BULLETIN DE L'INSTITUT ROYAL DES SCIENCES NATURELLES DE BELGIQUE, ENTOMOLOGIE, 65: 21-33, 1995
BULLETIN VAN HET KONINKLIJK BELGISCH INSTITUUT VOOR NATUURWETENSCHAPPEN, ENTOMOLOGIE, 65: 21-33, 1995

Caddis Flies (Trichoptera) from the Dominican Republic (West Indies). I. The Hydroptilidae

by Lazare BOTOSANEANU

Abstract

This is the first part of the results of a journey (1995) to the Dominican Republic devoted to the study of Trichoptera. Springs, streams, and rivers were sampled in various parts of the country. Only 2 species of recent Hydroptilidae were previously named from the Dominican Republic; only one of them was found during the present study, but 13 (or 15) more were sampled, 6 taxa being described as new in the genera *Alisotrichia*, *Ochrotrichia*, *Hydroptila*, and *Oxyethira*. The affinities of the Hispaniolan Hydroptilid fauna indicate close relationship with those of the remaining Greater Antilles; on the other hand, some differences between what is presently known from the Dominican Republic and from Haïti – the two countries on the island of Hispaniola – are impressive.
Key words: Trichoptera, Hydroptilidae, taxonomy, faunistics, distribution, Dominican Republic, West Indies.

Resumen

Primera parte de los resultados de un viaje (1995) a la República Dominicana dedicado al estudio de los Tricópteros. Fuentes, arroyos y ríos de diversas zonas del país fueron muestreados. Hasta el presente únicamente habían sido citadas de la República Dominicana dos especies de Hydroptílidos; solo una de estas ha sido reencontrada durante el presente estudio. Trece (o quince) especies han sido recolectadas y 6 taxones de los géneros *Alisotrichia, Ochrotrichia, Hydroptila y Oxyethira*, son descritos como nuevos. Las afinidades de la fauna de Hydroptílidos de la Española indican un estrecho parentesco con las faunas de las demás Grandes Antillas; no obstante existen también diferencias acusadas (por ejemplo con relación a lo que actualmente se conoce acerca de la fauna del país vecino, Haití.
Palabras clave: Trichoptera, Hydroptilidae, taxonomía, faunística, distribución, República Dominicana, Indias Occidentales.

Introduction

During April and May 1995 I made a trip to the Dominican Republic, devoted to intensive sampling of adult Caddis Flies. Sampling was performed with a portable UV-lamp in a quite significant number of carefully selected localities (springs, streams, upper reach of rivers) in the most promising mountainous or hilly zones of this beautiful country. In the present paper, only results of the study of the family Hydroptilidae are published; at present, no more than two recent Hydroptilid species are recorded from the Dominican Republic: *Leucotrichia tubifex* FLINT, 1964 and *L. gomezi* FLINT, 1970; only the first was encountered during my study, but I can now add 13 (or 15) more to the list, 6 taxa being described here as new. The material (about 1000 specimens) is entirely preserved in alcohol; holotypes and allotypes of the new taxa are kept, like most other specimens, in the Zoological Museum of the University of Amsterdam; a number of specimens were placed in the Institut royal des Sciences Naturelles, Brussels. Several specimens of the new taxa here described, independently caught in the Dominican Republic by Dr. O.S. FLINT, jr., and kept in the NMNH (Smithsonian Institution, Washington), were labelled as paratypes. A study of the remaining families will be published later, together with an account on the diversity and distribution of the Caddis Fly fauna of Hispaniola and on the serious problems concerning survival and protection of the freshwater habitats and fauna of the island.

List of sampling localities

CORDILLERA CENTRAL

I. Arroyo Los Dajaos, in Sección Manavao-Los Dajaos of Jarabacoa. A tributary of Rio Yaque del Norte in its upper reach, at ca. 1000-1100m. a.s.l. This is a large stream (metarhithral, ca. 5 m. broad) flowing here through a forested valley (*Pinus occidentalis*). 24.04.1995.
II. Arroyo El Dulce, in sección Manavao-Los Dajaos of Jarabacoa (hamlet Arroyo El Dulce). A tributary of Arroyo Los Dajaos, being a very small streamlet (epirhithral?) flowing on a bed chaotically filled with enormous blocks, through rainforest. 26.04.1995.

III. Jarabacoa-Los Dajaos. Insects sampled in house. 24.04.1995.
IV. Rio Yaque del Norte, the most important water course draining Cordillera Central, and one of the largest of the country, at "La Cienaga", a short distance W from Jarabacoa-Manavao. The beautiful river is here clearly in its hyporhithral zone. 25.04.1995.
V. Arroyo Manuel Estrella, at the eastern limits of Parque Nacional Armando Bermudez. This tributary of Rio Los Guanos (which is in its turn tributary of R. Yaque del Norte) was sampled near the main entrance to the Parque (Cienaga entrance), at ca. 1200 m. a.s.l. Metarhithral. 25.04.1995.
VI. Salto de agua Bayguate, a fine waterfall about 15 m. high, on Rio Bayguate, in Jarabacoa – Sección Pedernales, at some 550-600 m. a.s.l. This small river – which joins Rio Jimenoa before reaching R. Yaque del Norte – flows through a secondarily forested, rocky valley. 10.05.1995.
VII. Salto Agua Blanca, a magnificent double waterfall with a very large pool at its base, ca. 3 km from the pueblo Convento, accessible on a difficult road from Constanza. The waterfall is in rainforest, on the course of Rio Grande (Rio del Medio). About 1500 m. a.s.l. 11.05.1995.
VIII. Springbrook with aquatic vegetation some 150 m. from Salto Agua Blanca, on the road to pueblo Convento. 11.05.1995.

CORDILLERA SEPTENTRIONAL

IX. Arroyo Los Guineos, a tributary of Rio Nagua. Flowing from the southern slopes of Loma Quita Espuela – a mountain about 930 m. high – this large stream (metarhithral) with warm water rapidly flowing under forest cover on a bed filled with large boulders, is accessible on the road from San Francisco de Macoris towards the Loma. Ca. 250 m. a.s.l. 27.04.1995.

SIERRA DE AGUA

X. Arroyo Los Verros, a tributary of Rio Comatillo which joins Rio Comate. This locality is situated S from Parque Nacional Los Haitises, in the NE part of the country, and is accessible from Bayguana – Comatillo – Sierra de Agua. It is one of the strong resurgences fed by water infiltrating the karst of Los Haitises; the manantial, in fine primary forest, immediately takes the shape of a stream 3-6 m. broad, slowly flowing on sand with limestone blocks. The altitude is probably about 200 m. a.s.l. Sampled at the point of resurgence. 29.04.1995.

SIERRA DE NEIBA and SIERRA DE BAORUCO

XI. An important complex of springs and springbrooks ("cachónes") in the small town La Descubierta, on the northern shores of Lago Enriquillo, and S from Sierra de Neiba. These are, like several others along the northern shores of Lago Enriquillo, resurgences of subterranean water stored in Sierra de Neiba, the complex in La Descubierta being possibly the most important one (and one not yet completely destroyed by man's activities!). The water of relatively low temperature flows rapidly on limestone boulders and pebbles, the well shaded streamlets collecting spring water being 2-6 m. broad. The locality is below sea level. 6.05.1995.
XII. Rio Mulito, which is, after joining Rio Bonito, a tributary of Rio Pedernales in Sierra de Baoruco at ca. 2 km from the village Mencia de Pedernales and about 6-7 km. from its springs. This beautiful small river of karst zone in the extreme SW of the country flows through rainforest; it is about 5-10 m. broad, with alternating turbulent and laminar stretches, with boulders and respectively sand and gravel. Ca. 250 m. a.s.l. 5.05.1995.
Only the numbers of the sampling localities will be further mentioned under "Material".

