A note on Telmatogeton Schin. and related genera (Diptera, Chironomidae).

By F. W. Edwards.

(Britisch Museum, Natural History).

The genus *Telmatogeton* was proposed by Schiner in 1866 for an insect found on St. Paul Island, Indian Ocean, during the voyage of the Novara; adults were described, and a very remarkable pupa figured, but no data given concerning the life-history of the species. Since 1866 the only fresh information concerning the genus which has benn published is the following: (1) Terry in 1913 published an account of two Hawaiian species living in torrents with similar pupae to that figured for *Telmatogeton;* he recognised the probable affinity between the species, but in view of important discrepancies in Schiner's description of the adult, proposed for the Hawaiian species the new genus *Charadromyia.* (2) Coquillett in 1900 described a new Alaskan species of *Telmatogeton* from adults only. (3) Malloch in 1915 claimed that Coquillett's reference of *T. alaskense* to *Telmatogeton* was unjustified, and proposed to transfer the species to the genus *Paraclunio* Kieff. (4) Kieffer in 1919 disagreed with Malloch's conclusion, believing that *T. alaskense* and *Paraclunio trilobatus* should be placed in different genera.

An important contribution to the subject has recently been made by Dr. L. G. Saunders, who informs me that *Telmatogeton alaskense* Coqu. breeds in the sea, and that its pupa is closely similar to that of *T. sancti-pauli* Schin.

In reviewing recently the literature on marine Chirononidae (Proc. Zool. Soc. London, 1926). I did not discus *Telmatogeton,* but Dr. Saunders discovery concerning *T. alaskense* suggested the strong probability that *T. sancti-pauli* is also marine, and belongs to the same group as *Paraclunio* and *Halirytus.* In order if possible finally to settle the status of *Telmatogeton,*

I wrote to Dr. H. Zerny to enquire whether Schiner's types were still in existence, and he very kindly lent me a specimen of each sex. An examination of these shows that as in *Paraclunio* and *Charadromyia* the fifth tarsal segment is deeply trifid on each leg, and moreover that Schiner was mistaken in describing the palpi as 4 segmented; there are in fact only two palpal segments present, and even these are very imperfectly separated.

On comparing the cotypes of *T. sancti-pauli* with Kieffer's description of his genus *Trissoclunio,* based on material from the Cape of Good Hope, it was at once evident that the two genera were identical, and even the species very similar. At my request Dr. K. H. Barnard of the Cape Town Museum kindly supplied specimens of *Trissoclunio fuscipennis* Kieff., and after a chose comparison of these with the specimens of *T. sancti-pauli,* I am unable to detect any difference, even in the characters of the male hypopygium. We have therefore an interesting case of the spread, probably by natural means, of a South African insect to a remote island in the South Indian ocean. As the insect almost certainly breeds in the sea, this distribution is not surprising.

All the members of this group of genera are marine, with the exception of *Charadromyia* Terry, which as stated above breeds in rapid steams in the Hawaiian Islands. This is such a noteworthy distinction in breeding habits that one would expect to find some well-defined morphological difference, but such is not the case. *Charadromyia* is so close to *Telmatogeton* that it appears impossible to find any characters by which they may be distinguished generically either as adults, larvae or pupae. The genotype of *Charadromyia (C. torrenticola* Terry) differs from *Telmatogeton sancti-pauli* in the form of the male claws, but the second Hawaiian species *(C. abnormis* Terry) is much like *T. sancti-pauli* even in this respect. One must conclude that the *Telmatogeton* stock has been long adapted to marine life, and that in *Charadromyia* we have a recent offshoot which has begun to return to fresh water. It would be of interest to ascertain whether any marine species of *Telmatogeton* exists in the Hawaiian Islands.

I am indebted to Dr. L. G. Saunders for a series of *Telmatogeton alaskense* Coqu. from British Columbia, and to Dr. J.

M. Aldrich for a cotype of this species from Alaska, and also one of *Paraclunio trilobatus* Kieff. from California. After examining these I am quite of Malloch's opinion that the two species are congenerie, also that they show sufficient structural difference to distinguish them trom *Telmatogeton.* Both should be placed in the genus *Paraclunio.*

The genera of the group, which inclades in addition to those discensed above, *Halirytus* Eaton (1875), *Jacobsiella* Rübsaamen (1906) and *Psamathiomyia* Deby (1889) belong to the subfamily Clunioninae, which I would definethus: Cross-vein *m-cu* absent. Pronotum reduced to lateral lobes. Anepisternal suture very short. Front coxae large. Hypopygium inverted, claspers infolded, parameres well preserved. The genera under discussion differ from the other members of the subfamily, as well as from most or all other Chironomidae, in the remarkable trilobed fifth tarsal segment, the rather conspicuously pointed ovipositor of the female, and the complete absence of tibial spurs. The following is a summary of the known species of the group; there seems to be a southern stock, represented by *Telmatogeton* and *Halirytus,* and a northem stock, represented by *Paraclunio* and *Psamathiomyia.*

Genus Telmatogeton Schin.

(Syn. *Charadromyia* Terry; *Trissoclunio* Kieff.).

Wings well developed in both sexes; venation much as in *Thalassomyia,* but cubital fork longer. Mesonotum, femora and tibiae without strong bristly hairs, the pubescence of the legs being almost uniform and short. Front femur of male slender apically and quite simple.

1. *T. sancti-pauli* Schin. *(fuscipennis* Kieff.). S. Africa et St. Paul I., marine.
2. *T. minus* Kieff. [? = small form of last]. S. Africa
3. *T. torrenticola* Terry. Hawaii, in torrents.
4. *T. abnorme* Terry. Hawaii, in torrents.
5. *T.* sp. n. [to be described later]. Chiloe I., marine.

Genus Halirytus Eaton.

(Syn. *Jacobsiella* Rübs.).

Wings rudimentary, at least in the ♀; halteres very small or absent. Legs as in *Telmatogeton.*

This is evidently a reduced form of *Telmatogeton.*

1. *H. amphibius* Eaton. Kerguelen I., marine.

2. *H. magellanicus* (Jacobs) [? = *amphibius*]. Magellan Straits, marine.

Genus **Paraclunio** Kieff.

Wings as in *Telmatogeton.* Mesonotum, femora and tibiae with rows of strong bristly hairs *(alaskensis)* or large decumbent seales *(trilobatus).* Front femur of ♂ stout to the tip; on the under side close to the tip with a pair of blunt prominences. Front tibia of ♂ with sub-basal prominence which interlocks with those of the femur.

1. *P. alaskensis* (Coq.). N.-W. America, marine.

2. *P. trilobatus* Kieff. California, marine.

Genus **Psamathiomyia** Deby.

Wings rudimentary in both sexes. Mesonotum, femora and tibiae with rows of strong bristly hairs. Front femur and tibia of ♂ simple. Fifth segment of tarsi (according to Deby's figure) with a median finger-like projection only, the lateral projections apparently absent.

This genus would appear to be intermediate between *Telmatogeton* and *Thalassomyia.* I have not seen specimens.

1. *P. pectinata* Deby. S.-W. France, marine.