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RECUEIL D'ÉTUDES BIOLOGIQUES ET SYSTÉMATIQUES
SUR LES DIPTÈRES DU GLOBE

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PAUL LECHEVALIER
ÉDITEUR
12, RUE DE TOURNON, 12
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THE NEMATOCEROUS DIPTERA OF CORSICA

by F. W. EDWARDS

(British Museum, Natural History).

Except for some recent work on the *Culicidae*, very little has been published upon the Nematocerous Diptera of Corsica, the only paper dealing with the whole suborder being one by Kuntze (1913), who described collections made by himself, Becker, Schnabl, Schnuse and Villeneuve, and gave a list of the species known from the island to that date, the total number being 85. The few additional records published since 1913 increase this total to somewhat over 100.

In April of the present year I spent a short holiday in Corsica, and made a collection of Nematocera, the examination of which has revealed so many points of interest, that I have ventured to review the whole subject once more, and offer a revised list of the Corsican Nematocerous fauna. As no other Dipterist appears to have visited the island in the spring, it is not surprising that I was able to abtain many additional species, especially as the localities visited were for the most part different from those worked by Kuntze and Schnuse. Most of my collecting was done while in camp in the Restonica Valley above Corté ; from here excursions were made up the Tavignano Valley, to Vizzavona, and to Borgo and the Etang de Biguglia. The last part of our stay in the island we went on foot from Corté through Calacuccia, Evisa and Ota to Porto, and thence to Calvi and Ile Rousse, small collections being made at most of these places. The season was somewhat backward, and fewer species were obtained than we expected, particularly among the crane-flies.

Apart from the fairly extensive collection made by myself, the Bristish Museum possesses a few Nematocera from Corsica taken by the late Lt.-Col. J. W. Yerbury in 1896, by Forsyth-Major in 1907, and by Mr. A. S. Hirst in 1922. I have included an account of these in the following list, and have also mentioned all the other species which have been noted as occuring in Corsica since the publication of Kuntze's list, the total number now known being about 265.

Diptera, t. IV, fasc. 4 (page 157). Paris, 15.XII.1928.

It is perhaps too soon to discuss the affinities of the Corsican Nematocerous fauna in detail, as our knowledge of it, as well as of that of other parts of the Mediterranean, is still very incomplete. Nevertheless it is evident that the species occuring in the island may be grouped in three categories : (1) Endemics, occuring only in Corsica, or in Corsica and Sardinia ; (2) South European species with a wide distribution in the mediterranean ; and (3) species which range widely over north as well as south Europe.

Endemic species and varieties number about 30, or 12 % of the total, and are found at all altitudes and in all types of country, though perhaps most numerous by small mountain streams and among the maquis. The highest proportion of endemics (20 %) is found among the *Tipulidæ*, this usually being the case also in other island faunas ; on the other hand there is only one endemic variety (3 % of the total) among the *Culicidæ*, and none among the *Ceratopogonidæ*, *Simuliidæ* or *Psychodidæ*. It is probable that some of the supposed endemic *Tipulidæ* and *Mycetophilidæ* may eventually be found to occur in other parts of the Mediterranean region, but the general conclusion seems indicated that the proportion of endemic forms is highest among the larger insects.

Of the remainder of the fauna, mediterranean species and varieties number about 30 (another 12 %), and the remaining 200 (75%) are widely spread, including a number of northern and Alpine forms. These proportions are not very dissimilar to those found in other groups.

For a general account of the land fauna of Corsica, with bibliography, reference may be made to the paper by Arndt (1926). I have added at the end of this paper a list of publications on the Nematocera of the island.

MYCETOPHILIDÆ

Members of this family occur in great numbers in shady places in the forests, and many are also found by small mountain streams in the less wooded parts. Usually however only a few species are represented in the swarms, and the fungus-gnat fauna appeared to be much poorer than in North Europe, even in the most suitable localities in the pine forests. Kuntze recorded 34 species of the family (including 5 *Sciara*) ; I found about 15 of these and about 60 others. The dominant species were *Exechia confinis*, *Phronia forcipula* and *P. cinerascens*, the firstnamed far out-numbering all the

others. Some species which are abundant in North Europe (e. g. *Allodia lugens* and *Mycetophila fungorum*) appeared to be scarce.

1. *Bolitophila maculipennis* Walk. Vizzavona, 1 ♂.
2. *Bolitophila saundersi* Curt. Vizzavona ; Valdoniello.
3. *Bolitophila cinerea* Mg. Recorded by Kuntze, and doubtless occurs, but I did not find it.
4. *Diadocidia ferruginosa* Mg. Aitone Forest, 1 ♀.
5. *Macrocera fasciata* Mg. Recorded by Kuntze.
6. *Macrocera fastuosa* Lw. Ditto.
7. *Macrocera bipunctata* Edw. Restonica Valley ; Aitone Forest.
8. *Macrocera stigmoïdes* Edw. Rather common Restonica Valley, Vizzavona Forest and near Evisa.
9. *Macrocera parcehirsuta* Beck. Near Evisa, 1 ♀ and near Porto, 1 ♂. This seems to be a small, dark form of *M. phalerata*, with distinctly striped mesonotum. In the ♂ *R4* is almost as distinct as in typical *M. phalerata*, though in the ♀ it is obsolete on both wings.

10. **Macrocera tyrrhenica** sp. n.

♂. *Head* reddish-brown in front, blackish-brown above. Palpi black. Antennæ a little over 1-5 times as long as the body ; scape brown, flagellum black *Thorax* shining brownish-ochreous ; mesonotum with three distinct blackish stripes, the lateral pair turned down in front and continued across pleurae as a shining black stripe ; scutellum, postnotum and pleurotergites dark brown. *Abdomen* shining black ; segments 1-4 each with large lateral basal yellowish patches. *Legs* with the front and hind coxae ochreous, middle coxae mainly dark brown ; femora ochreous, tibiae and tarsi darker. *Wings* hairy on the apical half, with a slight smoky tinge. Base of *Rs* darkened ; a rather large dark cloud in the middle, extending from *R1* to *Cu2* and crossing the stem of cell *M1* but not extending into the base of the cell ; a small dark area below tip of *R1*. *Sc* ending above tip of basal cell ; *R1* distinctly swollen. at tip ; *R4* absent ; *An* reaching the margin as usual. Wing-length 5 mm.

Restonica Valley, 1 ♂. This seems to be allied to *M. incompleta* Beck. (Canary Is.), which differs (according to the description) in the shorter antennae and abbreviated vein *An*.

11. *Platyura basalis* Winn., and 12. *P. fasciata* Mg. Recorded by Kuntze ; I found no species of this genus, but no doubt several occur in summer.

13-16. *Sciara frauenfeldi* Winn., *S. quercetícola* Winn., *S. alacris* Winn. and *S. nocticolor* Winn. Recorded by Kuntze.

17. *Sciara fulgens* Winn. (*manni* Winn.). Near Porto; also recorded by Kuntze.

18. *Sciara carbonaria* Mg. Porto.

18 a. *Sciara thomæ* L. Vizzavona (Yerbury).

19. *S.* (*Phorodonta*) *flavipes* F. Borgo.

20. *Mycomyia marginata* Mg. Not uncommon.

21. *Mycomyia cinerascens* Zett. (?) Tavignano Forest.

22. *Mycomyia tenuis* Walk. Near Evisa.

23. *Mycomyia ornata* Mg. Restonica and Tavignano Valleys.

24. *Mycomyia maura* Walk. Restonica Valley.

25. *Polylepta guttiventris* Zett. (*undulata* Winn.) Recorded by Kuntze; a summer insect not seen by me.

26. *Neuratelia nemoralis* Mg. Ditto.

27. *Monoclona rufilatera* Walk. (?) Near Evisa.

28. *Azana anomala* Staeg. Near Evisa, rather common.

29. *Coelosia tenella* Zett. (*flavicauda* Winn.). Recorded by Kuntze.

30. *Boletina dubia* Mg. Restonica Valley and Aitone Forest.

31. *Boletina gripha* Dz. Common.

32. *Boletina sciarina* Staeg. Restonica Valley, less common than the last.

33. *Synapha fasciata* Mg. Restonica Valley, 1 ♂.

34. *Leia bimaculata* Mg. Restonica Valley, 1 ♀.

35. **Leia fuscicalcar** sp. n.

♀. *Head* black, with black brisles. Palpi yellow. Antennae black, first three or four segments yellowish beneath. *Thorax* reddish; postnotum mainly black, also lower margins of pleurotergite and sternopleurite. Mesonotal bristles black, including most of the smaller ones, but the fine hairs yellowish. *Abdomen* reddish; first tergite with black posterior margin; a narrow and rather ill-defined median longitudinal dark line crossing tergites 1-3. *Legs* yellowish; four posterior femora with a black streak at the base beneath; hind femur very narrowly black at the tip, on the upper side only. Tibial bristles black, arranged as in *L. fascipennis;* spurs of posterior tibiae dark brown; narrowly yellowish at base; tarsi blackish. *Wings* with a slight yellowish tinge; veins all dark, venation as in *L. fascipennis;* the usual subapical band reduced to a small oblique mark from tip of cell *R1*, no trace of other dark markings. Halteres yellow. Wing-length 6 mm.