Systematic part

Leucotrichia tubifex FLINT, 1964

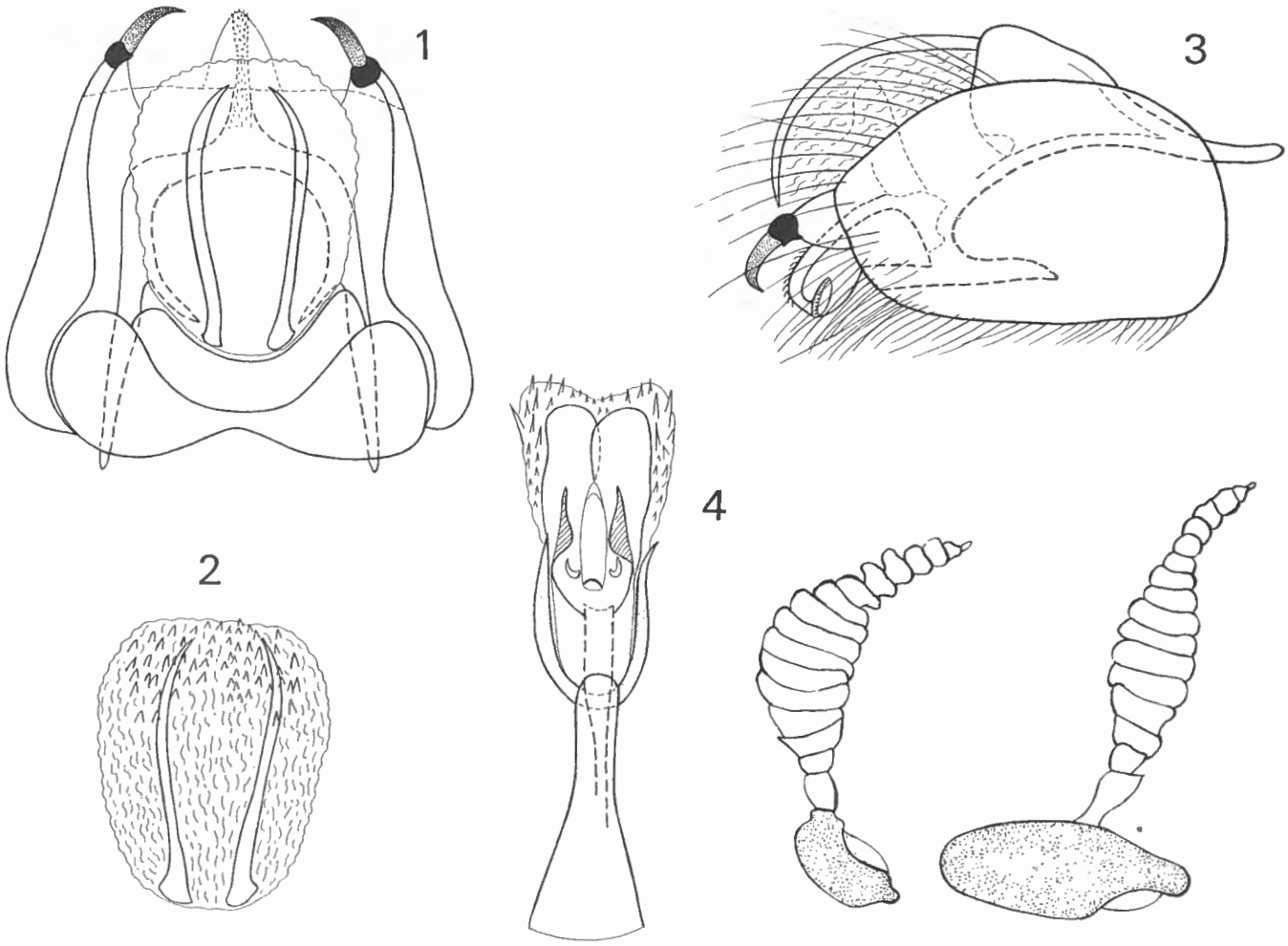
Material:
I: 1♂; II: 1♂; IV: 7♂, 2♀.

Alisotrichia hirudopsis FLINT, 1964 ssp. *aitija* BOTOSANEANU, n. ssp. (figs 1-4)

Material:
IX: 2♂ (holotype and paratype), 1♀ (allotype).

Description of ♂.
Length of forewing: 2 mm. Antennae very strongly modified, like those of *A. hirudopsis* from Puerto Rico, but even more strongly broadened, whereas the scapus is much less developed. Maxillary palpi, too, strongly modified, and long brushes of thick black setae on mid- and hindtibiae – like in *A. hirudopsis*. Concerning the genitalia, the structure of segments VIII and IX, as well as that of the phallic apparatus, is very similar to that found in *A. hirudopsis*, with one minor but clear difference: the black apical hooks of segment VIII are curved at right angles in *hirudopsis* from Puerto Rico, and more slightly curved in the new subspecies. But there is a difference in the structure of segment X (dorsal view): in the nominative subspecies there is a pair of broad longitudinal sclerotized plates with darkened median margins, plates which are separated by membrane and with numerous minute spinules on their surface; whereas in the specimens from the Dominican Republic segment X has a different shape: a large, swollen membranous mass (internally in its distal parts with a distinct structure formed by a large number of minute "lobules") with a pair of very slender sclerites with pointed tips medially directed, running on the surface of this membranous mass and corresponding to the darkened median margins of the "plates" in the nominative subspecies.

Notes.
Comparison with the description of *A. hirudopsis* (Flint, 1964) and with specimens from Puerto Rico where this



Figs 1-4. – *Alisotrichia hirudopsis aitija* BOTOSANEANU, n. ssp., ♂ genitalia (1: dorsal; 2: segment X, dorsal, with more details; 3: lateral; 4: phallic apparatus, and right male antenna, dorsal, of *A. hirudopsis aitija* n. ssp. (left) and *A. h. hirudopsis* Flint (right).

species is rather common, shows that a very closely related but nevertheless distinct sister-taxon is present in the Dominican Republic. I interpret it as a vicariant geographic race.

Derivatio nominis: "Aitij" is a pre-colombian name for the island of Hispaniola.

Alisotrichia cf. *hispaniolina* BOTOSANEANU, 1991

Material:

XII: 1 ♀.

The dorsum VIII of this specimen looks exactly like in *hispaniolina* (Botosaneanu, 1991: fig. 16) and I suppose that it may be this species widely distributed in rivers of Haïti.

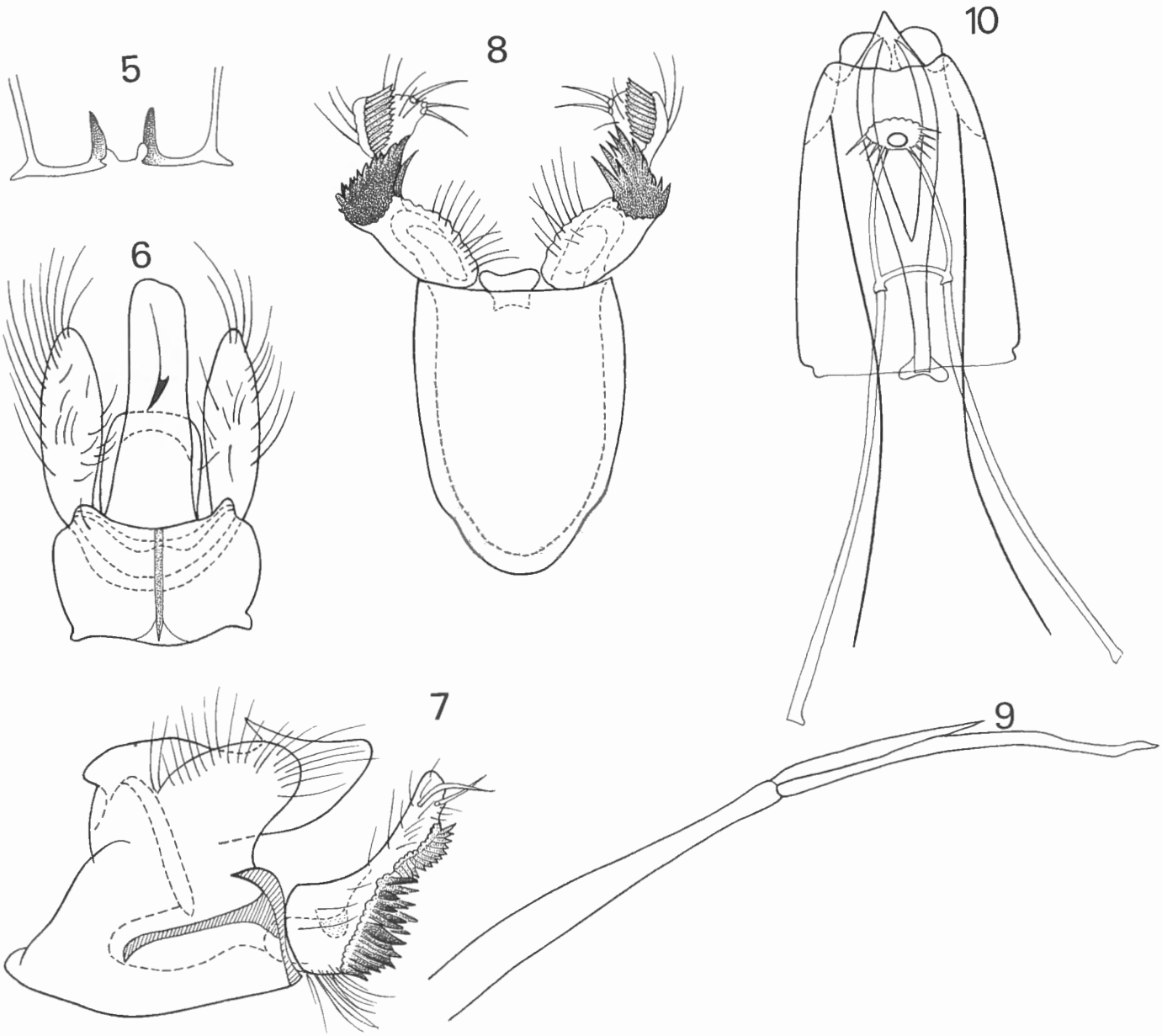
Ochrotrichia cachonera BOTOSANEANU n. sp. (figs 5-10)

