

STUDIES ON THE SCELIONIDAE
(Hym. Proctotrupoidea)
XVIII. REVISION OF THE GENUS GRYON HAL.
(ETHIOPIAN-ORIENTAL REGIONS):
THE CHARON - GROUP.

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In this paper I extend my work on the revision of *Gryon* Haliday. The material has been lent to me by the British Museum (Nat. History) London (BMNH), by the Museum National d'Histoire Naturelle, Paris (MNHN) and by Dr. F. Bin (Istituto Entomologia agraria, Perugia).

The abbreviations and symbols indicated in this paper are the same used in previous works (Mineo, 1982; Mineo & Villa, 1982, i.e.:

- AD - minimum distance between median ocellus and frontal depression,
- AOL - minimum distance between median ocellus and inner orbit of the compound eye,
- ap-angular point of the occipital carina,
- cl-line of conjunction,
- ha-hypostomal area,
- hf-hypostomal folds,
- hpoc-horizontal part of the occipital carina,
- hyoc-hyperoccipital carina,
- iepos-inner edge of the postoccipital sulcus,
- lehb-lower edge of the hypostomal bridge,
- me-meridiana,
- oc-occipital carina (hopoc + ap + vpoc),
- oco-occipital condyle,

(1) (Paper presented at 13th Italian National Congress of Entomology - Sestriere - Torino, June 27-July 1, 1983.

This work has been realized by the financial support of M.P.I. (60%).

oepos-outer edge of postoccipital sulcus,
 pg-postgena,
 phaf-posterior hypostomal area fossa,
 poc-postoccipital carina,
 pos-postoccipital sulcus,
 ptp-posterior tentorial pit,
 sgp-subgenal process,
 tb-tentorial bridge,
 vpoc-vertical part of the occipital carina.

The *charon* - group

Diagnosis - The members of this group are relatively large, very stout, of robust build and coarse sculpture.

They are under *Gryon charon* (Nixon) and have the following features in common.

Vertex often produced or not, sometimes forming an interocellar ridge (*ior*) (Fig. I, A-B).

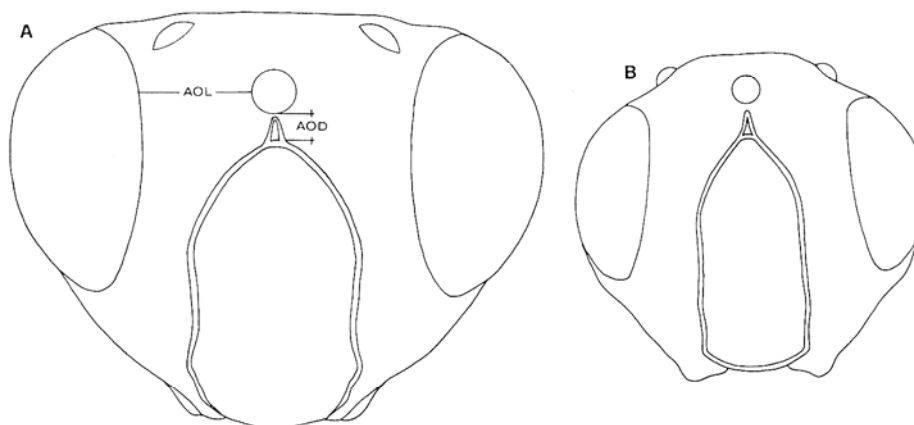


FIG. I - Diagrammatic sketch of the head in frontal view of (A) *Gryon morosum* sp. n. (♀) and of (B) *Gryon charon* (Nixon) (♀).

Lateral ocelli close to the inner orbits, about their longitudinal diameter distant. Eyes with microscopic scattered hairs. Frontal depression always fully enframed. Clava slender with A6 fitting so closely into A7 that it consists of seven

antennomeres (Fig. IV, 1). Clypeus conspicuous with anterolateral corners weakly blunt (Fig. X). Palpal formula 2,1. Mandibles tridentate, the upper tooth generally being the longest (Fig. X). Occipital carina incomplete. Both epomia and mesopleural carina complete, the latter running subparallel to the acetabular carina (Fig. XV, 2). Marginalis inconspicuously long, postmarginalis fully twice as long as the stigmalis; marginal fringe of the fore wing short, resembling that of other groups (*floridanum*, *muscaeformis*, etc). Scutellum strongly compressed at the sides and notched at the apex (Fig. XV, 1), medially overlapping the metanotum, which bulges at the meson. Urosternal central keel present only in the species with S2 strongly convex (Fig. II, *usck*).