River Porto, near Evisa, 1 ♀ Although I have no ♂, I describe this specimen as it seems quite distinct from the known species by the colour of the spurs, which in *L. fascipennis*, *L. bimaculata* and related species are uniformly yellowish. The narrowness of the black

tip of the hind femur should also be distinctive. The specimen is larger than the average *L. fascipennis*.

36. **Ectrepesthoneura gracilis** sp. n. (Fig. 1, a).

♂ Differs from *E. hirta* Winn. (fig. 1, b), the only other European species, as follows: – Size larger, and antennae, abdomen and legs relatively longer. Flagellar segments over twice as long as broad. Mesonotum less bristly;

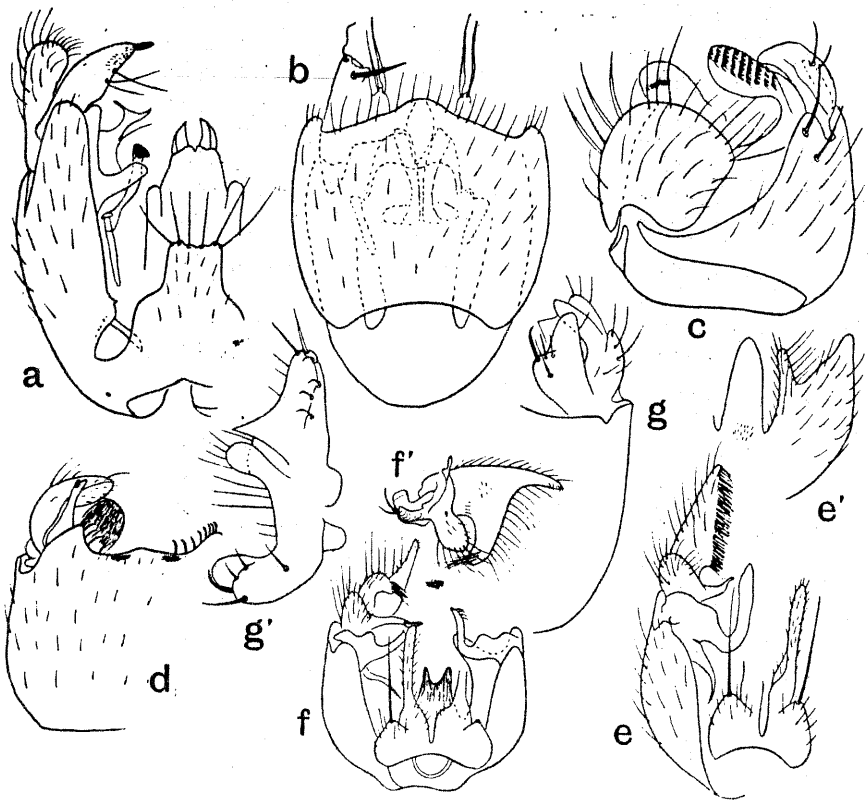

Fig. 1. – Hypopygia of Corsican Mycetophilidae. a, *Ectrepesthoneura gracilis* sp. n. from above. b, *E. hirta* Winn. from above. c, d, *Docosia moravica* Landr., half from side and from below. e, e', *Exechia coremura* sp. n. from above and below. f, f', *Ex. vizzavonensis* sp. n. from above, with clasper in side view. g, g', *Mycetophila corsica* sp. n. from below, with clasper in side view.

scutellum with only two long bristles instead of four. Hypopygium very different. Hind femora less distinctly darkened at the tip. Wings with the tip broadly but faintly darkened, and also with a dark shade on the outer half of *Cu2*, and traces of another in base of cell *R5* below the small cell. *R5* somewhat wavy, curved down at tip; *r-m* less horizontal, and the basal cell therefore broader. Wing-length 4 mm.

Restonica Valley, 1 ♂. This specimen in most respects answers to the description of *Sciophila dissimilis* Zett., quoted by Landrock as a doubtful synonym of *E. hirta* Winn. ; however, according to my notes Zetterstedt's type has a rather long stem to the cubital fork, and evidently belongs to quite a different species. Ours is perhaps the species recorded by Kuntze as *Tetragoneura hirta* Winn.

37. *Docosia moravica* Landr. Restonica Valley, 2 ♂, 1 ♀. The hypopygium (Fig. 1, **c**, **d**) does not quite agree with Landrock's figure.

38. *Docosia fumosa* Edw. 1 ♀ drowned in a small rock pool near Porto.

39. *Megophthalmidia rufina* Schnuse. Still only known from the type.

40. *Exechia confinis* Winn. Abundant everywhere in the mountains. In many specimens the abdomen of the ♂ is all black.

41. *Exechia fusca* Mg. (*fungorum* auct.). Recorded by Kuntze, possibly in error for dark specimens of *E. confinis*, though it surely ought to occur.

42. *Exechia bicincta* Staeg. (?). Restonica Valley, 1 ♀.

43. *Exechia trisignata* Edw. Valdoniello Forest.

44. *Exechia jenkinsoni* Edw. Restonica Valley, 1 ♂ ; Vizzavona Forest, 1 ♂ ; Valdoniello Forest, 2 ♂ ; Aitone Forest, 1 ♂, 1 ♀.

45. *Exechia leptura* Mg. Vizzavona Forest, 1 ♂.

46. *Exechia unguiculata* Lundst. Valdoniello and Aitone Forests, common.

47. *Exechia intersecta* Mg. Recorded by Kuntze ; the record may possibly refer to one of the other species mentioned here.

48. **Exechia coremura** sp. n. (Fig. 1, e).

Closely allied to *E. leptura* Mg., which it resembles in having two propleural bristles, one rather smaller than the other ; mesonotum entirely blackish, dusted with grey, and with distinct discal bristles ; no dark cloud below *Cu2* ; *r-m* only a little longer than stem of median fork. Differs in having the abdomen almost all dark, hind margins of tergites very inconspicuously pale ; also in structure of hypopygium, which has some resemblance to that of *E. fimbriata* Lundst.

Vizzavona Forest, 2 ♂ 1 ♀.

49. **Exechia vizzavonensis** sp n. (Fig. 1. f).

Allied to the last, having a similar venation, with *r-m* scarcely longer than stem of median fork, but shoulders distincty yellowish, and only one propleu-

ral bristle present. Hypopygium somewhat resembling that of *E. furcata* Lundst., but different in many details, *e.g.* the ventral appendage is broader, shorter and blackened.

Vizzavona Forest, 1 ♂.

50-51. *Rhymosia cristata* Staeg. and *R. domestica* Mg. Recorded by Kuntze.

52. *Rhymosia gracilipes* Dz. Restonica Valley, 1 ♂.

53. *Allodia crassicornis* Stan. Valdoniello Forest,

54. *Allodia lugens* Wied. Recorded by Kuntze; I also found a few specimens in Valdoniello Forest, 1 ♂.

55. *Allodia alternans* Zett. Recorded by Kuntze.

56. *Allodia fissicauda* Lundst. Near Evisa, 1 ♂.

57. *Allodia verralli* Edw. Restonica Valley, 1 ♂.

58. *Allodia griseicollis* Staeg. Restonica Valley.

59. *Allodia sericoma* Mg. Valdoniello Forest and Calvi.

60. *Cordyla murina* Winn. Restonica Valley, 1 ♂.

61. *Trichonta clavigera* Lundst. Tavignano Forest, 2 ♂.

62. *Trichonta vernalis* Landr. Vizzavona Forest, 1 ♂.

63. *Phronia præcox* Winn. (*nitidiventris* Winn. nec Wulp). Common.

64. *Phronia forcipula* Winn. Abundant; so much so that it could hardly have been overlooked by Kuntze, and I suspect that the species he recorded as *P. basalis* may have been *P. forcipula*.

Among the Corsican material of this species two slightly different forms of hypopygium occur. A few males have this organ similar in structure to British examhles of the species, and quite as figured by Dziedzicki; the large majority however differ in several details, especially in having the middle division of the outer clasper much larger and ending in a long point. This form I propose to call var. tyrrhenica. A somewhat intermediate condition (similar to Lundstrom's, figure of *P. aviculata*) is seen in one or two specimens. In most of the females the front tarsi are only very indistincty thickened.

65. *Phronia willistoni* Dz. Rather common. All the specimens have the wing-tip slightly darkened, and traces of a dark cloud below *Cur*, somewhat as in *P. forcipula* Winn.

66. *Phronia cinerascens* Winn. Very abundant, and at least as variable as it is elsewhere. Many large, dark specimens have the wing-tip rather strongly darkened.

67. *Phronia basalis* Winn. Recorded by Kuntze; I did not find it.

68. *Phronia signata* Winn. Near Evisa, 1 ♂. Vizzavona Forest. 1 ♀.

69. *Phronia flavipes* Winn. Tavignano Forest, 1 ♀.

70. *Phronia conformis* Walk. (*girschneri* Dz) Tavignano Forest, 1 ♂.

71. *Phronia vitiosa* Winn. Near Evisa, 1 ♂.

72. *Phronia tenuis* Winn. Valdoniello and Aitone Forests.

73. *Mycetophila fungorum* De G. (*punctata* Mg.) Tavignano Forest, 1 ♂.

74. *Mycetophila lineola* Mg. Restonica Valley, 1 ♂.