Material:

X: 1 ♀ (allotype); XI: 1 ♂ (holotype).

Description of ♂.

Length of forewing: 2.4 mm. Both wings with dense cover of dark setulae, without any trace of modified (scale-like) setae. On sternite VII a median, laterally compressed "tooth". Tergite VIII transversely developed, with protruding anterior and posterior angles, and with a medio-longitudinal black stripe. Segment IX dorsally open, with well developed sternite looking like a shield, and with posterior upper angles forming broad setose lobes, rounded in lateral view, not reaching the apex of segment X. Segment X of simple structure, ventrally in its proximal part with a well developed sclerotized "frame"; in dorsal view almost parallelly sided, apex slightly obliquely truncate; in its distal half with a medio-longitudinal keel finishing proximally in a sharp and rather long point proximally followed by a slight depression. Inferior appendages of complex structure, not easy to describe, widely divergent, upwards directed, their bases ventrally separated by a rather large, roughly trapezoidal sclerite; their broader basal part supports a very compact ventral block of numerous strong black spines; this is followed



Figs 5-10. – *Ochrotrichia cachonera* BOTOSANEANU, n. sp. (5: dark marks anteriorly on abdominal tergites III-VII in both sexes; 6-9: ♂ genitalia, dorsal, lateral, and ventral, and phallic apparatus, lateral; 10: ♀ genitalia, ventral).

by a "bottleneck" beyond which there is again a broadened (flattened) portion having ventrally in its middle a comb of fine black spines; anteapically a few stronger setae. The very simple phallic apparatus finishing in two long "spines", the longer one (aedeagus?) with slightly sinuous tip, second spine (paramere?) only half as long as it.

Description of ♀.

Length of forewing: 2 mm. Like in the ♂, wings covered by dense, dark setulae. Despite the fact that this specimen is smaller than the ♂, and that they were caught in different localities, I have no doubt about their being conspecific: this is shown by the identical pattern of dark "marks" anteriorly on the abdominal tergites III-VII (found by me to be a good character enabling correct association of both sexes in *Ochrotrichia*; see also description of the following species). Beyond the distal limit of segment VIII there is, ventrally, a conspicuous hyaline triangular projection (segment IX?), and, dorsally, a pair of rounded, slightly separated lobes (segment X?). Spermathecal sclerites forming a very robust Y. Two pairs of long apodemes, the strongest (more median) ones connected by a bridge and posteriorly leaning on a formation which I cannot interpret correctly: a kind of cushion laterally provided with fine spines.

Notes.

It is beyond doubt that *O. cachonera* n. sp. is closely related to two Cuban species: *O. caramba* Bots., 1977 and *O. villarenia* Bots., 1980; it is even possible that these three are sister-species. The ♂ genitalia are very similar in all of them, the similarity being more impressive between *cachonera* and *caramba*. Nevertheless, there are numerous

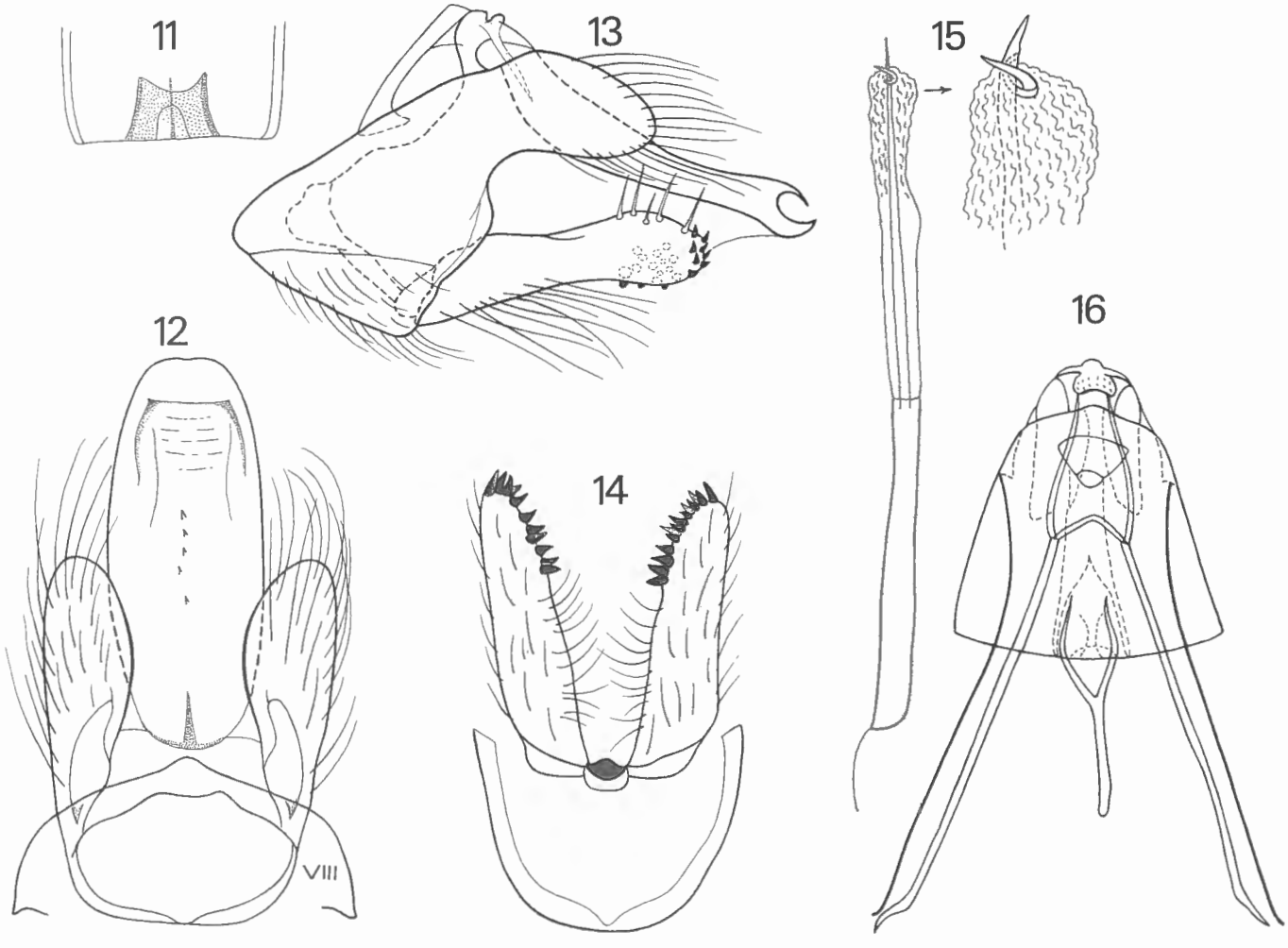
details enabling separation of these three species (compare with figures in Botosaneanu 1977 and 1980); tergite VIII is like in *villarenia* and very different from that in *caramba*; the opposite is true for the upper posterior lobes of segment IX and for segment X; there are subtle differences in the gonopods; and from both Cuban species *cachonera* is distinguished by one of the phallic "spines" being much shorter than the other. But the most impressive difference is the absence in *cachonera* of any androconial scales on the wings, whereas fore- and hindwings in *caramba* and *villarenia* are more or less abundantly provided with such scales: this element has certainly had its significance in the process of allopatric speciation here involved.