The *charon*-group is also easily recognizable because of the presence of the genal and temporal carinae, which may be separate, i.e. two distinct fragments, or in line, i.e. without interruption between them, forming a meridiana (Figs. III, XI, 2 *me*). Furthermore, the hypostomal bridge is peculiar (Fig. III, *hb*) in comparison with other known groups, even if similar in shape to that known to me in some (undescribed)

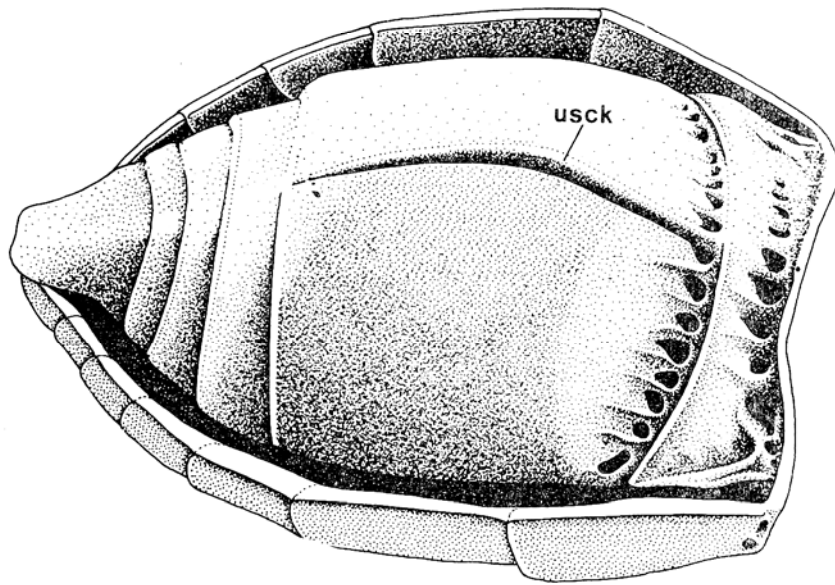


FIG. II - *Gryon paracharontis* Mineo (♀). - Gaster in lateroventral aspect illustrating the urosternal central keel (*usck*) (x 135) (after Mineo, 1982).

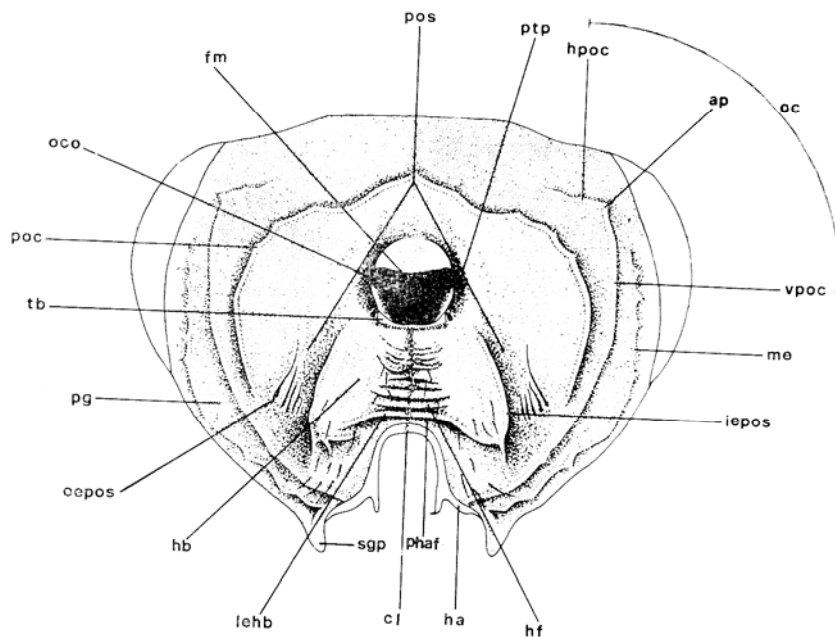


FIG. III - *G. morosum* sp. n. (♀). - Morphological features of the back of the head (diagrammatic sketch (x 173) (after Mineo & Villa, 1982).

Australian species belonging to a different, so far undescribed, species group. Its morphological peculiarity lies in the fact that it is closed below by a ledge running between the two inner edges of the postoccipital sulci (Fig. III, *lehb*). Of all the other groups of *Gryon* known to me the *charon*-group is strongly and directly related either to the *floridanum*-group, or to another group in which I include so far *Gryon oophagous* (Nixon) and *Gryon* (comb.n. from *Hadronotus*) *laticeps* var. *siamensis* (Bakkendorf) and of which I have examined the available type material. This group may be easily distinguished from the *charon* by its transverse scutellum, unnotched at the apex and not medially overlapping the metanotum as in members of the *letus*-group.