75. *Mycetophila unipunctata* Mg. Recorded by Kuntze.

76. *Mycetophila unicolor* Stan. Rather common in the gorge of the Porto near Evisa.

77. *Mycetophila semifusca* Mg. Restonica Valley, 1♀.

78. *Mycetophila ocellus* Walk. Ratter common.

79. *Mycetophila formosa* Lundst. Valdonielto Forest, 2 ♂.

80. *Mycetophila stylata* Dz. Near Evisa, 1 ♂.

81. *Mycetophila czizeki* Landr. Tavignano Forest, 1 ♂.

82. **Mycetophila corsica** sp. n. (Fig. 1, g.).

♂ *Head* blackish, palpi and first three segments of antennae yellow. *Thorax* dull blackish, shoulders and area round wing-base yellowish, pubescence pale, bristles black. Three strong pteropleural bristles. *Abdomen* blackish, hind margins of tergites not distinctly paler. Hypopygium very small, structure as figured. *Legs* yellow, hind femur blackened at tip, especially on upper side. Mid-tibial bristles : 5 dorsal, o subdorsal, 2 external, 2 long ventral, 4 internal (1 rather long). Hind-tibial bristles : 6-7 dorsal (alternately long and short), 6 subequal external. *Wings* with a faint yellowish tinge ; central spot rather large, extending well into basal cell ; fascia filling end of cell *Ri*, extending well back beyond tip of vein *Rl*, and continued downward faintly as far as *Cu 1*, its outer edge ill-defined ; wing-tip beyond the fascia scarcely darkened. Base of cubital fork below base of median fork. Halteres yellow. Wing-length 3-2 mm.

Gorge of River Porto, near Evisa, 1 ♂. By Landrock's key to the Palaearctic species of *Mycetophila*, this runs to couplet 38, differing from *M. edwardsi* Lundst. by the absence of a dark cloud on the posterior margin of the wing, and the much narrower dark tip to the hind femora.

83. *Mycetophila vittipes* Zett. Tavignano Forest, 1 ♂.

84. *Mycetophila edwardsi* Lundst. Near Evisa, rather common.

85. *Mycetophila bimaculata* Fab. Near Evisa, 1 ♂ ; thorax with yellow ground-colour and three well-separated brown stripes, but hypopygium normal.

86. *Mycetophila xanthopyga* Winn. Recorded by Kuntze.

87. *Mycetophila ornata* Steph. Borgo, 1 ♂.

88. *Mycetophila spectabilis* Winn. Valdoniello Forest, 1 ♂.
89. *Mycetophila marginata* Mg. Common.
90. *Mycetophila luctuosa* Mg. Recorded by Kuntze.
91. *Mycetophila signata* Mg. (sens. lat.). 1 ♀ near Porto ; also recorded by Kuntze.
92. *Mycetophila* sp. inc. Near Porto, 1♀. Mesonotum shining black; shoulders yellow ; scutellum blackish. Indeterminable by Landrock's key.
93. *Zygomyia vara* Staeg. Vizzavona Forest, 1 ♂.
94. *Zygomyia humeralis* Wied. Near Evisa, 1 ♀.

BIBIONIDÆ

1. *Bibio marci* L. Common ; the usual Mediterranean form of the species, in which the wings of the ♀ are not or scarcely darker than those of the ♂.
2. *B. nigriventris* Hal. (*lacteipennis* Zett.). Recorded by Kuntze ; not found by me Vizzavona (Yerbury).
3. *B. laniger* Mg. Recorded by Kuntze.
4. *B. rufitarsis* Mg. Ditto.
5. *B. clavipes* Mg. Ditto.
6. *Dilophus febrilis* L. (*vulgaris* Mg.). Only one specimen seen.

SCATOPSIDÆ

1. *Ectætia clavipes* Lw. Vizzavona (Kuntze).
2. *Scatopse notata* L. Ajaccio (Hirst).
3. *Scalopse bifilata* Hal. Bergerie Sesto, Niolo, IX. 1907 (Forsyth-Major).
4. *Swammerdamella brevicornis* Mg. Ajaccio (Hirst).

CULICIDÆ

Mosquitoes have been collected extensively in Corsica in the last three or four years by Prof. Brumpt and Drs Galliard and Langeron. Their results have been published in part (Brumpt, 1925 ; Galliard, 1927), but several additional species were collected in 1927, which they have kindly permitted me to mention here in order to complete the list of Corsican species. Although mosquitoes were scarce during my visit I was able to obtain examples of two additional species, one of which is described below as a new variety.

1. *Anopheles maculipennis* Mg. Common in the lowlands.

2. *Anopheles sacharovi* Faur. (*elutus* Edw.). Brumpt records only two specimens, but more recent collections show that it is common.

3. *Anopheles bifurcatus* L. Common near Biguglia.

4. *Anopheles algeriensis* Theob. Common ; I took a number in company with *A. bifurcatus* in the marshes south of Biguglia.

5. **Anopheles plumbeus** var. **corsicanus** var. n.

♀ Colour, chaetotaxy and most structural details as in typical ***A. plumbeus***, but palpi only three-quarters as long as proboscis, less hairy at the tip, and with the last two segments together scarcely instead of considerably shorter than the preceding segment ; legs also relatively shorter, especially the hind tarsi The following measurements will bring out the differences ; for comparison with the new variety I selected a British female of *A. plumbeus* with the same wing-length :

	A. plumbeus var. *corsicanus*	*A. plumbeus*, typical
Wing	4,5 mm.	4,5 mm.
Proboscis	3,0 —	2,7 —
Palpi	2,3 —	2,7 —
Hind tibia	2,5 —	2,8 —
First hind tarsal segment	2,6 —	3,7 —
Whole hind tarsus	5,6 —	7,0 —

Type ♀ in British Museum, taken among *Quercus ilex* near Porto, on the road to Ota; the specimen entered our tent at 7 a. m. Search in the vicinity failed to produce another example, and although some small rot-holes were found in the oaks, none contained larvae. It was at first thought that the specimen might be merely an abnormal individual, but a second ♀, quite similar to the type, is in Prof. Brumpt's collection in Paris.

6. *Anopheles hyrcanus* Pall. Recorded by Brumpt, presumably from near Bastia.

7. *Uranotaenia unguiculata* Edw. Lower Tavignano (Galliard).

8. *Aedes* (*Ochlerotatus*) *caspius* Pall. Padulone (Galliard). S. of Biguglia (Edwards).

9. *Aedes (Ochlerotatus) mariæ* Serg. I found larvae and pupae abundant in rock pools on the coast at Ile Rousse ; a few adults were captured and others reared. At the least alarm the larvae would retreat to small crevices in the rock from which it was difficult to dislodge them ; no doubt this habit would help to prevent them being washed out of the pools by the waves in rough weather.

In my Revision of the Mosquitoes of the Palaearctic Region I attemp-

ted to recognise two rock-pool species of the mediterraneam coasts : *A. mariæ* Serg. (Algeria and Palestine), with mesonotal scales uniformly brownish-ochreous, larval antennae with few spinules, pecten teeth short, etc. ; and *A. zammitti* Theob. (Malta), with traces of two white lines on mesonotum, larval antennae with numerous spinules, pecten teeth long, etc. The Corsican larvae are similar in almost all respects to those from Malta, and some of the adults show traces of the white mesonotal lines. If therefore *A. zammitti* be recognised as a distinct species or variety the Corsican specimens must be referred to it. I now think however that we are concerned with only one species, which is somewhat variable in size, colouring and larval characters. A re-examination of the rather scanty larval material previously in the British Museum shows that there is almost as much difference between specimens from Athlit (Palestine) and Beirut (Syria) as between the former and specimens from Malta and Corsica. Adults from the two eastern localities do not differ appreciably from one another or from those from Algeria.

10. *Aëdes* (*Ochlerotatus*) *pulchritarsis* Rond. Two localities (Galliard).

11. *Aëdes* (*Ochlerotatus*) *maculatus* Mg. Ghisonaccia (Galliard).

12. *Aëdes* (*Ochlerotatus*) *communis* De G. Ghisonoccia (Galliard).

13. *Aëdes* (*Ochlerotatus*) *detritus* Hal. Porto Vecchio (Galliard), S. of Biguglia (Edwards).

14. *Aëdes* (*Finlaya*) *geniculatus* Oliv. Vizzavona (Galliard; Yerbury). Doubtless common in the beech-woods ; I failed however to discover any suitable rot-holes.

15. *Aëdes* (*Aëdimorphus*) *vexans* Mg. Lower Tavignano (Galliard); Calvi (Edwards).

16. *Aëdes* (*Stegomyia*) *argenteus* Poir. Bastia (Langeron).

17. *Aëdes* (*Stegomyia*) *vittatus* Big. Although Bigot's type was stated to have been found in Corsica, no further material has been obtained in the island, nor indeed anywhere else in the Palaearctic region. It seems most probable therefore that Bigots' specimen was wrongly labelled ; as he had many Indian insects in his collection, the type of *A. vittatus* may have come from that country.

18. *Aëdes* (*Aëdes*) *cinereus* Mg. Ghisonaccia and Porto Vecchio (Galliard).

19. *Tæniorhynchus richiardii* Fic. Lower Tavignano, and at Giustiniana (Galliard).

