

A COLLECTION OF AQUATIC HEMIPTERA FROM KENYA

By E. S. BROWN, B.A., F.R.E.S.

During a recent visit to Kenya, Prof. G. D. Hale Carpenter made a collection of aquatic Hemiptera, which he has kindly handed over to me for examination; I am grateful to him for the opportunity of examining and placing on record the contents.

The collection (except the specimens from stations D and E) was made in the Kitale District, Trans-Nzoia, during January and February, 1949. It comprises 176 specimens, belonging to 18 species in the families Notonectidæ, Pleidæ, Belostomatidæ, Corixidæ and Naucoridæ. Some Nepidæ were observed, but not collected. All species represented are previously described, although some are not too well known.

List of collecting stations

For the following details of the six habitats from which samples were taken I am indebted to Prof. Carpenter. On the whole they seem to represent a good range of habitat-types.

- (A) Reservoir, Kapretwa Estate, c. 6,700 ft. A deep piece of water, with a shallower margin away from the dam. Vegetation included water-lilies and a species of *Potamogeton* or allied plant. A fully exposed body of water, unshaded by trees.
- (B) Stream feeding the reservoir described above. It enters through a narrow strip of "gallery forest" and runs (or trickles according to season) quite swiftly, with small pools somewhat choked with weed. Shaded by trees.
- (C) Another reservoir similar to A, formed by damming a small forest stream, c. 6,300 ft. Choked with *Azolla*.
- (D) Turkwell River, running from heights of Mt. Elgon to the hot plains below. In rainy season a large river, but reduced at the time of the collection to residual, very stagnant, pools under the banks and a small trickling stream in a sandy bed. The collection was made in the pools at about 4,400 ft. These pools were very opaque and swarming with beetles and bugs.
- (E) Rock pool on escarpment, Suk. Pool fed by a tiny stream among rocks, c. 5,500 ft. Some of the Hemiptera were in weed in the pool itself, others at the overflow which was in the form of a small weed-choked stream.
- (F) Mountain stream, Kaboyon, c. 6,500 ft. A tributary of the Nzoia; torrential stream flowing from Mt. Elgon, with trout in its upper cooler parts. Hemiptera collected in residual pools which were scattered here and there, shaded by gallery forest.

List of species.

NOTONECTIDÆ.

Anisops pellucens Gerst., f. *splendida* Hutch.

A, 2♂♂, 1♀.

A. amaryllis Hutch.

B, 1♂, 1♀; C, 5♂♂, 2♀♀; F, 2♂♂, 1♀.

There is considerable variation in colour in these specimens. The darker ones are typical; from B and C there are paler specimens, showing some resemblance to *A. eros* Hutch.

A. varia scutellata Fieb.

E, 1♂.

A. jaczewskii Hutch.

D, 1♂, 15♀♀.

A. psyche Hutch.

A, 1♂, 5♀♀.

A. hancocki Hutch.

D, 1♂, 2♀♀. These are somewhat darker than the type; the *dorsum abdominis* is black.

Emithares sobria Stal.

A, 5♂♂, 8♀♀; B, 2♀♀; C, 1♂; D, 4♂♂, 8♀♀, 2 nymphs.

E. V-flavum Reut.

A, 1♀; B, 1♂, 4♀♀, 5 nymphs; E, 6♀♀, 11 nymphs.

These specimens show great colour variation, some being dark and well marked, and others pale creamy grey, with intermediates between the extremes; those from B were all more or less pale, that from A very pale, while of the six samples from E, 5 were dark and 1 was pale. The genitalia of males were typical for this species.

PLEIDÆ

Plea pullula Stal.

A, 18.

P. piccanina Hutch.

A, 10.

According to the present systematic position of the genus *Plea*, these specimens are referable to the species shown above, the distinction being based almost entirely on size (Hutchinson 1929). This is obviously unsatisfactory, since there is a more or less continuous variation between the largest and smallest. The two extremes appear to be very different insects, and would certainly be regarded as separate species, but the intermediates cause one to wonder whether we have not here one very variable species. Dissection of male and female genitalia provided no distinguishing features, and their identity must rest as given until a thorough revision of the African species has been undertaken.

BELOSTOMATIDÆ.

Sphaerodema nepoides (Fabr.)

A, 1♀.

CORIXIDÆ.

Agraptocorixa dakarica Jacz.

A, 1♂.

Sigara (Tropocorixa) sjöstedti Kirk.

A, 3♂♂, 2♀♀; B, 1♀; F, 1♀.

S. (Tropocorixa) chinana (Hutch.).

D, 5♂♂, 10♀♀.

This species was described by Hutchinson (1928) from Kampala, Uganda, and there do not appear to be any later records. He had only a single male and female on which to base his description; the longer series of specimens recorded here agree very closely with his description, which it is possible to supplement with a few additional details as follows. The pronotum sometimes has 7 instead of 8 transverse pale lines; the third is very frequently divided in the middle, but not always; the last three show only a slight tendency to anastomose, and this only in some specimens. The strigil, in two specimens examined, has five rows of teeth instead of six as given by Hutchinson. The length of the specimens was as follows: ♂ 5.7-6.0 mm. (4 measured), ♀ 6.0-6.3 mm. (8 measured).