The females of the two Cuban species being unknown, no comparison is possible. Both localities where *O. cachonera* n. sp. was caught (like *O. ingloria* n. sp.) are karstic springs. The specific name was coined from "cachónes", a local name for such springs.

Ochrotrichia ingloria BOTOSANEANU, n. sp.
(figs 11-16)

Material:
X: 4♂ (paratypes) and 5♀ (allotype and paratypes); XI: 4♂ (holotype and paratypes).

Description of ♂.
Length of forewing: 2.5 - 2.7 mm. Forewings covered with brown setulae, with stiff black setae especially in the basal half of the costal area. Tarsi of all legs variegated. Sternite VII with laterally compressed "tooth". Tergite VIII transversely developed, devoid of medio-longitudinal black stripe. All parts of genitalia perfectly symmetrical. Sternite IX scarcely protruding anteriorly, not having the shape of a shield; tergite IX reduced to a narrow band, finishing on each side (lateral view) in a point directed posteriad; the upper angles of segment IX produced in relatively small, ovoid, very setose lobes. Segment X long



Figs 11-16. – *Ochrotrichia ingloria* BOTOSANEANU, n. sp. (11: dark marks anteriorly on abdominal tergites III-VII in both sexes; 12-15: ♂ genitalia, dorsal, lateral, and ventral, and phallic apparatus, lateral - with more strongly magnified apex; 16: ♀ genitalia, ventral).

and broad, of quite simple structure in dorsal view (only a few minute "points" forming a small row on the median line); but in lateral view it ends in a highly characteristic forceps. Inferior appendages in lateral view with a shaft and a clavate distal part, anteapically with dorsal group of rather long pale spines; in ventral view the inferior appendages are of a simple form, very slightly tapering to the blunt apices, furnished disto-medially with numerous short black spines; a very small, dark sclerite separates their bases. Phallic apparatus consisting of a basal chitinous tubule, continued by one which seems to be slightly chitinous in its proximal parts, becoming certainly membranous distally; ductus ejaculatorius clearly distinct, slightly protruding beyond this membrane, and just before its point with a minute appendage apparently coiled around it.

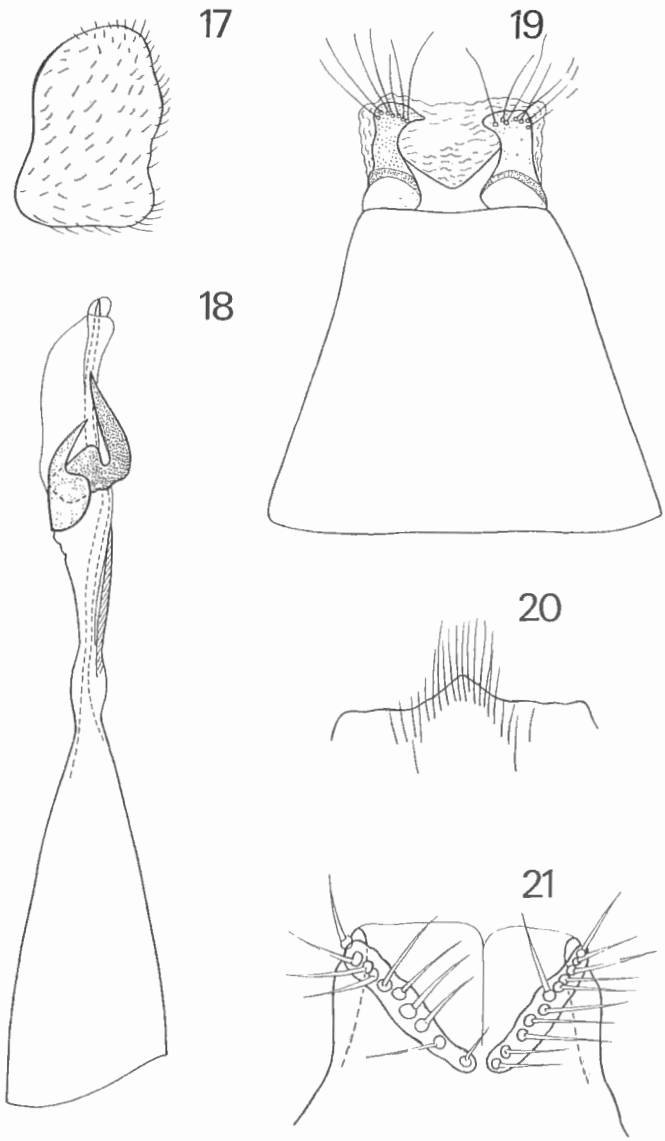
Description of ♀.
Length of forewing: 2.7 - 2.8 mm. It was possible to associate correctly the females not only because they were caught in one locality together with the males, but also because of the identical pattern of dark marks on the abdominal tergites III-VII in both sexes. Beyond the slightly convex distal limit of sternite VIII there is, in the middle, a formation looking like a small cone with narrow "wings" (segment IX?), flanked by a pair of widely separated lobes. Spermathecal sclerites forming an Y with very slender arms; beyond them a formation which I interpret as being the vagina. Two pairs of apodemes, the more median ones stronger and connected by a bridge.

Notes.
This species belongs to what is presently known as the "*xena* - species group" whose members are distinguished from many other *Ochrotrichia* mainly by the simple structure of the ♂ segment X (I am not sure that this species group will be maintained in subsequent revisions of the genus). At least 16 species were described in this "group", 10 of them from the West Indies (BOTOSANEANU, 1977, 1980, 1991; Bueno-Soria & Santiago-Fragoso, 1992; Flint, 1964, 1968a, 1968b, 1968c, 1972; Ross, 1944). Although there are scarcely original elements in its relatively uncomplicated genitalia, *O. ingloria* is clearly distinct from all these species, as shown by all parts of the ♂ genitalia, and it is impossible to discover close(r) relationship with one – or some – of them. Maybe the most distinctive features of the new species are the perfect symmetry in the ♂ genitalia, and segment X ending in a curious forceps.
I have caught *O. ingloria* (like *O. cachonera* n. sp.) only by karstic springs.
Derivatio nominis: inglorius-a-um (Lat.) = commonplace, inconsiderable, insignificant.

Metrichia cafetalera BOTOSANEANU, 1980
(figs 17-20)

Material:
VII: 8♂, 9♀

Complements to description of ♂
This species was described (BOTOSANEANU, 1980) based on an unique ♂ specimen "in very poor condition". The male specimens from the Dominican Republic are in all respects similar (or almost similar) to the holotype; there is, nevertheless, a slight difference in the lateral shape of the gonopod, with only a very shallow distal excision (in this respect there seems to be some variability even in the population presently studied). I take this opportunity for giving a drawing of the phallic apparatus more complete



Figs 17-20. – *Metrichia cafetalera* BOTOSANEANU, 1980 (17: gonopod, lateral; 18: phallic apparatus; 19: segments VII and VIII of ♀, dorsal; 20: distal limit of segment VII of ♀, ventral). Fig. 21 - *Metrichia fontismoreaui* Botosaneanu, 1991, ♀ tergite VIII.

than in the original description. Moreover, the following corrections or additions to the original descriptions are necessary: a) at the level of the distal limit of abdominal dorsum IV there is a pair of small internal sacs (opening, maybe, at the intersegmental limit IV/V); b) the "sclerotized buttons" described as being near the posterior limit of tergite VI are, in fact, small internal strongly chitinized sacs at the level of the anterior limit of dorsum VII.