The *charon*-group appears for now to be confined to the Australian, Ethiopian and Oriental Regions.

Key to species of *charon*-group

- 1 Genal and temporal carinae independent, i.e. made of two distinct fragments; S2 without *usck*; *ior* absent *urum* Mineo (♀)
- Genal and temporal carinae forming a *meridiana*; S2 with *usck* more or less complete; *ior* present or not. . . 2
- 2 (1) *ior* absent; *usck* surpassing a little more than half the length of S2; the surface of the hypostomal sclerites adjacent to the line of conjunction sculptured like in Fig. 4 *morosum* sp.n (♂♀)
- *ior* present; the sculpture along the sides of the line of conjunction different 3

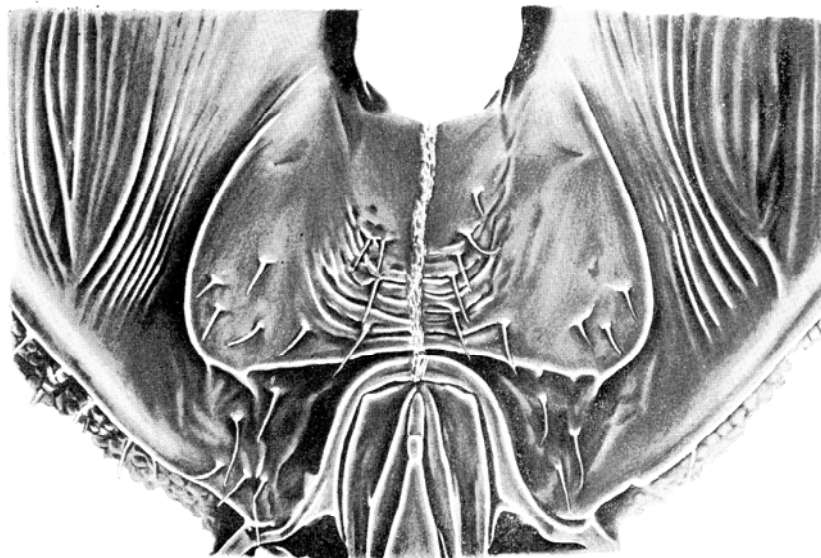


FIG. IV - *G. morosum* s.p. n. (♀). - Detail of the back of the head showing the sculpture of the *hb* along the sides of the line of conjunction (x 130).

- 3 (2) AOD more than half AOL 4
- AOD less than half AOL 5
- 4 (3) Sculpture of the surface contiguous to the line of conjunction chiselled (Fig. V); A3 less than twice as long as

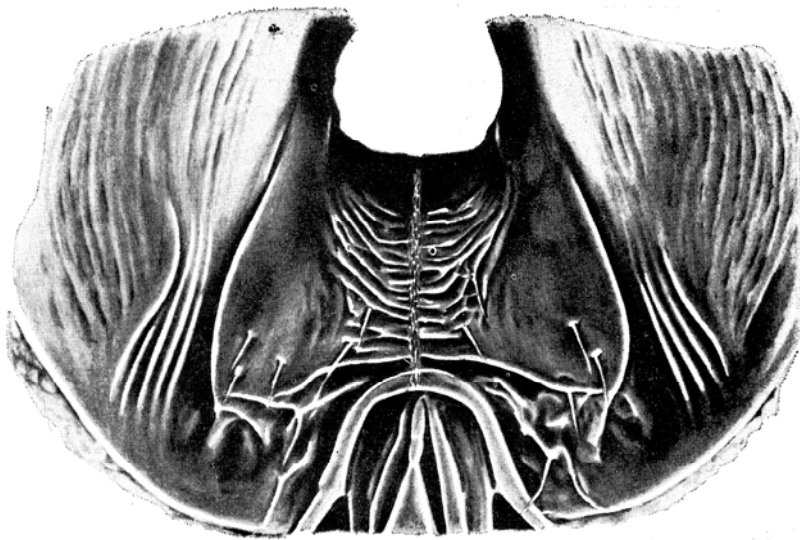


FIG. V - *G. paracharontis* Mineo (♀). - Detail of the back of the head showing the sculpture of the *hb* adjacent the line of conjunction (x 153) (after Mineo, 1982.)

