America. The Galaxiidae are mostly fresh-water fishes and have a wide distribution in the southern hemisphere (southern parts of South America, New Zealand, South Australia and Tasmania, Cape of Good Hope), one species being identical in South America, the Falkland Islands, New Zealand and Tasmania. Their dis­tribution has been regarded as affording support to the theory of an Antarctic continent in Tertiary times. However, \_ several of the species spend part of their life, and even breed, in the sea, whilst others may be regarded as having become more recently adapted to fresh water, so that the argument derived from their range is not so strong as if we had to deal with exclusively fresh­water fishes. The Cyprinodontidae are partly brackish, partly fresh-water fishes, whilst the Scopelidac, which arc traced back to the Chalk, are all marine, many being inhabitants of great depths.

Sub-order VL—HETEROMI

Air-bladder without duct. Opercle well developed, parietal bones separating the frontals from the supraoccipital. Pectoral arch sus­pended from the supraoccipital or the epiotic, the post-temporal small and simple or replaced by a ligament; no mesocoracoid bone. Ventral fins abdominal, if present.

Families: Dercetidac, Halosauridae, Lipogenyidae, Notacan- thidae, Fierasferidae.

Closely related to the Haplomi, but separated chiefly on account of the closed air-bladder. Mostly deep-sea fishes, some of which appeared as early as the Cretaceous period. The genus *Fierasfer* comprises small degraded fishes commensals of Holothurians and bivalve molluscs.

Sub-order VII.—SELENICHTHYES

Air-bladder without duct. Opercle well developed. Pectoral arch suspended from the skull; no mesocoracoid bone. Fins with­out spines. Ventral fins abdominal, with very numerous (15 to 17) rays.

A very aberrant type, of uncertain affinities. Its only repre­sentative is the opah, *Lampris luna,* a large pelagic fish of wide distribution.

Sub-order VIII.-THORACOSTEI

Embracing the Hemibranchii and Lophobranchii, but excluding the Hypostomides (Pegasidae), which the investigations of F. E. Jungersen show to be aberrant mail-cheeked Acanthopterygians.

Air-bladder without duct. Pectoral arch suspended from the skull; no mesocoracoid bone. Ventral fins abdominal, if present. Branchial arches more or less reduced.

Families; Gastrosteidae, Aulorhynchidae, Protosyngnathidae, Aulostomatidae, Fistulariidac, Centriscidae, Amphisihdae, Soleno- stomidae, Syngnathidae. The two latter families institute the division Lophobranchii, in which the gill-lamellae are enlarged and form rounded lobes.

See articles Sea-Horse, Stickleback, and Pipe-Fishes.

Sub-order IX.—PERCESOCES

Air-bladder, if present, without duct. Parietal bones separated by the supraoccipital. Pectoral arch suspended from the skull; no mesocoracoid bone. Ventral fins, if present, abdominal, *or* at least with the pelvic bones not solidly attached to the clavicular arch.

Families: Scornbresocidae, Ammodytidae, Atherinidae, Mugil- idae, Polynemidae, Chiasmodontidae, Sphyraenidae, Tetragonuridae, Stromateidae, Icosteidae, Ophiocephalidae, Anabantidae.

This series of families connects the Haplomi with the Acanthopterygii. The Percesoces are mostly marine, but the two last families are exclusively fresh-water. Some are inhabitants of great depths, others are pelagic, like the flying-fish *(Exocoetus).*

Sub-order X.—ANACANTHINI

Air-bladder without duct. Parietal bones separated by the supraoccipital; prootic and exoccipital separated by the enlarged opisthotic. Pectoral arch suspended from the skull; no mesoco­racoid bone. Ventral fins below or in front of the pectorals, the pelvic bones posterior to the clavicular symphysis and only loosely attached to it by ligament. Fins without spines.

Families: Macruridae, Gadidae, Muraenolepididae.

Nearly all marine. The Macruridae are among the most char­acteristic fishes of the great depths. The Gadidae include some of the most valuable food-fishes.

Sub-order XI.—ACANTHOPTERYGII

Air-bladder usually without duct. Opercle well developed ; supraoccipital in contact with the frontals. Pectoral arch sus­pended from the skull; no mesocoracoid bone. Ventral fins thoracic or jugular, more or less firmly attached to the clavicular arch. Gill-opening usually large, in front of the base of the pectoral fin.

The character from which this sub-order, the most comprehensive of the whole class, derives its name, viz., the presence of non­articulated, spiny rays in the dorsal and anal fins, is by no means universal, exceptions to the rule being numerous.

Division I. Beryciformes.—Families: Berycidae, Monocentridae, Polymixiidae.

The most primitive of the Acanthopterygians, already well repre­sented in the Chalk. A duct has been observed to be sometimes present between the air-bladder and the digestive tract. All marine, several bathybial.