Description of ♀.
The ♀ of *M. cafetalera* was previously unknown, but is presently well associated. Distal limit of abdominal segment VII dorsally in its middle with triangular projection concealed in strong setae; ventrally straight. Segment VIII well developed only dorsally, with pair of lateral well chitinized capitate formations, apices turned mediad like beaks and furnished with long setae.

Notes.
The discovery in the Dominican Republic of this species which was known only from the Cuban province Las Villas, is interesting. In the Dominican Republic I have caught it only in the locality of highest altitude: the waterfall Agua Blanca, at ca. 1500 m. a.s.l., and I suspect that it is one of the species typically inhabiting higher mountains.
In several earlier publications I had expressed the firm belief that *Metrichia* deserves the status of clearly distinct genus. Unfortunately, I had considered it only as a subgenus of *Ochrotrichia* in later publications, only "not to swim against the current" – a bad decision which I now repudiate.

Metrichia fontismoreaui BOTOSANEANU, 1991
(fig. 21)

Material:
I: 3♂, 2♀; V: 2♂, 1♀; IX: 1♀; XI: 1♂, 2♀.
A species originally described from Haïti.

Complements to description of ♂ *and* ♀.
The presence at the level of the distal limit of abdominal dorsum IV in the ♂ of a pair of small globulous androconial sacs was not previously mentioned.
I give here a drawing of tergite VIII in the ♀ (neglected in the original description); it is characterized by a pair of very oblique sclerotized stripes converging proximally and offering insertion to a row of strong setae with large alveolae.

Hydroptila ditalea FLINT, 1964

Material:
VI: 1♂, 12♀; IX: 1♂, 12♀; X: 34♂, 66♀; XI: 2♂, 1♀; XII: 52♀.

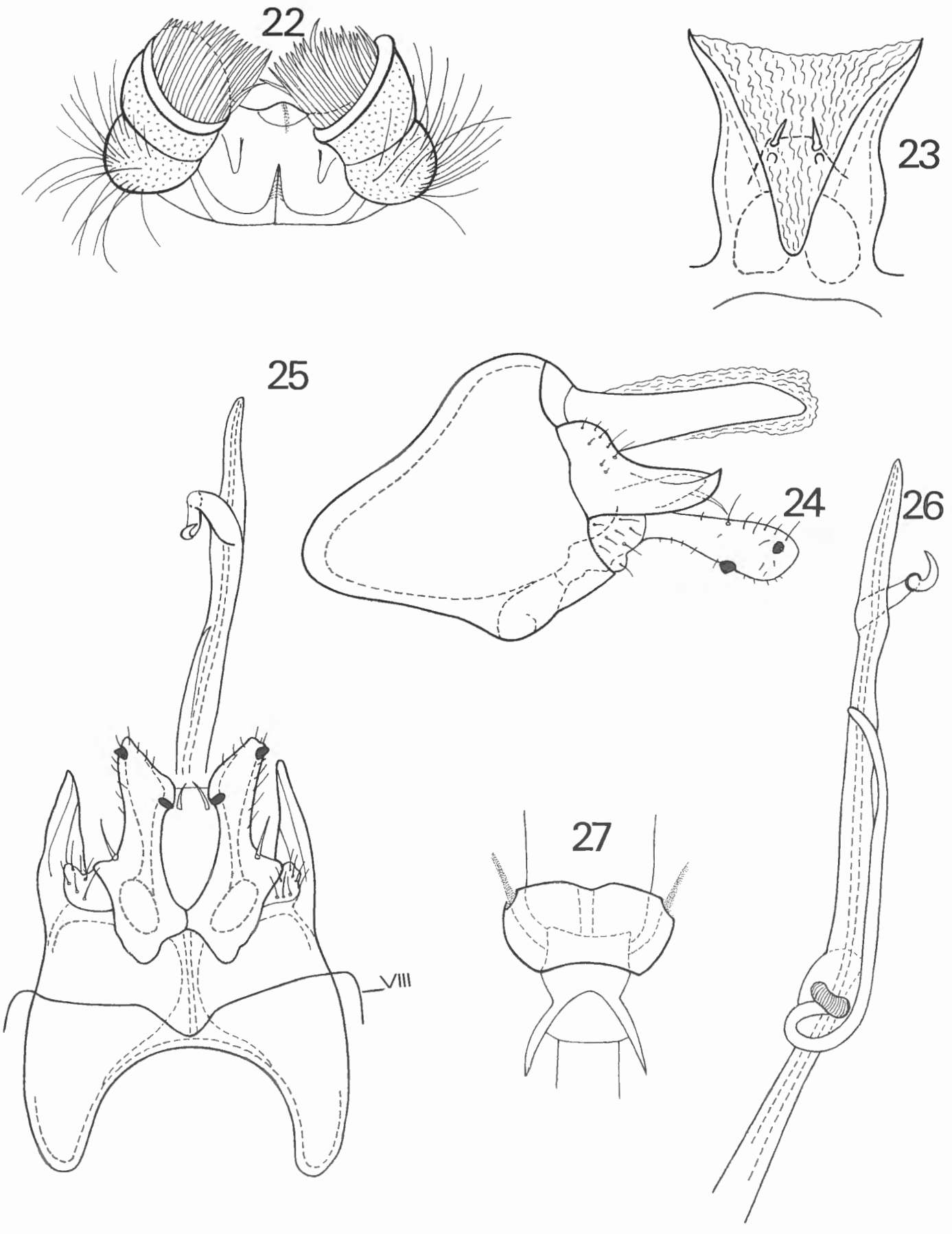
Notes.
H. ditalea was described from Jamaica (FLINT, 1968) and later also caught in Mexico (Bueno-Soria, 1984) and in Perú and Ecuador (FLINT & REYES, 1991) – being the Caribbean *Hydroptila* with the widest distribution. Our specimens correspond rather well to the published information; nevertheless, their phallic apparatus has a longer paramere than illustrated for Jamaican or Mexican specimens.
From the other *Hydroptila* very commonly found in the Dominican Republic and belonging to the same rather difficult species group, *H. dominicana* n. sp., *H. ditalea* will be rapidly distinguished in the ♂ by the cephalic scent organs only very moderately developed, and in the ♀ by the T-shaped chitinous "mark" with long shaft on sternum VIII.

Additional note.
During study of the *Hydroptila* material from the Dominican Republic, I have re-examined a ♂ from Cuba which I had considered (BOTOSANEANU, 1977: 235) as "... espèce nouvelle voisine de *martorelli* FLINT, 1♂ en assez mauvais état et que je préfère ne pas utiliser pour une description"; as a matter of fact, this specimen proved to be *T. selvatica* BOTOSANEANU, 1977.

Hydroptila dominicana BOTOSANEANU, n. sp.
(figs 22-27)

Material:
I: 1♂, 2♀ (paratypes); II: 3♂, 3♀ (paratypes); III: 1♀ (paratype); IV: 1♂ (paratype); V: 1♂, 13♀ (paratypes); VI: 3♀ (paratypes); VII: 1♀ (paratype); XI: 8♂ (holotype and paratypes), 51♀ (allotype and paratypes).