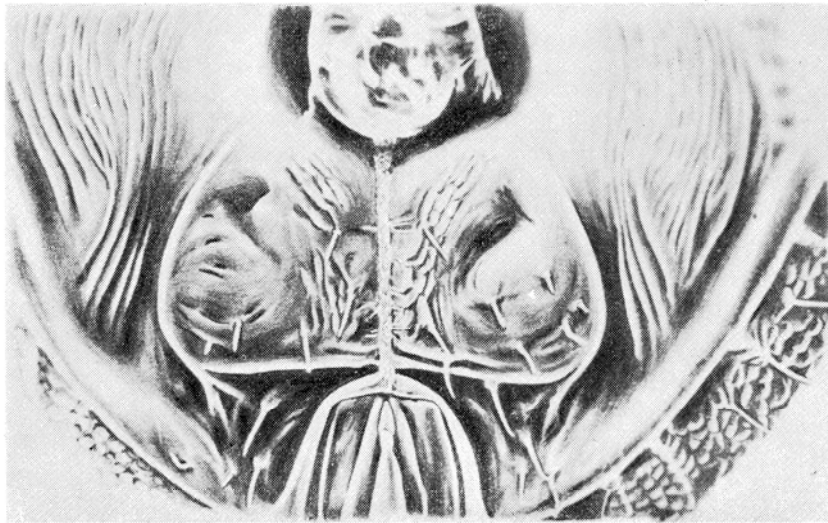


FIG. VI - *Gryon diadematis* sp. n. (♀). - Detail of the back of the head showing the sculpture of the *hb* adjacent the line of conjunction (x 167).

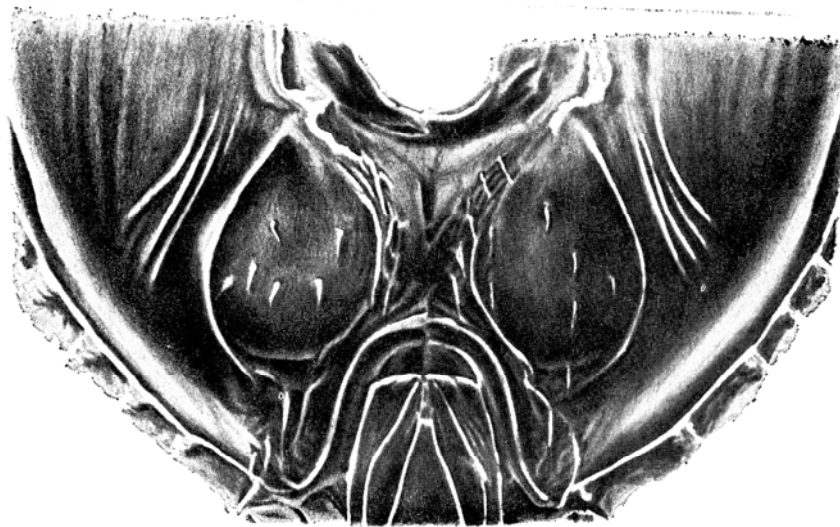


FIG. VII - *G. charon* (Nixon). - Detail of the back of the head illustrating the sculpture of the *hb* adjacent the line of conjunction (x 190).

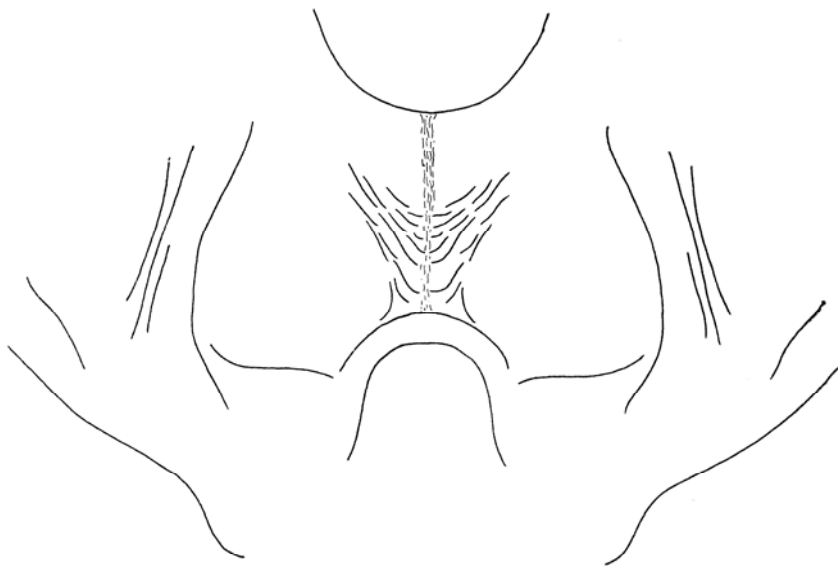


FIG. VIII - *Gryon philippinense* (Ashmead) (♀). - Diagrammatic sketch of the back of the head showing the sculpture of the *hb* along the sides of the line of conjunction (x 153).

