

This genus differs considerably from *Penæus* in the consistency of the general surface, which is soft and yielding, and more like flexible membrane than the shell of a crustaceous animal. The only rigid parts are the appendages and the caudal extremity.

The species of this genus may generally be recognised by the character of the rostral crest, which is shorter than in either *Penæus* or *Aristeus*. The form of the ophthalmopod also differs; it is flattened and two-jointed in *Penæus*, cylindrical and single-jointed in *Aristeus*, and single-jointed and flattened in *Benthesicymus*, where it also carries a tubercle similar to that in *Aristeus* and other genera. Owing to the semitransparent character of the superficial tissue in *Benthesicymus* I have been able to determine that this tubercle is a rudimentary, or rather a complementary, eye, a branch of the optic nerve leading directly to it from a ganglion situated within the base of the ophthalmopod.

The first pair of antennæ approximates to that of *Penæus* in its general form and in the arrangement of the flagella, but the prosartema is wanting, and in this respect it approaches *Aristeus*, to which genus also it seems allied by the form of the second pair of antennæ and the oral appendages.

The three anterior pairs of pereopoda are moderately robust, and the two posterior pairs are long and feeble, and probably of little use as organs of active locomotion.

The pleopoda are long and powerful organs and resemble those of *Aristeus* rather than of *Penæus*, and the rhipidura is well developed and comparatively large.

*Geographical Distribution.*—The genus evidently consists of species of natatorial habit, chiefly inhabiting the depths of the sea, although its closely allied congener, *Gennadas*, has been captured in towing nets within 500 fathoms of the surface.

Females of *Benthesicymus crenatus* were taken in the Pacific Ocean near the Marquesas Islands and the Low Archipelago, at a depth of about three miles. Female specimens of *Benthesicymus altus* were obtained near Torres Strait at little under two miles from the surface; but those that I believe to be the males of this species were taken in the Pacific in about 500 fathoms, off the Kermadec Islands; north of New Zealand; south of the Celebes, and off the southern shores of Japan. A male specimen of a species differing from the preceding in minute details, that I have named *Benthesicymus brasiliensis*, is recorded from the South-Western Atlantic at a depth of 1900 fathoms, with a bottom temperature of 33°·1 Fahr., or only 1°·1 above freezing point, while a near variety was taken at 2440 fathoms, or about three miles from the surface of the ocean, off the north-western extremity of the Australian continent, and off the western side of New Zealand at 1100 fathoms, and another amongst the narrow channels of the Philippine Islands at 1050 fathoms, and again off the Fiji Islands in about 315 fathoms.

Specimens of *Benthesicymus pleocanthus* were taken at 1050 fathoms, off the northern extremity of the Philippine Islands, and also in the same parallel of latitude in the