Description of ♂.
Cephalic "scent organs" very conspicuous, like bipartite urns opening medially and from which dense tufts of long, supple, whitish flagellar elements protrude. Segment VIII ventrally with small, rounded medio-distal excision. Segment IX (lateral view) with sinuous dorsal margin; latero-distally with long and very strong protuberances with pointed tips and distinctly inflated dorso-basal angle. Segment X with very strong but simply looking sclerotized frame, median part membranous with distal margin not excised. The inferior appendages looking completely different in lateral and in ventral view; in lateral view, a slender shaft is followed by a moderately widened, oval distal half with two big black "dots": one placed near (but not exactly in!) the upper distal angle, the second one on the distal 1/3 of the lower edge of the appendage (and even protruding below this edge, as a point); in ventral view the shape of the distal part of the appendages is more complex, with prominent upper and lower angles appearing either truncate or blunt and connected by a strongly oblique edge, and with the black "dots" distinctly protruding – as points – *near* these angles. The distal part of the very long phallic apparatus with a paramere more



Figs 22-27. - *Hydroptila dominicana* BOTOSANEANU, n. sp. (22: the cephalic "scent-organs" of the ♂; 23: ♂ segment X with subgenital plate, dorsal; 24: ♂ genitalia, lateral; 25: ♂ genitalia, ventral, with distal parts of phallic apparatus; 26: distal parts of phallic apparatus, dorsal; 27: sclerotized formation on sternite VIII of ♀).

than half as long as the distance between "neck" and tip of the aedeagus; well before its tip, a rather long, slender appendage two times twisted in a rather complex manner arises from the aedeagus.

Description of ♀.
On sternite VIII a strongly chitinized plate ("mark") which has a characteristic transverse shape; this is made more complex by a less strongly chitinized more proximal formation with central body and two slender arms.

Notes.
Although belonging to the same species group like probably all *Hydroptila* species from the Greater and Lesser Antilles, *H. dominicana* n. sp. is clearly distinct. In its ♂ genitalia the following combination of characters is distinctive: strong and long latero-distal protuberances of segment IX, with inflated dorso-basal angle, strong sclerotized frame of segment X without distinct difference between proximal and distal parts (this segment apically not excised), fine details of lateral and ventral shape of the gonopods, aedeagus with rather long, two times twisted appendage some distance before the tip. From each of the other species in this group there is similarity with respect to some features, and difference with respect to others, the affinity being perhaps stronger with species like *H. martorelli* FLINT (Puerto Rico), *H. ditalea* FLINT (vide supra), *H. ancistrion* FLINT (Jamaica), and *H. selvatica* BOTS. *(Cuba) and H. cubana* KUMANSKI (Cuba: KUMANSKI, 1987). The transversely developed "mark" on abdominal sternite VIII renders the ♀ distinct from all those in which this formation has been illustrated. Also the scent organs seem to be distinctive, being for instance different from those of *selvatica* BOTS.

Oxyethira (Damphitrichia) ortizorum BOTOSANEANU, n. sp.
(figs 28-31)

Material:
II: 1♂ (holotype); V: 2♂ (paratypes).

Description of ♂.
Length of forewing: 2.6-2.8 mm. Antennae with 35 or 34 articles. Wings covered with dense, brown setulae; forewing fringes mostly from very dark setae; very long hindwing fringes. Sternite VII medio-distally with strong, sharp "tooth" in tuft of short setae. All parts of the genitalia are perfectly symmetrical. Segment VIII almost completely split ventrally and split dorsally to half of its length; in both cases, bottom of the split rounded; the result is a pair of long, very setose, perfectly lateral lobes with rounded apices. Sternite IX proximally deeply penetrating into segment VII, rather broad but not very long; distally with a curious and complex, well sclerotized formation looking like a thin concave "plate" with dark, sinuous apical border beyond which is a pair of minute spiny lobes. Inferior appendages lacking. From the upper angles of segment IX, a pair of narrow and very long appendages are laterally almost entirely flanked by the lateral lobes of segment VIII, only their clavate tips densely covered with very fine setulae protruding beyond them; in my opinion, these appendages represent tergite IX. Distally from and partly above the sclerotized formation on sternite IX (and in contact with it) is the complex, mainly sclerotized segment X – which most authors would call "subgenital plate"; this has an excised distal margin flanked by a pair of dark points, and almost in its middle is a large dark nucleus; in lateral view segment X is strongly twisted and the two dark points look like sharp beaks directed downwards and slightly proximad. I could not find anything corresponding to the "bilobed process" common in many *Oxyethira*. In contrast with the complex structure of segments VIII-X, the phallic apparatus is an extremely simple tube apically apparently membranous and with a pair of papillae.
♀ not associated with certainty; but see description of *Oxyethira* sp. ♀ from locality VIII.

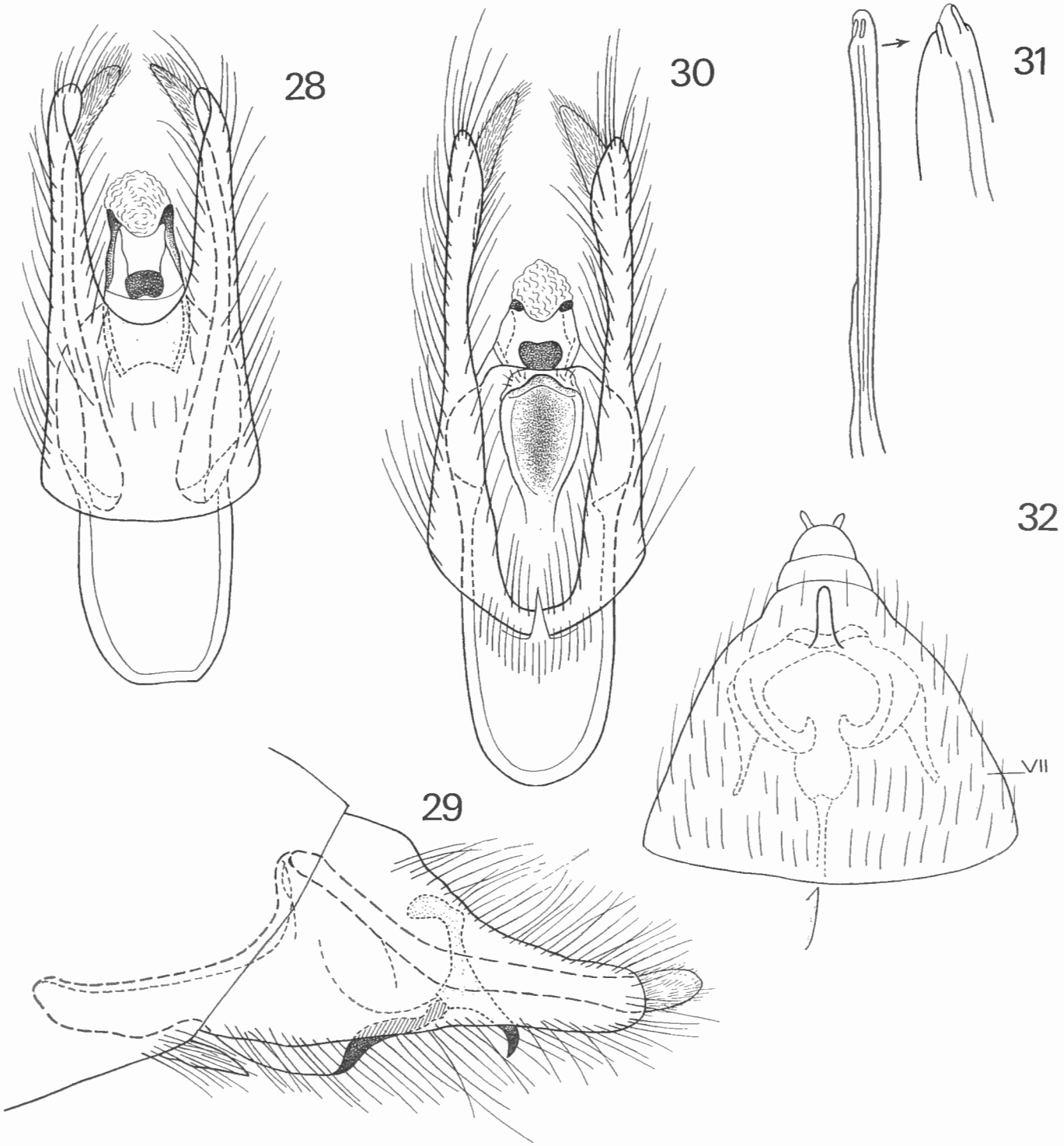
Notes.
This is one of the most surprising *Oxyethira* I know from the Caribbean Islands. It belongs to sg. *Damphitrichia*, and probably to the "*pallida*-group". KELLEY (1983: 48) distinguishes two subgroups inside it; having lateral processes of segment IX, and a "subgenital plate" whose (scarcely developed) arms are not connected by a sclerotized bridge, the new species would belong to the first of Kelley's subgroups. A highly distinctive feature of the ♂ genitalia is the absence of inferior appendages. On the other side, *O.ortizorum* n. sp. and *O. albaeaquae* n. sp. show similarity in several respects. But they do not seem to be closely related with one or another of the *Oxyethira* described in this group and subgroup.
It is for me a pleasure to dedicate this species to Dr. Rafael Ortiz Quezada and to Señora Arelis Rodriguez de Ortiz (see Acknowledgements).