Hutchinson did not describe the male genital capsule and left clasper, and these are here figured (Fig.1) since they are of considerable taxonomic interest. The distal process of the capsule is complex, with an outgrowth arising before the tip asymmetrically to one side; in this it resembles *Sigara sjöstedti* (Kirk.) as figured by Lundblad (1928) except that the outgrowth is less well developed, less complex and less heavily chitinised than in that species; these species therefore both differ from most subgenera of *Sigara* in having a complex instead of a simple distal process to the genital capsule; the similarity does not end here, for the structure of the penis sheath is also somewhat similar,

but in this case it is *S. chinana* which shows the greater complexity, as can be seen by comparing Fig. 1 A with Lundblad's figure. It is, however, in the claspers that these species show the greatest affinity; the right clasper of *S. chinana* has been figured by Hutchinson, and both claspers of *S. sjöstedti* by Lundblad (*loc. cit.*); the left clasper of *S. chinana* is here figured in three aspects, two of which are the same as those depicted by Lundblad for *S. sjöstedti*; it will be seen from comparison of these figures that the resemblance between the two species is very close, and especially in the somewhat bizarre form of the right clasper; in this latter character, and in others as well, there is clearly affinity with the subgenus *Tropocorixa* Hutchinson (1940), and doubtless this is where *S. chinana* and *S. sjöstedti* belong.

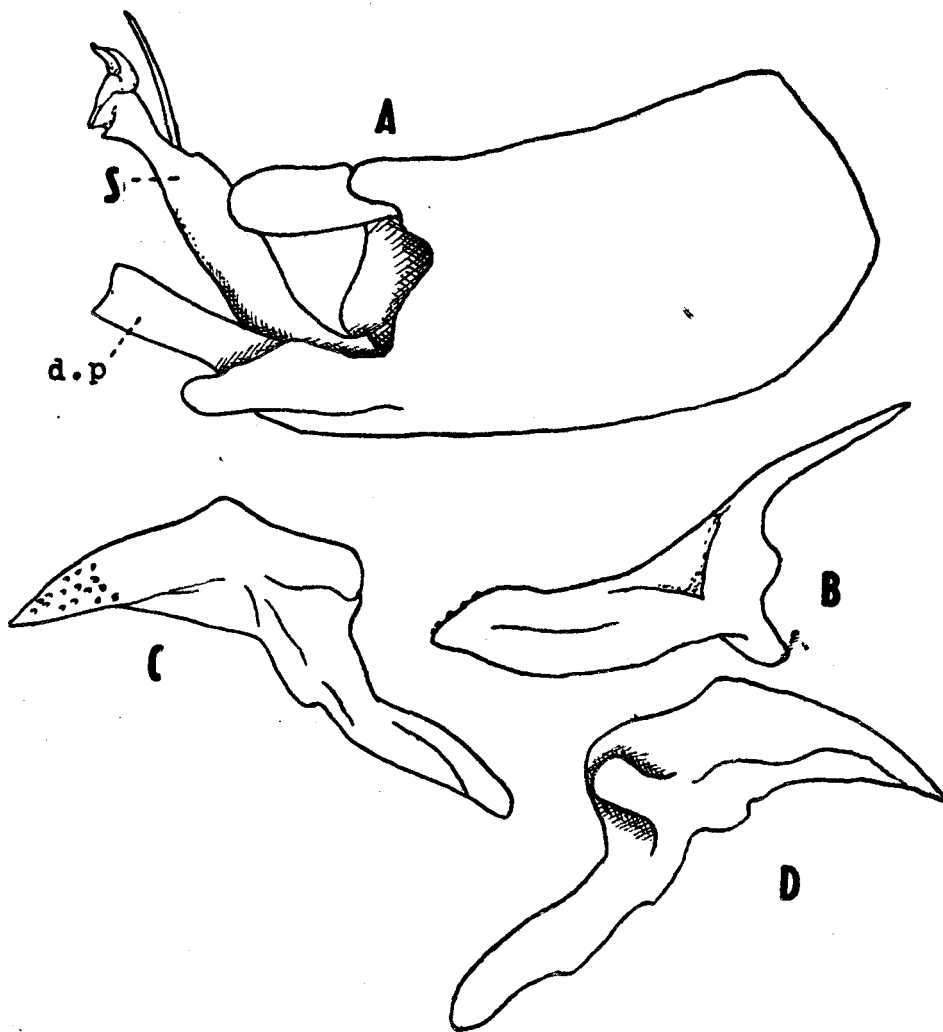


Fig. 1.—*Sigara (Tropocorixa) chinana* (Hutch.). A, genital capsule from side; d.p., distal process; s, penis sheath. B-D, different aspects of left clasper; B, from above; C, from left side; D, from right side.

NAUCORIDÆ.

Naucoris (subg. *Naucorisella*) *obscuratus kenyalis* Poiss.