- wide; *usck* reaching about hind margin of S2
 *paracharontis* Mineo (δ ♀)
 — Sculpture of the surface adjacent to the line of conjunction like in Fig. VI; A3 fully twice as long as wide barely longer than pedicel, *usck* weak and incomplete
 *diadematis* sp.n (♀)
 5 (3) A3 fully twice as long as wide 6
 — A3 less than twice as long as wide 7
 6 (5) AOD, AOL ratio as 2:10.5; length ratio of *mg*, *st*, *pm* as 8:25:52; sculpture of the hypostomal bridge adjacent to the line of conjunction like in Fig. VII
 *charon* (Nixon) (δ ♀)
 7 (5) AOD, AOL ratio as 3.8:8.9; *mg*, *st* and *pm* length ratio as 3.4:8.8:21.0; sculpture of the hypostomal bridge contiguous to the line of conjunction like in Fig. VIII *philippinense* (Ashmead) (δ ♀)

Description of species

1. *Gryon charon* (Nixon)

- 1934 - *Hadronotus charon*, Nixon. Ann. Mag. nat. Hist., 14: 293, 306 (δ ♀).
 1965 - *Gryon charon*: Masner. Bull. Br. Mus. nat. Hist. (B) suppl. 1: 75.

I could not examine the back of the head of the holotype of *G. charon*, of which the sculpture of the hypostomal bridge appears to be a crucial character in members of the *charon*-group (cfr. also Mineo and Villa, 1982). My present diagnosis regarding this character is based on two specimens named by Nixon himself which both display the sculpture of Fig. VII, but this respect is not mentioned in the original description.

Female & Male. - The original description and Figs. I, B; IX, 4; X, 2; XI, 2; XIII, 2, in this paper are sufficient for

recognition of this species. The urosternal central keel is present.

Material examined. - 3 ♂♂/♀♀ (Cameroun, Garoa-ex *Homoeocerus ignotus* (?) - 1955 - Descamps); 3 ♀♀/♂♂ (Sénégal (?) - ex *Homoeocerus pallens*).

The above mentioned specimens belong to Risbec's collection (slides 22-23) and are preserved in the Orstom (Bondy) collection.

Hosts. - Apart from the above-mentioned hosts Risbec (1955 ; 1960) also quotes *Homoeocerus yerburyi* Distant, *Anoplocnemis madagascarensis* Sign. and *Epilachna chrysomelina* F.

I do not consider the latter to be a suitable host for *G. charon*. Recently Ochienng (1979) quotes *G. charon* as parasite of *Anoplocnemis curvipes* (F.) too.

Biology. - Not known.

Distribution. - Cameroun, Nigeria, Senegal, S. Africa.

Variability. - Can affect the colour of the coxae (brownish to dark) and of middle surface of the femora (ochraceous to chestnut); the size of the body ranges from 1.9 - 2.2 mm.

2. *Gryon diadematis* sp.n

Female. - Nearly black. Scape, A2→A6 legs, apart from coxae bright reddish yellow, and tegulae brownish; veins of wings golden yellow.

Head from above about 2.6 times wider than long (47:18); $ios = 25$; $l \times b = 25.5 \times 19$; $ms = 13.5$. Ratio AOD:AOL = 5.8:10.8. Radicle less than 1/4 length of scape, the latter more than seven times its width (22:3). A3 barely longer than pedicel (7:6) both of same breadth; length to width ratios of A4→A12 are 4:2.9; 4:3; 3.8:3.9; 4:4.4; 3.4:4; 3.2:4; 3.4:4; 4.5:4 (Fig. IX, 1).

Mg, *st* and *pm* length ratios are 4.5:10:23. Length to breadth ratios of T1→T3 are 14:42; 16:42; 6:36; the combined length of the following tergites is less than of T1.

Vertex strongly produced, *ior* present; a big cell with an

anterior opening surrounds the anterior ocellus; the upper angle of the completely enframed frontal depression is connected to the anterior ocellus by a ridge; the surface between the vertex and anterior ocellus is punctured and crossed by very widely spaced, undulating strong wrinkles, irradiating from the walls of the big cell and surrounding the anterior ocellus. Eyes with scattered microscopic hairs, visible only at high magnification. Lateral ocelli separated from the inner orbits by less than their longer diameter; A12 with pointed apex. Meridiana reaching about the angle point of the occipital carina. Upper tooth longest. Mesoscutum strongly convex behind, compressed at sides, crossed on about the posterior third by rugosities. Its remaining sculpture consists of irregularly shaped points. Apart from the smooth hind margin, T2 is longitudinally wrinkled, the wrinkles sometimes forming irregular polygons; S2 not strongly convex and with a weak and incomplete urosternal central keel.

Length approx. 2.6 mm.