Oxyethira sp.
(fig. 32)

Material:
VIII: 1♀
It is possible that this previously undescribed female with characteristic spermathecal sclerites belongs to *O. ortizorum* n. sp., but this association is by no means sure.

Oxyethira (Damphitrichia) mirebalina BOTOSANEANU, 1991

Material:
I: 1♂; II: 5♂; IX: 2♂; X: 1♂.
Described from Haïti, and new for the Dominican Republic. The antennae of this species (♂) have mostly 30 articles (but only 24 were found in one specimen!).

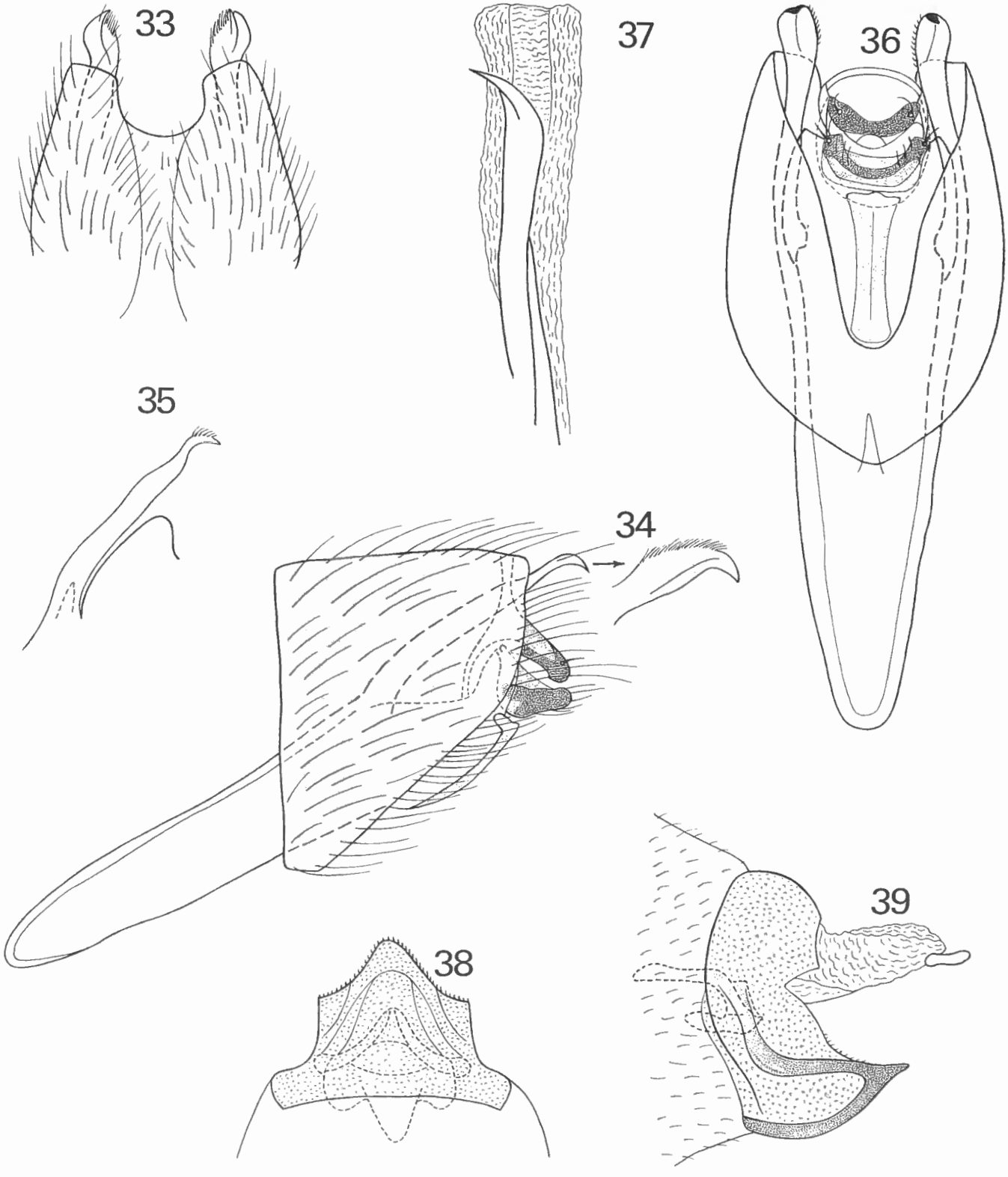


Figs 28-31. – *Oxyethira ortizorum* BOTOSANEANU, n. sp., ♂ genitalia, dorsal, lateral, and ventral, and phallic apparatus, dorsal - with more strongly magnified apex, ventral. Fig. 32 - *Oxyethira* sp., ♀ terminalia, ventral.

Oxyethira (Damphitrichia) albaeaquae BOTOSANEANU, n. sp.
(figs 33-39)

Material:
I: 3♀; II: 8♀ V: 16♀; VII: 6♂ (holotype and paratypes), 304♀ (allotype and paratypes); VIII: 4♀ (paratypes).

Description of ♂.
Length of forewing: 3-3.3 mm. Antennae with 36-40 articles. A strong "tooth" medio-distally on sternite VII. Segment VIII very setose; tergite flat, somehow depressed on the medio-longitudinal line, distal margin with rounded median excision flanked by quadrangular projections; in lateral view segment VIII is proximally vertical, distal margin also almost vertical but much shorter and without



Figs 33-39. – *Oxyethira albaeaquae* BOTOSANEANU, n. sp. 33-37: ♂ genitalia (33: segment VIII, dorsal, with apices of segment IX appendages protruding beyond; 34: lateral view, with apex of segment IX appendage more strongly magnified; 35: another lateral - and slightly ventral - view of segment IX appendage; 36: ventral view; 37: phallic apparatus, distal parts). 38-39: ♀ terminalia, ventral and lateral.

any projection or appendage, lower margin very oblique; sternite deeply excised, excision very broad posteriorly and tapering anteriad to a rounded bottom. Segment IX enormously developed proximad, entering segment VI; dorsolaterally in its distal 1/3 a pair of rather slender and long appendages extend posteriad from it, representing the tergite IX; their tips extend beyond all other parts of the genitalia, are curved downwards, and have a rather complex structure (in dorsal or ventral view they are broadened, anteapically with a patch of extremely fine setulae); ventrally the distalmost part of segment IX is clearly convex and medially on it is a well developed, slightly darker "mark" - well distinct in lateral view, too. Inferior appendages coalescent, strongly chitinized and very dark, describing a semicircle, ventrally with curved row of minute setae. Segment X is a complete ring through which passes the phallic apparatus; dorsal part reduced to a narrow bridge, ventral part ("subgenital plate") well developed and chitinized, anteapically on both sides with one minute seta. I was unable to observe "bilobed processes". Phallic apparatus: a long and slender tube only feebly broadened basally, showing in its distal part a more dorsal membranous "plate" with slightly darkened lateral parts, and a more ventral chitinized formation (ductus ejaculatorius?) somehow spoon-shaped apically and turned ventrad.

Description of ♀.
Sternite VI (!) with laterally flattened median "tooth". Segment VII hirsute, setae shorter than on remaining abdominal segments. Segment VIII entirely sclerotized; its sternite conspicuously developed, dark, in lateral view with strong distal point and strongly convex lower margin, in ventral view with obtuse tip flanked by "shoulders".