20. *Tæniorhynchus buxtoni* Edw. Padulone (Galliard). I have examined several specimens and find them to agree with Palestine mate-

rial in the British Museum. The species was not hitherto known from any other conntry.

21. *Theobaldia* (*Theobaldia*) *annulata* Schrk. Common.

22. *Theobaldia* (*Allotheobaldia*) *longeareolata* Macq. Casabianda (Brumpt).

23. *Theobaldia* (*Culicella*) *morsitans* Theob. Padulone (Galliard). Borgo (Edwards).

24. *Culex mimeticus* Noé. Near Ajaccio (Galliard).

25. *Culex hortensis* Fic. Common in the mountains (Galliard). I found larvae and pupae in a rock pool in the Tavignano valley above Corté.

26. *Culex impudicus* Fic. Coastal regions. This is the species reported by Dr. Galliard under the name *C. apicalis*. Material submitted to me proved to be all *C. impudicus*, and the occurrence of *C. apicalis* in Corsica therefore requires confirmation. First found in Sardinia, *C. impudicus* has recently been rediscovered in Algeria by Dr Senevet.

27. *Culex theileri* Theob. (*tipuliformis* Edw. *nec* Theob.). Coastal regions (Galliard).

28. *Culex laticinctus* Edw. Lucciana (Galliard).

29. *Culex pipiens* L. Common.

30. *Culex univittatus* Theob. (*perexiguus* Theob.). Ajaccio and Aleria (Galliard).

31. *Culex modestus* Fic. Porto Langeron). Porto Vecchio (Galliard).

32. *Chaoborus crystallinus* De G. Calvi (Edwards).

DIXIDÆ

I obtained six species of this family; another was found by Hirst.

1. *Dixa autumnalis* (Mg.) Goet. Calvi, 2 ♂ in all respects similar to British specimens, the head being mainly orange. Hypopygium figured for comparison with the following.

2. **Dixa fuscifrons** sp. n. (Fig. 2, a).

Allied to the last-named, differing most obviously in the dark head, the whole front being dark brown, dusted over with greyish, only a small area on the nape being orange. Thoracic markings as in *D. autumnalis*, but ground-colour paler yellow. Hypopygium of ♂ differing slightly in nearly every part (compare figures 2 a and 2 b ; most noticeable is the longer and more slender inner clasper. Legs and wings as in *D. autumnalis* ; *r-m* rather variable in position, placed at or just beyond fork of *Rs*.

Abundant in marshes S. of Biguglia ; type ♂, paratypes 2 ♂ 6 ♀ in the British Museum ; also further specimens of both sexes, agreeing well with the type, from Mikra, Karabouroun and Hadji Geul, Macedonia (J. Waterston) ; and 1 ♀, apparently conspecific, from Latron, Palestine, IV, 1923 (P. A. Buxton).

3. *Dixa amphibia* De G. (?) 1♀, S. of Biguglia.

4. *Dixa puberula* Lw. Very abundant by mountain streams, adults often found resting in large numbers under overhanging rocks close to waterfalls. No differences are observable between British and Corsican examples of the species.

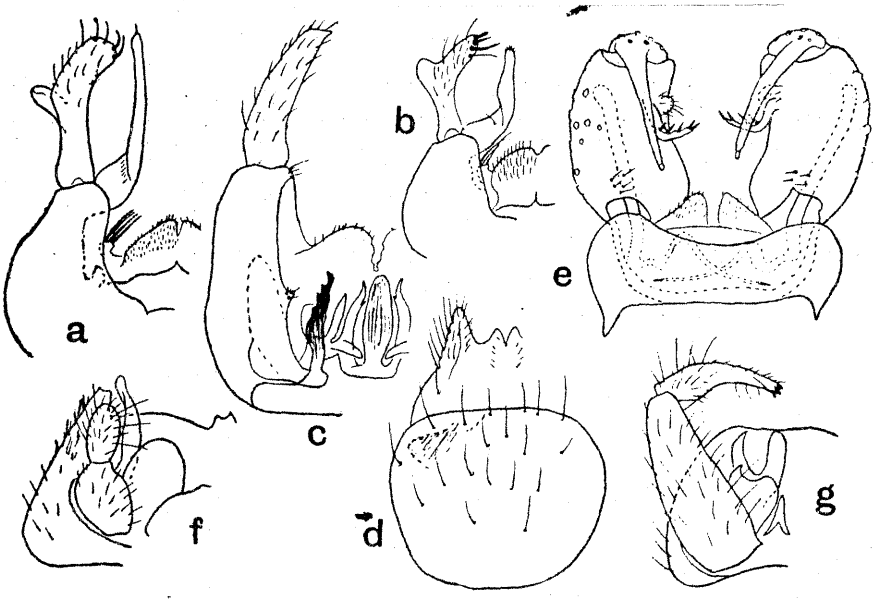

Fig. 2. — Hypopygium of : **a**, *Dixa fusciſrons* sp. n. **b**, *D. autumnalis* Mg. **c**, *D. serrifera* sp. n. (ninth tergite with anal segment removed and shown separately at **d**). **e**, *Podonomus minutissimus* (Strobl). **f**, *Thaumalea tarda* Lw., from beneath. **g**, *Thaumalea corsica* sp. n., from beneath.

5. **Dixa serrifera** sp. n. (Fig. 2, **c** and **d**).

Allied to *D. nubilipennis* (Curt.) Edw., and like that species having a rather large and well-defined central wing-spot which is placed mainly on the inner side of the cross-vein and reaches up almost to *R1*, and a dark shade along vein *Cu*, interrupted some distance before the fork by a pale yellowish area. Differs from *D nubilipennis* as follows : Middle thoracic stripe more enlarged anteriorly, almost as in *D. dilatata* (Strobl) Edw., and not distinctly divided by a pale central line Pale area in front of scutellum slightly shining, and only very indistinctly dusted with grey when viewed from in front. Hypopygium quite different : no strong spine at sides of ninth tergite attached to

tenth segment ; basal parts complex and strongly chitinised, a black appendage with serrate outer edge arising from base of each side-piece. Yellowish area on vein *Cu* more extensive, usuallyabout equal to, instead of much shorter than, the dark section of the vein between the pale area and the fork.

Common by small mountain streams : Restonica Valley ; Valdoniello Forest (type ♂), probably elsewhere, but no other specimens collected.

This is probably the species recorded by Kuntze as a small form of *D. maculata* Mg. It may also prove to be identical with one of Strobl's supposed varieties of *D. maculata,* although it is quite distinct from either of the two British species to which I have applied Strobl's names. From *D. dilatata* (Strobl) Edw. it differs in the larger and darker central wing-spot and in the structure of the basal parts of the hypopygium.

6. *Dixa submaculata* Edw. Common in company with the last : Restonica Valley and Valdoniello Forest. Although very similar to *D. serrifera*, this species was recognised as distinct in the field on account of its larger size. A close comparison of pinned specimens shows that the most obvious external differences are that in *D. submaculata* the central wing-spot is smaller, and the grey dusting in front of the scutellum is more obvions, being recognisable as dense microscopic pubescence under a magnification of 80. The hypopygium agrees with British examples, and is of a similar type to that of *D serrifera.* but the basal parts are less developed, the side-piece has a hairy apical papilla, and the clasper is more sharply pointed.

7. *Dixa nebulosa* Mg. Ponte Leccia, 1 ♂ (Hirst).

CHIRONOMIDAE

No species of this family have been recorded as occurring in Corsica, and I made no attempt to collect them systematically, although they are fairly numerous in the island. I record below a few which seem to be of special interest, or which I have succeeded in naming.

1. *Podonomus minutissimus* (Strobl) ? (Fig. 2, e). Biguglia, 23. iii 1922, 1 ♂ (Hirst). I refer this to the genus *Podonomus* on account of the complete absence of the vein R *2* + *3* (mentioned by Strobl), the strongly produced costa, and the structure of the hypopygium ; I have discussed this genus in more detail in my revision of the British Chironomidae, now ready for press. The Corsican specimen agrees fairly well with Strobls' description of his *Tanypus minutissimus*, but

the following additional points may be noted : Antennae 15 segmented, the last two segments together hardly more than half as long as the remainder of the flagellum ; the small 15 th. segment bent at right angles to and less than half as long as the 14 th. Hypopygium as figured.

2. **Heptagia cinctipes** sp. n.