B, 1♂, 1♀.

Laccocoris limigenus Stal.

D, 1♀, 2 nymphs.

Macrocoris flavicollis Sign.

A, 4♂♂, 7♀♀.

M. nigropunctatus nigropunctatus Mont.

A, 3♂♂, 6♀♀.

Notes on Geographical Distribution.

I have been unable to trace previous records from Kenya for seven of the species represented (*Anisops jaczewskii*, *A. hancocki*, *Enithares V-flavum*, *Sphaerodema nepoides*, *Sigara chinana*, *Laccocoris limigenus*, *Macrocoris nigropunctatus nigropunctatus*). One would expect, however, from their known distribution to find these species there.

If we exclude the species of *Plea*, of which the taxonomy is in an unsatisfactory state, the remainder may be grouped as follows:

- (i) Species with a wide African distribution: *Anisops varia scutellata*, *Enithares sobria* (not extending to extreme north).
- (ii) Species ranging across central Africa and extending to the north: *Sphaerodema nepoides* (north to Turkey, and occurring also in Madagascar).
- (iii) Species ranging across central Africa: *Agraptocorixa dakarica*, *Macrocoris nigropunctata nigropunctata* (this form is recorded hitherto apparently only from Nigeria).
- (iv) Species known only from East Africa: *Anisops amaryllis*, *A. hancocki* (Uganda), *Sigara sjöstedti*, *S. chinana* (Uganda), *Naucoris obscuratus kenyalis*.
- (v) Species ranging across central Africa and extending also towards the south: *Anisops pellucens*, *A. jaczewskii*, *A. psyche*, *Enithares V-flavum*, *laccocoris limigenus*, *Macrocoris flavicollis*.

From this analysis it can be seen that the bulk of the collection consists of species with an East African, tending towards a southern distribution: these elements comprise slightly over two-thirds of the total.

Notes on Ecology

It is dangerous to base ecological conclusions on insufficient data, and therefore no attempt will be made to extract an unjustified amount of information from collections from only six bodies of water. These latter may be grouped into three types: (1) large bodies of water, still or nearly so (A, C); (2) small pools and streams (B, E); (3) residual pools formed by drying up of larger streams or rivers (D, F). The following deductions regarding the fauna of these types may perhaps be justified, but should be accepted with caution in view of the scanty data available.

- (1) *Large bodies of water.* In the Kapretwa Reservoir (A) *Enithares sobria*, *Plea* spp., *Sigara sjöstedti*, *Macrocoris flavicollis*, *M. nigropunctatus*, and possibly *Anisops psyche* are numerous enough to suggest that this is a favoured type of habitat; in the other reservoir (C) few bugs were taken but *Anisops amaryllis* was well represented.
- (2) *Small pools and streams.* *Enithares V-flavum* was numerous in both B and E, and in both it was evidently breeding since the nymphs found were almost certainly of this species; it is therefore probable that this is a running water species; this is supported by Hutchinson's statement (1929) that it occurs in the pools and slower running parts of streams. Its occurrence in small numbers in reservoir

A, and that of the lake species *Enithares sobria* and *Sigara sjöstedti*, also in small numbers, in habitats B and E is probably evidence of the similarity of these two types of ecofauna; this is what one would expect by analogy with European water-bugs, where there is considerable overlap between the faunas of lake and rivers.

- (3) *Residual pools.* The inhabitants of these are probably immigrants; in the dry season the pools left by the drying up of rivers serve as "traps" for migrating aquatic insects; this is supported by the absence of nymphs, and by the extraordinary sex-ratio for *Anisops jaczewskii* in D (1♂, 15♀♀); there is in some species of water-bugs a strong disparity in the sex-ratio of migrating individuals. One cannot therefore safely make ecological deductions from these pools, other than the fact that the species found therein (*Anisops jaczewskii*, *A. hanckoci*, *A. amaryllis*, *Enithares sobria*, *Sigara chinana*, *S. sjöstedti* and *Laccocoris limigenus*) are very probably migratory, and may therefore be expected to be found in a wide range of habitats.

Acknowledgements. I wish to extend my sincerest thanks to Prof. G. D. Hale Carpenter for the opportunity to examine this collection and also to Dr. R. Poisson who has helped me in the identification of some of the more difficult species.

References:

- Hutchinson, G.E., 1928. "Notes on certain African and Madagascan Water-Bugs (Notonectidae and Corixidae)".
Ann. Mag. Nat. His., ser. 10, vol. 2: 302-6.
- Hutchinson, G.E. 1929. "A revision of the Notonectidae and Corixidae of South Africa"
Ann. S. Afr. Mus., 25(3): 359-474.
- Hutchinson, G.E. 1940. "A revision of the Corixidae of India and Adjacent Regions".
Trans. Connect. Acad. Arts & Sci., 33:339-476.
- Lundblad, C., 1928 "Zurnäheren Kenntnis einiger in Ost-Africa von Professor Cr. Yngve Sjöstedt gesammelter Corixiden". Ark f. zool., 20 A (8): 1-11.