Material examined. - 1 ♀ (*holotype*) (Malhan R. - Dehra Dun U.P. - S.N. Chatterjee - 30/IX/1930 - ex egg of Heteroptera and teak leaf - 692); 6 ♀ ♀ (*paratypes*) (689-691, 693-694), other data as holotype. This latter and 3 paratypes in BMNH; 3 paratypes in my collection.

Biology. - Not known.

Remarks. - *Gryon diadematis* sp.n. is related to all other members of its group. It differs mainly by the proportions of A3 and by the sculpture of the hypostomal bridge; in the sculpture above the frontal impression is similar to that observed in *Gryon philippinense* (Ashmead).

Its name is derived from the appearance of the sculpture of the area above the frontal depression.

3. *Gryon morosum* sp.n.

Female. - Similar to *G. paracharontis* and to *G. charon* with which it also has in common the colour of the legs.

Differs mainly in the sculpture of the hypostomal bridge (Fig. IV). Vertex weakly concave in the middle, *ior* absent

(Fig. I, A). Head from above a little more than three times as wide as long (46:14). See Figs. IX, 3; X, 1; XI, 1; XII; for other characters.

Length approx. 2.1 mm.

Male. - In all respects like the female, except for the antenna. Copulatory organ and relative proportions of veins on fore wing shown in Figs. XIII, 1; XIV, 1. Antenna as in Fig. IX, 2.

Length 2.1 mm.

Material examined. - 1 ♀ (*holotype*) (Sénégal, M'Bambey ex *Anoplocnemis curvipes*-coll. Risbec, identified by Risbec himself as *Hadronotus charon* Nixon, mounted from a slide (N° 83) on a tag; 1 ♂ (*allotype*) mounted from a slide (N° 82) on a tag, other data as holotype 5 ♀ ♀ (*paratypes*) not all in good condition, same data as allotype; 2 ♀ ♀ (*paratypes*), other data as holotype.

Type, allotype and some paratypes on MNHN; other paratypes in my collection.

Biology. - Unknown.

4. *Gryon paracharontis* Mineo

1982 - *Gryon paracharontis* Mineo. Redia, 60 : 307 (♂ ♀).

It has been described recently and here I have no further details to add to those in my previous paper (Mineo, 1982, *l.c. supra*), to which reference may be made (see also Fig. XV).

5. *Gryon philippinense* (Ashmead)

1904 - *Hadronotus philippinensis* Ashmead. Jl. N.Y. ent. Soc., 12 : 11 (♀).

1934 - *Hadronotus homeoceri* Nixon. Stylops, 3 : 4 (♂).

1968 - *Gryon philippinensis*: Masner & Muesebeck. Bull. U.S. natn. Mus., 270 : 36.

1979 - *Gryon philippinensis*: Mineo. Boll. Lab. Ent. agr. "Filippo Silvestri", 36 : 260.

Female. - Same coloration as *Gryon paracharontis* Mineo. Ratio AOD:AOL as 3.8:8.9; $ios = 24$; $l \times b = 22 \times 14$; $ms = 13$; Radicle about 1/5 length of scape (5:19.2), the latter about 5 times its own width (19.2:4). A2 slightly shorter than A3 (4:5), both of same breadth; A4 subcylindrical, slightly longer than A5 (3:2.5), the latter wider than long (3:3.5); A6 fitting very closely into A7, also wider than long (4:3); A7 and A12 equal in length and breadth, the latter tapering towards apex; remaining antennomeres of the same breadth as A7 but slightly shorter and a little uneven in length. Sculpture of the hypostomal bridge resembles that of *G. paracharontis*. *Mg*, *st* and *pm* length ratio = 3.4:8.8:21.

Gaster barely longer than wide (24.5:21.5); length to breadth ratios of T1→T3 21.5:6; 21.5:10; 18:2. T2 punctured and wrinkled for almost all its length, wrinkles widely spaced, occasionally forming irregular reticulations. S2 with almost complete *usck*. For other characters it may refer mainly to Nixon's description of this species.

Length approx 2 mm.

Male. - In all respects like the female with exception of sexual characters.

Host. - It may refer to my previous paper (Mineo, 1979, l.c. *supra*).

Biology. - Not known.

Materiale xamined. - 1 ♀ (Saigon, 23-4-49 - N° 901 - J. Barbier); left antenna missing; head dissected from the rest of the body, both mounted on the same tag. It is normally preserved in the MNHN (Paris).

Remarks. - Very closely related to *G. diadematis* sp.n. with which, as mentioned before, it has in common mainly the sculpture of the head but differs in the sculpture of the hypostomal bridge which, as mentioned above, is similar to that of *G. paracharontis*.