Notes.
This is another surprising *Oxyethira* belonging to sg. *Damphitrichia*, and probably to the "*pallida* group". KELLEY (1983) distinguished inside this species group two subgroups, one of them with lateral processes on segment IX and with a more simple structure of the "subgenital plate": it is apparently to this subgroup that *O. albaeaquae* n. sp. belongs, like *O. ortizorum* n. sp. These two species are very different from each other (to mention only one conspicuous difference: in *ortizorum* the inferior appendages are lost, whereas they are well developed in *albaeaquae*); on the other hand there are also interesting similarities, like, i.a., the presence of a well developed "mark" medio - distally on sternite IX. I do not believe that *O. albaeaquae* n. sp. is closely related to some other species described in this species group and subgroup.
Derivatio nominis: genitive from Latin translation of "Agua Blanca".

Oxyethira (Loxotrichia) janella DENNING, 1948

Material:
V: 2♂; IX: 11♂; XI: 49♂; XII: 11♂. Also numerous females were caught of this species widely distributed in the Antilles; from those of *O. puertoricensis*, the females of *janella* can be easily distinguished (alcohol specimens: even if not macerated in KOH) by the long, slender, sinuous oral arms of the spermathecal sclerite.

Oxyethira (Loxotrichia) puertoricensis FLINT, 1964

Material:
I: 32♂; II: 2♂; V: 3♂; VI: 9♂; IX: 34♂; X: 2♂; XI: 18♂; XII: 13♂. Numerous females of this species recorded from Puerto Rico and Haïti were, too, caught; they will be easily distinguished from those of *janella* by the black dots marking the tips of the two short oral arms of the spermathecal sclerite, dots easily seen in alcohol specimen even if not macerated in KOH.
Re-examination for the purposes of the present study of type specimens of *O. quelinda* (Botosaneanu, 1977) described from Cuba, has demonstrated that this is a junior synonym of *O. puertoricensis*: NOV. SYN.

Neotrichia iridescens FLINT, 1964

Material:
XI: 1♀; XII: 1♀.
It is rather surprising that this species widely distributed in the Antilles and generally caught in good numbers, was only very sporadically found in the Dominican Republic.

Final notes on distribution and affinities.
Despite the fact that more intensive sampling was done in the Dominican Republic than in Haïti, there are presently 15 (or maybe 17) hydroptilid species known from the first, and 20 from the second country. Generally speaking, the various genera are "normally" represented in the Dominican Republic, with two surprising exceptions: the genus *Alisotrichia*, with only one – maybe two – species caught in very low numbers (whereas Haïti has produced no fewer than 6 species generally caught in good numbers); and *Neotrichia*, extremely sporadically represented (in contrast with Haïti: 3 species, two of them commonly found). To this may be added the fact that from the two species of *Leucotrichia* previously recorded from the Dominican Republic only one could be found in 1995.
From the newly described species, only *Oxyethira ortizorum* and *O. albaeaquae* do not show clear ties with already described Caribbean species.
Generally speaking, the faunistic affinities are clearly with the Greater Antilles (although three species – *Hydroptila ditalea*, *Oxyethira janella*, *Neotrichia iridescens* – have wider distributions). Presently known only from the Dominican Republic are *Leucotrichia gomezi* and the

6 taxa described in this paper. The Dominican Republic shares with Haïti: *Leucotrichia tubifex*,? *Alisotrichia hispaniolina*, *Metrichia fontismoreaui*, *Oxyethira mirebalina*, *O. janella*, *O. puertoricensis*, *Neotrichia iridescens*. With Cuba: *Metrichia cafetalera*, *Oxyethira janella*, *O. puertoricensis* (syn. *quelinda*), *Neotrichia iridescens*; moreover, one of the species here described as new, *Ochrotrichia cachonera*, is closely related to two Cuban species. Shared with Puerto Rico: *Leucotrichia tubifex*, *Oxyethira janella*, *O. puertoricensis*, *Neotrichia iridescens*; whereas the new subspecies described in *Alisotrichia* is very closely related to the Puertorican *A. hirudopsis*. With Jamaica: *Leucotrichia tubifex*, *Hydroptila ditalea*, *Oxyethira janella*, *O. puertoricensis*, *Neotrichia iridescens*.

Acknowledgements

The author's travel to the Dominican Republic was made possible by a grant from the Netherlands Foundation for the Advancement of Tropical Research (WOTRO).
Dr. Rafael Ortiz Quezada (Universidad Nacional Pedro Henriquez Ureña, Santo Domingo) has kindly and efficiently organized my stay in the Dominican Republic and the different field trips, being a main factor behind the success of this scientific travel; I gratefully acknowledge his help, my thanks being due, too, to S^ra^ Arelis Rodriguez de Ortiz (Fundación Falconbridge, Santo Domingo).
The following persons have greatly helped, either by accompanying me on the field trips and during night sampling, or otherwise: Ing. José E. Baéz U.; S^r.^ José & S^ra^ Natty Cruz; Ing. José A. González Cuesta; S^r.^ Pedro González; Prof. Eugenio de Jesús Marcano Fondeur; Biól. Santo Q. Navarro Morales; Sr. Victor Tolentino; Padre Lorenzo Vargas.
Dr. O.S. Flint, jr. (Washington) has provided specimens of *Alisotrichia hirudopsis* from Puerto Rico for comparison.
Dr. Marcos A. González (Santiago de Compostela) has translated the Abstract into Spanish. The manuscript was typed by Miss Annelies Stoel (Amsterdam). The drawings were inked by Mrs. Violeta Berlescu (Bucharest).

References

BOTOSANEANU, L., 1977. Trichoptères (imagos) de Cuba capturés par moi-même en 1973. *Fragmenta Entomologica*, 13(2): 231-284.

BOTOSANEANU, L., 1980. Trichoptères adultes de Cuba collectés par les zoologistes cubains. *Mitteilungen der Münchner Entomologischen Gesellschaft*, 69: 91-116.

BOTOSANEANU, L., 1991. Trichoptères d'Haïti. *Bulletin de l'Institut Royal des Sciences Naturelles de Belgique, Entomologie*, 61: 113-134.

BUENO-SORIA, J., 1984. Revision para Mexico y Centroamerica del genero Hydroptila Dalman, 1819. *Folia Entomologica Mexicana*, 59: 79-138.

BUENO-SORIA, J. & S. SANTIAGO-FRAGOSO, 1992. Seven new species of the genus Ochrotrichia (Ochrotrichia) from South America. *Proceedings of the Entomological Society of Washington*, 94 (4): 439-446.

FLINT, O.S., 1964. The Caddisflies (Trichoptera) of Puerto Rico. *University of Puerto Rico Agricultural Experiment Station, Technical Paper* 40: 1-80.

FLINT, O.S., 1968a. The Caddisflies of Jamaica. *Bulletin of the Institute of Jamaica, Science Series* 19: 1-68.

FLINT, O.S., 1968b. The Trichoptera (Caddisflies) of the Lesser Antilles. *Proceedings of the United States National Museum*, 125 (number 3665): 1-86.

FLINT, O.S., 1968c. New species of Trichoptera from the Antilles. *The Florida Entomologist*, 51 (3): 151-153.

FLINT, O.S., 1972. The genus Ochrotrichia from Mexico and Central America. *Smithsonian Contributions to Zoology*, no. 118: 1-28.

FLINT, O.S. & L. REYES, A., 1991. The Trichoptera of the Rio Moche Basin, Department of La Libertad, Peru. *Proceedings of the Biological Society of Washington*, 104 (3): 474-492.

KELLEY, R.W., 1983. New Neotropical species of Oxyethira. *Proceedings of the Entomological Society of Washington*, 85 (1): 41-54.

KUMANSKI, K.P., 1987. On Caddisflies (Trichoptera) from Cuba. *Acta Zoologica Bulgarica*, 34: 3-35.

ROSS, H.H., 1944. The Caddis Flies, or Trichoptera, of Illinois. *Bulletin of the Illinois Natural History Survey*, 23 (1): 1-326.

Zoölogisch Museum
University of Amsterdam
Plantage Middenlaan 64
1018 DH Amsterdam - The Netherlands