♂ *Head* black, including appendages. Antennae short, 9 segmented, without plume ; segments 3-8 globular or scarcely longer than broad, becoming successively smaller; segment 9 shortly oval, hardly as long as 7 and 8 together, hairs only about twice as long as the segments. Eyes bare. *Thorax* shining black above: prothoracic lobes and upper part of pleurae silvery-grey when seen from above, the former with light brownish integument ; mesosternum shining black, slightly dusted with grey. Prothoracic lobes slightly but distinctly separated in the middle, hairy on the lower part only. Scutum much less arched than usual, and without acrostichal or dorsocentral hairs, the only hairs present being a group of 4-6 on the depressed area behind each shoulder. Scutellum with numerous black marginal hairs. Postnotum very slightly and evenly rounded, with a median furrow running its whole length. *Abdomen* dull black, with brownish pubescence which is not very long or dense. Hypopygium moderately large, not inverted ; claspers thick and almost semicircular in outline, with two short superposed terminal spines ; side-pieces with two small superposed basal lobes, the upper one bare, the lower hairy ; no anal point. *Legs* black ; trochanters and extreme base of front femora yellowish; each tibia with a sharply-defined white ring near the base, about one-fifth to one-quarter as long as the whole tibia. Hind tibia with comb and two small spurs ; fourth tarsal segment of each leg slightly broadened and bilobed at tip, hardly more than half as long as the fifth. Claws sharply pointed ; empodium about as long as the claws. *Wings* greyish except on the basal fifth, which is pale yellow, more extensively so along costa; microtrichia distinct. *R2+3* very faint except at extreme base ; *r-m* long and curved as usual ; *m-cu* situate either exactly at base of cubital fork, or immediately before or beyond it ; *An* ending well before the margin; basal section of *M* distinct ; lobe almost right angled. Length of body, 2.5-4 mm. ; wing 2.3-3.6 mm.

Forests of Tavignano, Valdoniello and Aitone ; 10 ♂♂, all taken on large rocks in beds of mountain streams. The flies ran with great rapidity over the rocks, especially those which were wetted by spray ; they took short hopping flights only and were never seen in other situations. In the first-named locality the larvae were also found ; they were all just above water-level on vertical rocks wetted by spray.

It is possible that this species is the same as *D. alboannulata* Str., the type of which was a single ♀ from Turrach, Styria. Strob however states that his specimen was only 1.5 mm. long, and had the

white tibial rings « very broad », he does not mention the yellow base of the wing. Males of an allied species, which is more likely to be the true *D. alboannulata*, were collected by Dr L. G. Saunders in June 1928 in the French Alps ; these differ from the Corsican species in having 14-segmented antennae, the plume slightly developed, and the last segment about as long as the preceding two. I refer both these species provisionally to the genus *Heptagia*, Philippi (type *annulipes* Phil., Chile). The chief characters by which the adult differs from *Diamesa* are the ringed tibiae, the more or less separated prothoracic lobes, the less arched scutum, and the evenly rounded postnotum, with the median furrow distinct right to the tip, but the larva is highly peculiar in having strong chitinous processes on the back of the head. Dr L. G. Saunders has recently submitted to me drawings of the larva of the North American *Diamesa lurida* Garrett, which show almost exactly the same structure of the head, and this species also must evidently be placed in the same genus as *D. alboannulata* and the new species. In the N. American species the prothoracic lobes are more widely separated than in *H. cinctipes* ; the basal part of vein M is obsolete ; small dorsocentral hairs are present, and the antennae are 6 segmented in both sexes.

3. *Diamesa culicoides* Heeger (*tonsa* Hal.), var. Rather common ; in the 3 ♂ examined the antenna has a slight plume, and the last segment is only a little shorter than the 13 preceding segments together.

4. *Diamesa? latitarsis* Goet. Vizzavona Forest, 1 ♂ ; hypopygium as in British specimens.

5. *Syndiamesa macronyx* Kieff. Restonica Valley, 1 ♂.

6. *Thalassomyia frauenfeldi* Schin. Common on rocks on shore at Calvi. No other marine midge was present.

7. *Cardiocladius capucinus* Zett. Not uncommon near waterfalls, Restonica Valley and Tavignano Forest.

8. *Brillia longifurca* Kieff. Valdoniello and Tavignano Forests. Larvae and pupae found on rocks in swift streams, the pupae enclosed in a mass of jelly, as usual in *Metriocnemus*.

9. *Cricotopus* sp. Restonica Valley and near Evisa. Similar to *C. mutitatrix*, but segments 3-8 of abdomen all black. This was the only species of the genus seen.

10 *Camptocladius exiguus* Goet. Common.

11. *Corynoneura celtica* Edw Near Evisa 1 ♂. Resembles British specimens, except that the first few segments of the abdomen are entirely yellow.

12. *Stempellina bausei* Kieff., var. Biguglia (Hirst).

13. *Chironomus maculipennis* Mg., var. Differs from British specimens in having no distinct dark ring in the middle of the front and middle tibiae (though that on the hind tibia is distinct); ground-colour of wings whitish, spots rather smaller, darker, and more sharply defined.

CERATOPOGONIDÆ

Members of this family appear to be scarce. I did not see a single specimen of *Culicoides*, and Drs. Galliard and Langeron inform me that they also found none. Hirst however took one species of this genus.

1. *Forcipomyia bipunctata* L. Ajaccio (Hirst).
2. *Forcipomyia apricans* Kieff.? Ajaccio (Hirst), numerous specimens. Tarsal ratio about 0.9 in ♂, 1.2 in ♀.
3. *Atrichopogon rostratus* Winn. Campo de l'oro (Hirst), 1 ♀.
4. *Atrichopogon flavoscutellatus* Beck. ? Restonica Valley, 1 ♀.
5. *Dasyhelea* sp. Restonica Valley, and near Porto, A rather large black species ; larvae and pupae abundant in small stagnant rock pools.
6. *Dasyhelea egens* Winn. ? Campo de l'oro (Hirst), 1 ♀.
7. *Culicoides obsoletus* Mg. Ajaccio (Hirst), 1 ♂, 1 ♀ (biting).
8. *Serromyia morio* F. Calvi, 1 ♀.
9. *Schizohelea leucopeza* Mg. In train near Palasca (Hirst), 1 ♀.

THAUMALEIDÆ

Kuntze recorded the occurrence of *T. testacea* Ruthé, but the record was probably erroneous. I obtained two species of the genus, neither of them identical with any of those described by Bezzi, nor with any of the three at present known to me from Britain. The species of *Thaumalea* occurring in Europe are more numerous than has usually been supposed, and they can only be determined by a careful examination of the male hypopygium : the differences in this organ however are very striking.

1. *Thaumalea tarda* Lw. (Fig. 2, f).

Common in most suitable localities where collections were made : Restonica Valley above Corte ; Borgo, S. of Bastia ; R. Porto near Evisa.

Loew's type vas a single ♀ from Sicily, said to differ from *T. testacea* in having the wings dark at the tip, and the cross-veins much more widely separated. My specimens had the wing-tip very distinctly infuscated in life, though the darkening is much less evident after pinning ; the cross-veins, though wider apart than is usual in *T. testacea*, are less so than is indicated in Loew's figures, the outer one being rather variable in position. Male hypopygium small and of very peculiar formation : ninth tergite large, its corners slightly produced ; side-pieces remarkably small and ventral in position ; clas pers small and oval, without terminal spine ; a pair of bare blunt rods conspicuous in side view and often turned outwards. The general appearance is more like that of a ♀ than a ♂, but several of the other sex were obtained and show no peculiarity in the ovipositor. As usual in this genus, the ♂ is apt to be darker than the ♀, the thorax of the latter being clear ochreous.

Specimens collected at Taormina, Sicily, by Dr. H. Zerny, are in all respects similar to those from Corsica.

2. **Thaumalea corsica** sp. n. (Fig. 2, g).

Head and abdomen black ; thorax dark brown, indistinctly lighter about the shoulders ; legs obscurely ochreous, front coxae and all tarsi dark brown halteres yellow. Wings with clear membrane and dark veins. Structural characters (antennae, palpi, chaetotaxy, venation) as in *T. testacea*. Hypopygium rather small, obscurely ochreous ; ninth tergite short, somewhat truncate, not swollen ; clasper tapering, with three terminal teeth and numerous hairs ; two pairs of broad but more or less bifid internal appendages. Wing length, ♂ 4 ♀ 5 mm.

Restonica Valley above Corte, 2 ♂ (including type) ; Tavignano Forest, 2 ♀. In the latter locality I also obtained larvae, presumably of this species. These larvae correspond in most respects with Saunders' description of the larva of *T. testacea*, but show well marked specific differences as follows : Size larger (length up to 17 mm.). Protuberances of head less developed, median one quite simple, not trifid ; protuberance containing eye-spot not conical but rounded with a large lens. Hairs of head all simple, hair 4 (of Saunders very short, not more than half as long as hair 3. Teeth of mentum longer and much sharper, in three subequal pairs.

SIMULIIDÆ

1. *Simulium variegatum* M. Common everywhere in the mountains, flying round one though not actually biting. This is probably the species recorded by Kuntze as *S. ornatum* Mg.

2. *Simulium monticola* Fried. Much less common than the last; Restonica Valley and Aitone Forest.

3. *Simulium ornatum* var. *nitidifrons* Edw. Restonica Valley, not common.

4. *Simulium auricoma* Mg. Restonica Valley, 1 ♀.

5. *Simulium latipes* Mg. Restonica Valley and Borgo.

6. *Simulium aureum* Fries. Restonica Valley; S. of Biguglia; West Coast near Porto. Not common.

7. *Simulium hirtipes* Fries. Forests of Tavignano and Valdoniello.

BLEPHAROCERIDÆ

Two species of this family were known to Kuntze as occurring in Corsica, and a third was recorded by Bischoff in 1925. I collected material of two of these, and also of two other species one of which proves to be identical with an Italian one described by Bezzi.