6. *Gryon urum* Mineo

1982 - *Gryon urum* Mineo. Redia, 60 : 311 (♀).

The same comment as that made for *G. paracharontis* applies.

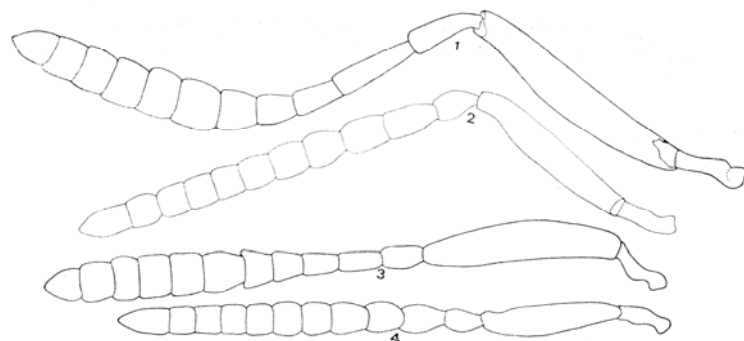


FIG. IX 1,3. - Female antenna of *G. diadematis* sp. n. and of *G. morosum* sp. n., respectively. 2,4. - Male antenna of *G. morosum* sp. n. and of *G. charon*, respectively.

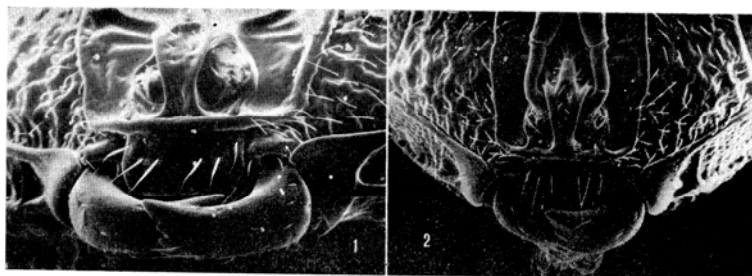


FIG. X. - Detail of the head showing the clypeus and mandibles of *G. morosum* (1) (x 200) and of *G. charon* (2) (x 200).

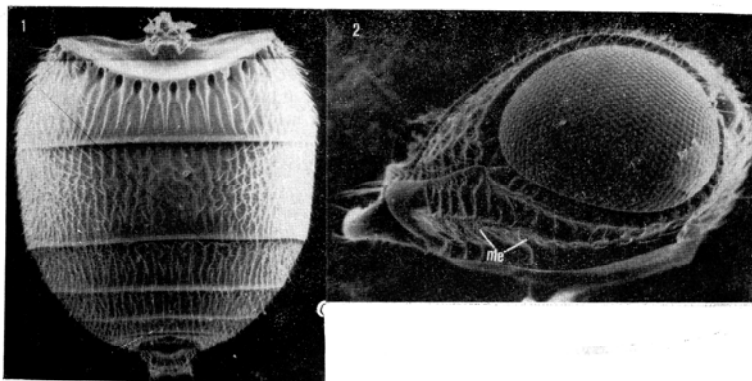


FIG. XI 1. - *G. morosum* sp. n. (♀). Gaster from above (x 108). - 2. - *G. charon* (♀). Head in lateral view (x 108); me = meridia.

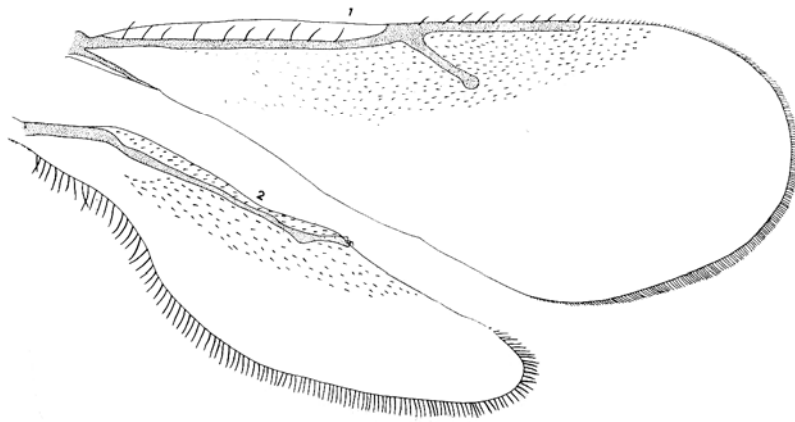


FIG. XII. - *Gryon morosum* sp. n. (♀). - Fore (1) and hind (2) wing.