Division 11. Perciformes.—-Families: Pempheridae, Serranidae, Anomalopidae, .Pseudochromididae, Cepolidae, Hoplognathidae, Sillaginidae, Sciaenidae, Scorpididae, Caproidae, Centrarchidae, Cyphosidae, Lobotidae, Toxotidae, Nandidae, Percidae, Acropo- matidae, Gerridae, Lactariidae, Trichodontidae, Pristipomatidae, Sparidae, Mullidae, Latrididae, Haplodactylidae, Chaetodontidae, Drepanidae, Osphromenidae, Acanthuridae, Teuthididae, Embio- tocidae, Cichlidae, Pomacentridae, Labridae, Scaridae.

The Percidae, Centrarchidae, Toxotidae, Nandidae, Osphro- menidae, Embiotocidae, and Cichlidae are fresh-water fishes, the others are all or nearly all marine. *Λipichthys,* which is included among the Scorpididae, is one of the few Acanthopterygian types known to have existed as early as the Cretaceous period.

See articles Ciciilids, Mullet, Murray Cod, Parrot-Fisiies, Perch, Pike-Perch, Sheepsiiead, Wrasse.

Division III. Scombriformes.-Families: Carangidae, Rhachi- centridae, Scombridae, Trichiuridae, Histiophoridae, Xiphiidae, Luvaridae, Coryphaenidae, Bramidae.

Marine fishes, several being pelagic and among the largest Teleos- teans and swiftest swimmers. See articles Hair-Tail, Mackerel, Pilot-Fish, Sword-Fish, Tunny.

Division IV. Zeorhombi.—Families : Zeidae, Amphistiidae, Pleuro- nectidae.

\_ Division V. Kurtiformes.—A single family, Kurtidae, with a single genus and species from the Indian and Pacific oceans.

Division VI. Gobiiformes.— A single family, Gobiidae.

Division VII. Discocephali.— A single family, Echeneididae.

The remarkable remoras attach themselves by means of a cephalic disk to boats or to sharks, turtles, cetaceans, and other large swift­swimming animals. They form an isolated group, and have no real affinity with the Scombridae, with which they have long been associated.

Division VIII. Scleroparei.—Families: Scorpaenidae, Hexa- grammidae, Comephoridae, Rhamphocottidae, Cottidae, Cyclopteridae, Platycephalidae, Hoplichthyidae, Agonidae, Pegasidae, Triglidae, Dactylopteridae.

The “ Mail-cheeked ” Acanthopterygians include a great variety of forms, mostly living in the sea, the best known being referred to in the articles Flying-Fish,Gurnard, Lump-Sucker, and Miller’s- Tiiumb.

Division IX. Jugulares.—Families: Trachinidae, Percophiidae, Leptoscopidae, Nototheniidae, Uranoscopidae, Trichodontidae, Callionymidae, Gobiesocidae, Blenniidae, Batrachidae, Pholididae, Zoarcidac, Congrogadidae, Ophidiidae, Podatelidae.

Nearly all marine, some deep-sea. *Macrius amissus,* which probably belongs to the Leptoscopidae, measures 5 ft. and is the largest known deep-sea Teleostean. The other members of this division are mostly small, *Anarrhichas* being another exception. The weevers *(Trachinus)* are dangerous stinging fishes.

Division X. Tacniosomi.—Families: Trachypteridae, Lophotidae.

Deep-sea or pelagic fishes, some attaining a large size.

Sub-order XII.—OPISTHOMI

Air-bladder without duct. Opercle well developed, hidden under the skin; supraoccipital in contact with the frontals. Pectoral arch suspended from the vertebral column, far behind the skull; no mesocoracoid bone. Vertical fins with spines. Ventral fins absent.

Eel-shaped fishes standing in the same relation to the Acanthopterygii as do the Apodes to the Malacopterygii. The single family, Mastacembelidae, is possibly derived from the Blenniidae.

Fresh and brackish waters of southern Asia and tropical Africa.

Sub-order XIII.—PEDICULATI

Air-bladder without duct. Opercle well developed, hidden under the skin; supraoccipital in contact with the frontals. Pectoral arch suspended from the skull; no mesocoracoid bone. Ventral fins, if present, jugular. Gill-opening reduced to a foramen situated in or near the axil more or less posterior to the base of the pectoral fin. Body naked or covered with spines or bony tubercles.

Connected with the Acanthopterygii Jugulares through the Batra­chidae.

Families: Lophiidac, Ceratiidae, Antennariidae, Gigantactinidae, Malthidae.

Curiously aberrant marine fishes, many bathybial. The best known are the fishing-frog or angler, *Lophius,* and the *Antennarius,* which lives in coral groves or is carried about in mid-ocean among the *Sargassum* weeds.