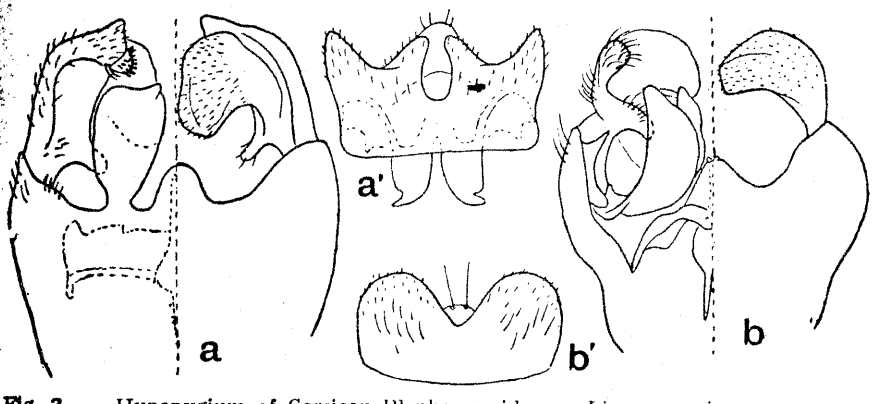

Fig. 3. — Hypopygium of Corsican Blepharoceridæ. **a**, *Liponeura cinerascens* var. *tyrrhenica*; left from above, right from below. **a'**, ninth tergite from above. **b,b'**, the same parts in *L. decipiens* Bezzi.

1. *Blepharocera fasciata* Westw. Vizzavona (Kuntze).

2. **Liponeura cinerascens** Lw. var. **tyrrhenica**, nov. (fig. 3, **a**).

Adults were taken on the wing at La Foce de Vizzavona (eastern

side of pass); Tavignano Gorge; Valdonellio forest near Albertacce; by the old mill, Aitone Forest; and at the junction of the rivers Aitone and Porto. Larvae believed to belong to this species were numerous in a stream west of the Col de Vizzavona, and in the Aitone River above the old mill.

The adults are similar to European *L. cinerascens* but the male hypopygium shows slight differences from any of the varieties figured by Bischoff; the ten males examined are all similar, and there is little doubt that we are dealing with a distinct race of the species. The hypopygium most resembles that of Bischoff's variety *major*, but the inner lobes of the ninth tergite are relatively shorter and broader, and there are other small differences.

The larvae also resemble variety *major*, differing chiefly in the longer antennae. Length of full, grown larvae 9-10 mm. breadth 3 mm., (extended, without antennae). Dorsal surface almost uniformly dark brownish, ventral surface pale. Antennae about 1.8 times as long as the first body-division, blackish on about the basal half and at the tip. Eyes absent or very indistinct. Small larvae are similar to full grown ones. Pupae similar to those of other species of the genus.

3. *Liponeura decipiens* Bezzi (Fig. 3, **b**).

Adults were found at one spot only, the junction of the rivers Aitone and Porto. Larvae found in the river Porto at this spot, in company with those of *L. bischoffi*, are believed to belong to this species.

The adults are strikingly distinct in life on account of their predominant yellow colour; as stated by Bezzi the pleurae are almost wholly yellow, the scutellum yellow, and the mesonotum light greyish. Bezzi does not mention that the head and pronotum are also yellow. The British Museum possesses paratypes of *L. decipiens* received from Bezzi; I have compared these with a Corsican male and find them identical. The hypopygium is figured herewith; in structure it resembles that of *L. belgica* more than that of any other species. The adults are of the same size as *L. cinerascens* (wing-length 7-9 mm. the ♂ as usual being rather smaller than the ♀).

The few larvae obtained are perhaps not full grown; the largest measures only 8 mm. long by about 2.8 mm. broad. Colour cream yellow above, white beneath, pseudopods yellow, no definite dorsal markings. Antennae white except for the black tip; in the smaller specimens a little shorter, in the larger ones a little longer (1.2) than the first body segment. Eyes very distinct.

One immature pupa was found which perhaps belongs to this species. It differs from that of *L. cinerascens* in having the respiratory organ slightly shorter, its inner margin almost straight instead of distinctly concave.

4. Liponeura bischoffi sp. n.

This was described, by Bischoff (1925) with doubt as a variety *minor* of *L. decipiens* (1); this however was a mistake. As stated above, typical *L. decipiens* occurs in Corsica, and is certainly quite a distinct species from Bischoff's supposed variety, which I propose to raise to specific rank; I believe it to be the Corsican representative of *L. brevirostris* Lw. and not of *L. decipiens*. An Italian ♂ of *L. brevirostris* received from Bezzi in very similar, but the differences in the hypopygium are well marked; it may be noted that this specimen is equally distinct in hypopygial structure from *L. brevirostris* var. *hetschkoi* as figured by Bischoff.

A few adults were captured in the Restonica valley above Corté, and large numbers at the junction of the rivers Aitone and Porto, near Evisa. In the latter locality larvae also were found, in company with those of *L. decipiens* (supposition). Adults were seen in small swarms hovering in front of small falls and sometimes apparently hit by the spray; a female was observed ovipositing on wet rocks near the water's edge.

As Bischoff possessed only 2 ♂ dissected from pupae, the adult characters of *L. bischoffi* have not yet been fully described. The species is considerably smaller than *L. cinerascens* or *L. decipiens*; wing-length, ♂ 5 — 6 5 mm. ♀ 6.5 — 7 mm.; in life the insect appears much darker than L. *cinerascens*, and therefore blackish by comparison with the yellowish *L. decipiens*. Head blackish, antennae and palpi entirely black. Antennae shorter than in *L. cinerascens*, flagellar segments only 1.5 times as long as broad. Proboscis very short; excluding the clypeus (prelabrum) it is not much more than half as long as the height of the head. Thorax dark grey; mesonotum when seen from in front with four scarcely shining black stripes; pleurae almost entirely dark grey, only a little pale round base of halteres. Abdomen dull black above, hind margins of tergites not distinctly pale; hypopygium dark; venter yellowish. Legs with the coxae, trochanters and bases of femora ochreous rest blackish. Wings as in the other two species; *R 4 + 5* distinctly curved down apically and ending in the tip of the wing. In none of the 40 specimens examined is there any trace of the *m-cu* crossvein supposed to occur in *L. bilobata* Lw.

Larvae found in the river Porto agree closely with Bischoff's type from Vizzavona.

5. *Apistomyia elegans* Big. (Fig. 4, a and b).

The British Museum possesses 2 ♂ 3 ♀ of this beautiful species, taken by the late Lt.-Col. J. W. Yerbury at La Foce de Vizzavona, 5 — 27. VII. 1893. As I have stated elsewhere (*Spolia Zeylanica*, XIV, p. 122, 1927), these specimens show a sexual difference in the

1. Bischoff also described a *Liponeura cinerascens* var. *minor* in 1922, which he apparently renames var. *major* (without comment) in 1925. This earlier use of the name *minor* may be held to preclude its use for the present species. In view of the confusion in Bischoff's papers regarding these forms I have thought it best to rename the Corsican species.

wings, the female having a dark spot at the wing-tip which absent in the male. I failed to find adults of this species, but w fortunate in obtaining a number of larvae which are almost certain those of *A. elegans* in the river Porto at its junction with the Aiton These larvae were mostly found in a stronger current than those *Liponeura*, many of them even on rocks at the foot of a fall wher

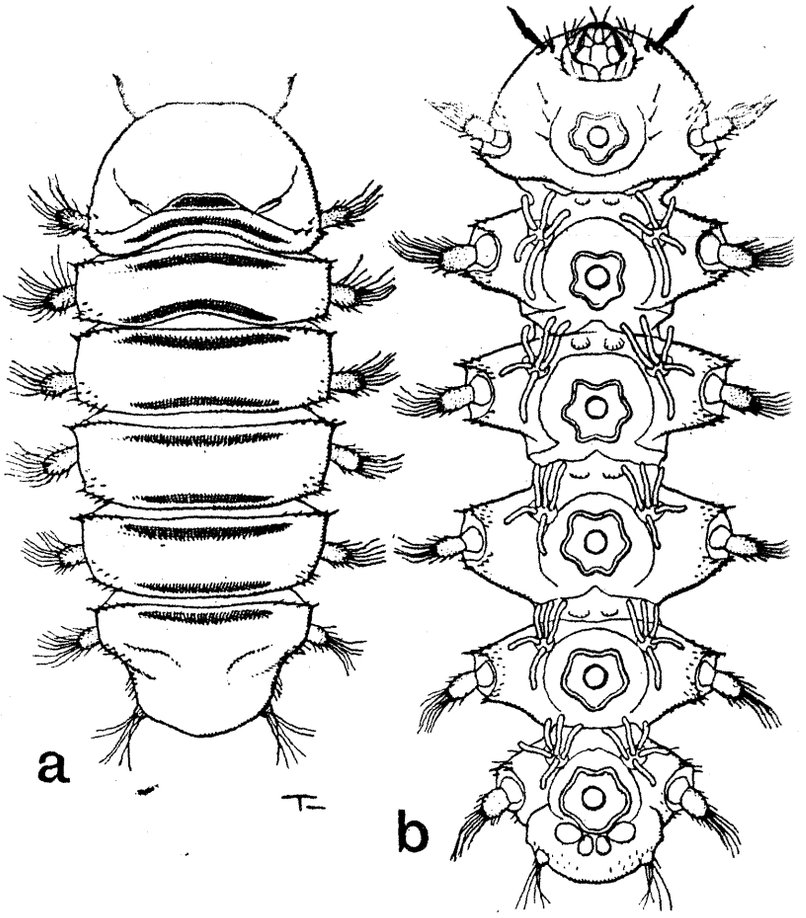

Fig. 4.— Larva of *Apistomyia elegans* Big. a, from above (retracted position); b, f below (extended position).

considerable volume of water was falling directly on to them. M success in finding these larvae was partly the result of a convers tion with Dr. S. L. Hora, who had told me a short time before that had found larvae of *Hammatorhina* in such situations in India. It

of interest to note that four of the five Corsican *Blepharoceridæ* were found in this one locality.