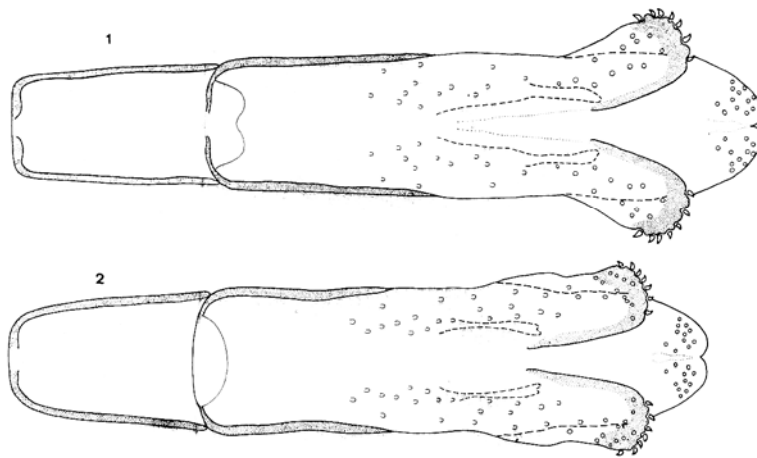


FIG. XIII - Copulatory organ of *G. morosum* sp. n. (1) and of *G. charon* (2).

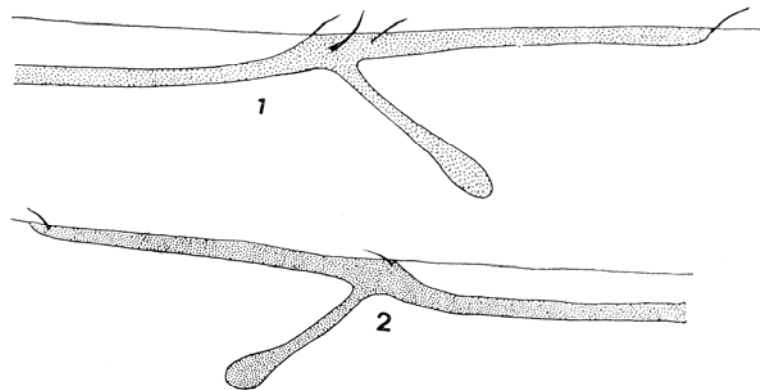


FIG. XIV. - Detail of fore wing of *G. morosum* sp. n. (♂) (1) of *G. charon* (♂) (2).

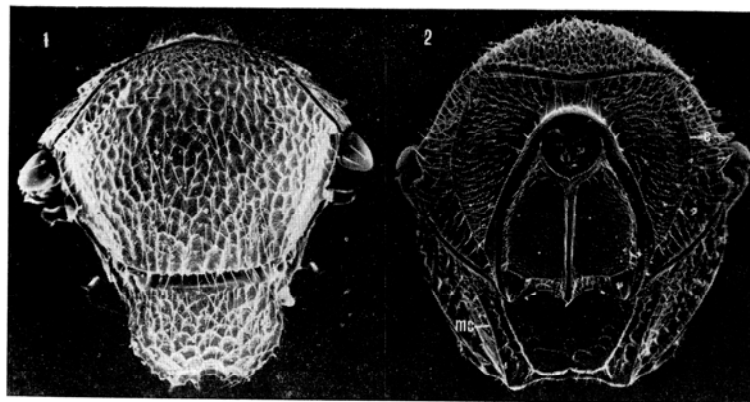


FIG. XV. - *Gryon paracharontis* Mineo (♀). Thorax from above (1) (x 108) and in frontal aspect (2) (x 108); e = epomia; mc = mesopleural carina.

Summary

The revision of the species of the *charon*-group of the genus *Gryon* Haliday (Hym. Scelionidae) distributed in the Ethiopian-Oriental Regions is proposed.

The following species have so far been found: *Gryon charon* (Nixon), *G. diadematis* sp. n., *G. morosum* sp. n., *G. paracharontis* Mineo, *G. philippinense* (Ashmead) and *G. urum* Mineo. A key to the species of this group is proposed too.

Riassunto

Studi sugli Scelionidae (Hym. Proctotrupoidea) XVIII.
Revisione del genere *Gryon* Hal.
(Regioni Etiopica e Orientale): gruppo *charon*.

Del genere *Gryon* Haliday viene proposta la revisione delle specie del gruppo-*charon* per le regioni etiopica e orientale di cui le specie finora riscontrate sono le seguenti: *Gryon charon* (Nixon), *G. diadematis* sp. n., *G. morosum* sp. n., *G. paracharontis* Mineo, *G. philippinense* (Ashmead) e *G. urum* Mineo.

Viene inoltre proposta una chiave per l'identificazione delle specie di questo gruppo.

KEY WORDS - Oophagous parasitoids, Coreoidea burgs.

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