The new genus *Ptilocheirus* is thus defined:—"Body broad, as in the *Corophidæ;* epimera large and strong, much higher than broad. Mandibles with greatly elongated palpi; maxillipeds with their internal lamellæ of half their own length. Superior antennæ appendiculate, inferior ones subpediform. Legs of the first pair subchelate, very thick and strong throughout their length, in the male; those of the second pair plumose, without hands, but minutely unguiculate; those of the third and fourth pairs small, slender, and tapering, with the last three articles forming a kind of hooked finger, but with no dilated hand; posterior three pairs strongly unguiculate; those of the last pair much the longest. Caudal stylets all biramous, those of the first two pairs with a strong spine projecting from the inferior apex of the peduncle, along with the rami."

"This genus resembles in most characters *Leptochirus*, Zaddach, and may perhaps prove the same; that name, however, is preoccupied in insects. It has relations with the *Pontoporinæ* in its plumose hairs, and somewhat in the structure of the legs of the third and fourth pairs; while it also approaches those genera of the *Gammarinæ* which recall the *Corophidæ*." Since, however, Zaddach's genus was not, as Stimpson spells it, *Leptochirus*, but *Leptocheirus*, Boeck seems to have done rightly in giving it precedence, so that *Ptilocheirus pinguis*, which Spence Bate has named *Protomedeia pinguis*, will now stand as *Leptocheirus pinguis*.

The new genus *Pseudophthalmus*, or as Stimpson spells it, *Pseudopthalmus*, is thus defined:—"Body greatly compressed, with large epimera. Head with an irregular deposition of blackish or reddish pigment anteriorly, in which are one or two orbicular clear spots on each side, without facets. Maxillipeds with five articles, of which the terminal one is oval; internal lamellæ with combs of spines at their apices. Mandibles palpigerous. Antennæ very slender, the superior ones with their basal articles much thickened, and without accessory flagella; inferior ones arising much behind the bases of the superior ones. Legs of the first and second pairs sometimes with small subcheliform hands, shorter than the antepenult segment, but often simply unguiculate; those of the third and fourth pairs elongated, tapering, with their second joints very small, the third expanded into a hand; posterior pairs short; last pair with very broad basal joints. Caudal stylets all biramous. Tail terminating in a thin lamella. Epimera and third and fourth pairs of legs with plumose setæ along their edges."

This genus had already been described by Krøyer under the name *Ampelisca*. The briefly described type species, *Pseudophthalmus pelagicus*, has become, therefore, *Ampelisca pelagica*. *Pseudophthalmus limicola*, according to Boeck, is obviously synonymous with *Ampelisca tenuicornis*, Lilljeborg. Spence Bate describes further from Grand Manan, "*Pseudophthalmus ingens*, Stimpson, MS.," which he had received from the author. Being an inch and a half in length, it is well named *Ampelisca ingens*. *Phoxus fusiformis* is identified by Spence Bate with *Phoxus plumosus*, Krøyer, which Boeck places in his genus *Harpinia*. "*Phoxus Kroyeri*" of Stimpson Spence Bate accepts, renaming his own later "*Phoxus Kröyeri*," *Phoxus simplex*. Boeck, on the other hand, gives up "*Phoxus Kroyeri*," Stimpson, as insufficiently described.

1854. WILLIAMS, THOMAS.

On the Mechanism of Aquatic Respiration and on the Structures of the Organs of Breathing in Invertebrate Animals. The Annals and Magazine of Natural History. Vol. XIII. Second Series. London, 1854.

On page 294 he discusses *Chitine*. On page 295 he says, "Every Crustacean is a water-breathing, every Insect an air-breathing animal. To this rule there can be found no real, many