The only *Apistomyia* larva hitherto known is that of *A. tonnoiri* Till., described by Tonnoir (*Australian Zoologist*, iii, p. 54, 1923). The Corsican larvae presumed to be those of *A. elegans* agree with those of *A. tonnoiri* in the following respects: — Antennae short, black, two-segmented. Six pairs of simple pseudopods, which are rounded apically. Last body-division only moderately constricted behind the last pair of pseudopods, and behind this constriction with a pair of well-marked tubercles; hind margin of this body-division rounded. Each body-division has on the dorsal surface a pair of narrow chitinised bands, one band situated anteriorly, the other posteriorly to the pseudopods of the respective segment. Gills 5-branched, one branch directed backwards. No accessory pseudopods (such as are present in *Liponeura*) and no appearance of small intercalary divisions in the abdomen (as in *Liponeura* and *Edwardsina*). These features may perhaps be taken as characteristic of the genus *Apistomyia*. Except for the simple instead of forked pseudopods, the larva is not unlike that of *Hapalothrix*.

The following may be given as specific characters of *A. elegans* larva: — Colour blackish above, pale beneath, under sides of pseudopods yellowish. Dorsal chitinous bands without small spines, except at sides. Sclerites of head better developed than in *A. tonnoiri*. Pseudopods much larger and more prominent than in *A. tonnoiri*, with numerous long, curved, black, bristly hairs; similar hairs, but fewer in number, present on the tubercles of the last body-division. Both pairs of anal gills almost spherical, although the anterior pair is much larger than the posterior. The accompanying drawings by Mr. A. J. E. Terzi should render identification of the larvae easy. The larvae are probably immature; the largest found measures only 5×2.2 mm.

Many of the larvae, especially those found under the falling water had the body contracted so that the segmentation was concealed, as in fig. 4 *a*; others (at same stage of development, probably the third instar) were stretched out in the normal manner (fig. 4 *b*). This power of contracting the body does not appear to be possessed by *Liponeura* larvae, but is probably useful to the *Apistomyia* larva in affording additional protection from the force of the current.

PSYCHODIDÆ

I made no attempt to collect these insects, and can only add one to the small number which have been recorded as occurring in Corsica.

1. *Pericoma fusca* Mg. Abundant in swampy woods south of Biguglia. Also recorded by Kuntze.

2. *Pericoma ustulata* Hal. Common on rocks at foot of Calvi citadel.

3-5. *Pericoma canescens* Mg., *P. ocellaris* Mg. and *P. tristis* Mg. Recorded by Kuntze.

6. *Psychoda alternata* Say. Recorded by Kuntze.

7. *Phlebotomus perniciosus* Newst. (*legeri* Mansion). Bastia (Mansion).

8. *Phlebotomus minutus* Rond. Bastia? (Mansion).

PTYCHOPTERIDÆ

1. *Ptychoptera albimana* F. Valdoniello Forest, common in one small area.

ANISOPODIDÆ

1. *Anisopus fenestralis* Scop. Restonica Valley. No other species found; also recorded by Kuntze.

TRICHOCERIDÆ

1. *Trichocera regelationis* L. Restonica Valley, 1 ♂.

2. *Trichocera saltator* Harr. Restonica Valley, 1 ♂. Ponte Leccia (Hirst).

3. *Trichocera annulata* Mg. Valdoniello Forest, 1 ♀.

TIPULIDÆ

During the time of my visit to Corsica only the spring crane-flies were on the wing, and as a large number of species of this family, especially of the larger Tipulinae, only appear in summer, my collections were necessarily very incomplete. Nevertheless I was able to obtain examples of 38 species, nearly double as many as had been recorded by Kuntze. As mentioned in the introduction this family includes a high proportion of endemic species.

1. *Geranomyia caloptera* Mik. Restonica Valley.

2-5. *Dicranomyia ornata* Mg., *D. consimilis* Zett., *D. dumetorum* Mg. and *D. pilipennis* Egg. Recorded by Kuntze ; I did not find them.

6. *D. goritiensis* Mik. On wet vertical rocks in a shady gully at Borgo.

7. *D. didyma* Mg. Restonica Valley, common by small waterfalls. The specimens taken were all darker than the usual British form.

8. *Dicranomyia signata* Lackschewitz, MS. Borgo, and river Porto near Evisa. The type of this new species is in the Bristish Museum from Palestine ; it much resembles *D. didyma*.

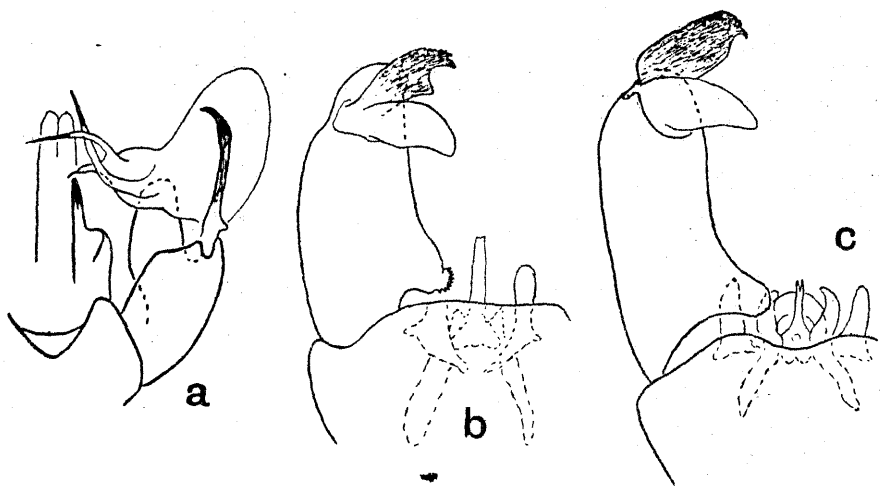

Fig. 5. — Hypopygium of Corsican Tipulidæ, from above. **a**, *Dicranomyia pedicellata* sp. n. **b**, *Idioptera laciniata* sp. n. **c**, *I. mundata* Lw., British specimen for comparison with *I. laciniata*.

9. *Dicranomyia chorea* Mg. Tavignano Valley near Corte ; not noticed elsewhere.

10. *Dicranomyia affinis* Schum. Restonica Valley.

11. *Dicranomyia lutea* Mg. Near Corte.

12. *Dicranomyia modesta* Mg Marshes S. of Biguglia.

13. *Dicranomyia sericata* Mg. Very common on dry hill-sides among maquis.

14. *Dicranomyia morio* F. Restonica Valley. 1 ♂ (typical).

15. **Dicranomyia pedicellata** sp. n. (Fig. 5, a).

♂ *Head* shining black ; frons wide, dusted with grey. Antennae all black, flagellar segments oval, separated by short necks which are nearly half as long as the segments ; verticils twice as long as the segments, ventral pu-

bescence about as long as diameter of segments ; last segment not quite twice as long as penultimate. Rostrum and palpi black.

Thorax shining blackish, with slight grey dusting on pleurae; a median pale area on scutum and scutellum ; posterior part of pleurae pale. Pronotum small for a member of this genus.

Abdomen black, sternites with broad apical pale bands. Hypopygium remarkable for the form of the two rostral spines, which are borne on long curved stems (fig 5, a). *Legs* black ; coxae, trochanters and extreme bases of femora ochreous.

Wings hyaline, with conspicuons oval blackish stigma, but no other markings. *Sc* extending nearly to middle of *Rs*, *Sc2* at its tip. *Rs* gently curved, about half as long as *R2* + *3*. (Lower apical part of wings of type damaged). Halteres black, base of stem yellowish. Wing-length 6.5 mm.

Restonica Valley, 1 ♂. I am not aquainted with any nearly related species in the European fauna, although there are several in the Oriental region. The species is one of the few in Europe with a somewhat lengthened vein *Sc*.

16. **Dicranomyia lackschewitzi** sp. n.

Allied to *D. stigmatica* Mg., differing as follows : Antennae shorter, all the flagellar segments shortly oval except the last which is a little longer. Hypopygium as in *D. stigmatica* is of very complicated structure, but differs in numerous details, particularly in the possession of a long, slender, pale, brushlike appendage arising from the base of the rostral spines. Ventral valves of ovipositor much shorter. Wings with the stigma light brownish, not black.

Restonica Valley ; rather common in one small grassy swamp about two miles above Corte; not seen elsewhere. I have much pleasure in dedicating this species to Dr. P. Lackschewitz, who has prepared figures of the hypopypium for publication in his review of the Palaearctic *Limoniinæ*.

