protractile jaw.

iv. Sliding ability of autopalatine and premaxilla is remarkable in all the sciaenids.
v. Problems related with the origin and relationship of protrusibility are also discussed.

vi. The dermal roofing bones of the skull of sciaenids are extensively excavated for passage of the lateral line sensory system. Specially the suborbitals, preopercle, angular, dentary and bones of the temporal region are well canalized for this purpose. But pomadasyid skull shows less depressions and canalized roofing bones.

vii. Rostral cartilage is prominent in sciaenids and lateral ethmoids are separated by the presence of cartilaginous septum.

viii. Both prefrontals and lateral ethmoids are well demonstratable in some sciaenids.

ix. Size of the frontal and the part of frontal forming the arch over eye is different in different species.

x. The premaxilla is with single or double rows of teeth. Teeth are villiform or pointed canine like.

xi. Epiotic in sciaenids prominently differs from the epiotic of pomadasyid of having prominent elongated epiotic processes.

xii. Supraoccipitals with supraoccipital crest are well formed in all the species only having differences in shape and size of the crest.

xiii. The presence of parietal and seven branchiostegal rays in contrary to advanced percoid characters.
xiv. The shape and size of the maxilla, urohyal, basioccipital, ectopterygoid and subopercle vary much in all species.

xv. The prevomer in all the fishes is devoid of any teeth.

xvi. The parasphenoid is well built with expanded keel on two lateral sides. This along with the lateral ethmoid and basisphenoid forms the part of the interorbital septum.

xvii. Among the suborbitals the third suborbital shows a peculiar presence of subocular shelf in two species C. aureus and J. voglerii of Sciaenidae where as it is absent in all other species studied including Pomadasys maculatus.

xviii. Suborbitals are remarkably less developed, elongated and smaller in Pomadasys maculatus.

xix. The present observation expresses the idea of origin of subocular shelf as secondary modification and has no relation with protrusibility of jaws. Furthermore, size of eye is also not related with the size of the suborbitals.

xx. The lacrymal is comparatively larger and along with the second suborbital sometimes cover the part or whole distal end of maxilla.

xxi. Autoptero tic is with bony trough to house the semicircular canal.
xxii. Myodome in basioccipital is very prominent and posterior in position where as pomadasyid shows a posteroventral myodome.

xxiii. The opercle and hyomandible shows a highly developed 'saddle' type of articulations with neurocranium.

xxiv. Except the first pharyngobranchial all the pharyngobranchials and fifth ceratobranchial are with prominent teeth.

xxv. Elliptical patches of teeth, prominent or in diffused condition, are present on the hypobranchials, ceratobranchials and epibranchials.

Part: Myology

i. A detailed study on the cranial muscles of six Indian percoids is made.

ii. M. levator arcus palatini is moderately developed in all the studied species.

iii. M. protractor hyomandibularis has been found to be present only in O. bisurita. In others possibly it has fused with m. levator arcus palatini.

iv. M. adductor maxillaris is well developed, one or two in number but it is completely absent in Pomadasys maculatus.
v. M. adductor mandibularis is very well developed and two are present in all sciaenids but it is three in pomadasyid which are comparatively less developed.

vi. Mcm. adductor hyomandibularis, retractor hyomandibularis, intramandibularis and intermandibularis anterior are absent.

vii. No separate intermandibularis posterior is present. Eventually, it is fused with the m. interhyoideus to form the m. protractor hyoidei.

viii. M. adductor arcus palatini is very well developed in all.

ix. Opercular muscles are also well represented in all species.

x. All the muscles associated with branchiostegal rays are weakly developed.

xi. M. abductor branchiostegal is shows a cross pattern in some species.

xii. M. levator externus is represented by two to three slips but one is present in D. albida.

xiii. M. levator internus is present in two or three in number.

xiv. M. obliquus dorsal is superior is one or two in number in all the species.
One or two m. obliquus dorsalis inferioris is present of which in all species except D. albida the muscle attached with third and fourth epibranchial jointly seems to be the fusion of two muscles.

M. adductor is less developed and only present in association with fourth arch.

M. transversus dorsalis anteriors present which may be one or two in number.

Variation of number from three to six m. rectus ventralis is found in different fishes.

M. obliquus ventralis is uniformly four in number in all except J. vogleri where three such muscles are present.

M. transversus ventralis are absent in C. aureus and D. albida but one in other species where mostly it remains attached with both the fourth and fifth arches.

Muscles of the os pharyngeus superior and os pharyngeus inferior are well represented in all the species studied.

Part: Ligaments and connective tissue

Maxilla-mandible ligament is two in number and strong in all.
ii. Autopalatine - premaxilla and maxilla-ethmoid ligaments are well represented and forming a cross with each other where as in pomadasyid strong maxilla-lateral ethmoid is present in place of maxilla-ethmoid ligament.

iii. Interopercle is tied with mandible, epihyal and opercle by three short ligaments.

iv. Maxilla shows multiattachment with different elements by ligaments.

v. Ligaments of the suspensorry and opercular apparatus are well represented.

vi. Branchial parts show numerous ligaments and present in a complex net work fashion.

vii. Cleithrum-basioccipital ligament (Baudelot's ligament) is strong in all cases.

viii. Connective tissue bands are well represented.

In fine, on the basis of observation on osteology, myology and ligaments, the present dissertation is concluded with a chapter which portrays functional interdependence of all the cranial bones, muscles, ligaments and connective tissue elements by utilising the deductive method instead of experimental analysis which has been beyond the scope of present study.