17. **Dicranomyia tyrrhenica** sp. n.

Head Heavily dusted with grey; frons broad and silvery. Antennae black, first few flagellar segments rounded, rest oval, without necks; last segment longer and narrowed on the apical half, as in *D. morio* and related species; verticils rather less than twice as long as the segments, ventral pubescence very short and inconspicuous. Rostrum and palpi black. *Thorax* with blackish integument, heavily dusted with brown on the mesonotum and with grey on the pleurae; no markings. Pronotum very small; mesonotum strongly arched. *Abdomen* blackish above and below. Hypopygium small and simple ; lower claspers small, rostrum with a single stout, straight, pale spine. Ovipositor with the anal valves rather long, straight and not very sharply pointed. *Legs* brownish, coxae pale, trochanters and bases of femora och-

reous. Claws rather long each with a single basal tooth. *Wings* slightly and uniformly brownish tinged, stigma somewhat darker. *Sc* ending opposite base of *Rs*, *Sc2* far before its tip. *R-2* nearly straight, about half as long again as the first section of *R4 + 5*. Halteres rather long, blackish, base of stem ochreous. Wing-length 6.5-7.5 mm.

Restonica Valley, and River Porto near Evisa. The hypopygium of this also will be figured by Dr. Lackschewitz. It is another species with no very close ally in Europe, characterised by the single rostral spine.

18. *Limonia nubeculosa* Mg. Fairly common; Restonica Valley Vizzavona; Biguglia.

19. *Limonia tripunctata* F. Calvi, 1 ♂.

20. *Limonia macrostigma* Schum. Porto, 1 ♂; Calvi, 1 ♂.

21. *Helius dubius* Edw. (? *longirostris* Wied.). Calvi and Biguglia. This is perhaps the species recorded by Kuntze as *Rhamphidia inornata*.

22. **Helius calviensis** sp. n.

♀ *Head* greyish above, front at narrowest point about as broad as three facets. Rostrum, palpi and antennae entirely blackish. Flagellar segments (except first two or three) nearly three times as long as broad; verticils scarcely as long as the segments. *Thorax* brownish, pruinose, the praescutum with three darker brown stripes, the middle one the most distinct. *Abdomen* dark brown, hind margins of tergites paler, especially towards the sides; sternites mainly ochreous. Ovipositor as in *H. dubius*. *Legs* brownish-ochreous; tarsi and tips of femora and tibiae darker. *Wings* hyaline, base and costal cell faintly yellowish, stigma elongate-oval, black. Venation much as in *H. dubius*, but *Sc* ending distinctly before end of *Rs*, and *R2 + 3* shorter, more waved, its tip more distinctly turned up to costa. Halteres ochreous, knob not in the least darkened. Wing-length 9 mm.

Calvi, marsh at river mouth, 1 ♀. Differs from *H. pallirostris* Edw., which likewise has a blackish stigma, in having the proboscis entirely black and *r-m* placed nearer the base of *R4 + 5*.

23. **Antocha vitripennis** Mg., var. Common near waterfalls. As compared with British examples, the wings have a more distinct grey tinge (except for the white base) and the extreme tip of the upper claspers of the ♂ is more abruptly narrowed and beak-like.

24. *Molophilus obscurus* Mg. Restonica Valley, 2 ♂. One specimen is of normal coloration, the other almost entirely black.

25. *Molophilus bifilatus* Verr. Biguglia, Calvi.

26. *Molophilus pleuralis* de Meij. Biguglia.
27. *Molophilus medius* de Meij. (?) Biguglia, 1 ♀.
28. *Molophilus murinus* Mg. Restonica Valley.
29. *Molophilus ater* Mg. Recorded by Kuntze.
30. *Ilisia maculata* Mg. Biguglia, common.
31. *Erioptera tænionota* Mg. (? *lutea* Mg.). Valdoniello Forest.
32. *Erioptera fuscipennis* Mg. (? *nigra* Macq., of Kuntze). Common.
33. *Rhypholophus hæmorrhoidalis* Zett. Recorded by Kuntze.
34. *Ormosia uncinata* de Meij. Aitone Forest.
35. *Symplectomorpha stictica* Mg. Ajaccio (Hirst); Biguglia, Calvi.
36. *Helobia hybrida* Mg. Calvi, 1 ♀.
36 *a*. *Psiloconopa directa* Kuntze. Locality not stated.
37. *Gonomyia tenella* Mg. Restonica Valley, 1 ♂.

38. *Dactylolabis anomala* (Kuntze). I took several specimens of this in the Restonica Valley, and believe I saw it in other localities also. Although described as a *Dicranophragma*, it is quite evidently, in my opinion, a *Dactylolabis* with an accessory cross-vein in cell *R*2 ; this cross-vein is present on both wings of all specimens examined (both sexes). The species differs from the other two Corsican members of the genus in having no dark spots at the tips of any of the veins.

39. *Dactylolabis nubecula* Kuntze. Fairly common in Restonica valley and probably elsewhere, but easily overlooked owing to its similarity to the following. The whole body, especially the thorax, is dark blue-grey.

40. **Dactylolabis corsicana** sp. n.

Nearly allied to the last two species, resembling *D. anomala* in having an extra cross-vein near middle of cell R2 (constantly present in a large number of specimens examined), but having extensive wing-markings arranged almost exactly as in *D. nubecula*. Differs from both the other species in the colour of the body, which is more brownish, without a definite blue-grey tinge even on the thorax; abdomen slightly shining, with scarcely a trace of pruinosity and hind margins of segments rather conspicuously ochreous. Cross-vein *m-cu* placed well beyond base of discal cell, sometines as far as one-third the length of this cell.

Restonica Valley; Aitone Forest; Borgo ; abundant wherever a thin film of water runs over large rocks, often in company with one or both of the two last-named species, but always much more numerous. In spite of the unusual position of *m-cu*, there can be no

rous. In spite of the unusual position of *m-cu*, there can be no doubt that this also is a true *Dactylolabis*, in which genus I would also include *Rhicnoptila woodzicki*. The hypopygium of each of the three Corsican species is quite similar to that of *D. sexmaculata*.

41. *Idioptera* (*Ephelia*) *czernyi* Strobl. Restonica Valley, common in one spot only. The hypopygium in quite similar to that of *E. maculata* Mg., the only obvious difference being that in *E. czernyi* the wings of the ♂ are narrow, like those of the ♀.

42. *Idioptera* (*Ephelia*) *pusilla* Kuntze. Vizzavona (Kuntze).

43. **Idioptera (Ephelia) laciniata** sp. n. (Fig. 5, **b**).

♂. Closely resembles *I. mundata* (Lw.), antennae, venation and wing-markings being the same, but differs in having five distinct dark brown spots on the thorax (a pair on prescutum just in front of suture, a pair on scutum, and an elongate mark crossing middle of suture between scutum and scutellum), and in structure of hypopygium (compare that of. *I mundata*, fig. 5, c) Side-pieces shorter, with blackened flap-like expansion at tip and with a stronger group of teeth on inner face at base; lower (blackened) clasper quite differently shaped, as is the aedoeagus.

Calvi, 1 ♂ in marsh at river mouth.

44. *Limnophila ferruginea* Mg. Biguglia.

45. *Limnophila nemoralis* Mg. Biguglia and Calvi (typical form); Restonica Valley (var. *collina* Edw.).

46. *Limnophila ochracea* Mg. Calvi, 1 ♂.

47. *Limnophila leucophæa* Mg. Recorded by Kuntze.

48. *Pilaria discicollis* Mg. Biguglia.

49. *Neolimnophila placida* Mg. Recorded by Kuntze.

50. **Hexatoma saxonum** Lw., var. River Porto near Evisa, also by a small stream on coast north of Porto. Differs from Loew's description, in having thoracic hair yellow, not black, and the third antennal segment only a little longer than the fourth.

51. *Hexatoma burmeisteri*. Recorded by Kuntze.

52. *Eriocera* (*Penthoptera*) *schnusei* Kuntze, Ajaccio and Vizzavona (Kuntze).

53. *Dicranota subtilis* Lw. Vizzavona, 1 ♂. Valdoniello Forest, ♀.

54. *Dicranota brevitarsis* Bergr., var. Restonica Valley, 1 ♂.

55. *Tricyphona immaculata* Mg. Restonica Valley, 1 ♂.

56. **Tricyphona trifurcata** sp. n.

A rather large brown species nearly related to *T. claripennis* Verr. and *T. lucidipennis* Edw., and like them having black antennae with all flagellar

segments shortly oval; brown-dusted thorax with distinct dark prescutal stripes; dark abdomen with reddish-ochreous lateral membrane and hypopygium; dark brownish legs with ochreous coxae; and clear wings with *M 3 + 4* forking well beyond the middle of the small closed discal cell. Differs from both the species named in having the middle prescutal stripe more shining and undivided by a pale line, also in having cells *R3* and *R4* practically equal in length, veins *R2 + 3*, *R4* and *R5* arising almost from the same point, and *r-m* being placed at or immediately beyond this point. Hypopygium almost exactly as in *T. claripennis* Verr., but wings broader than in that species with more obvious macrotrichia on the veins, and (as in *T. lucidipennis* Edw. cell *M1* as long as its stem or longer and *R2 + 3* about twice as long as *R3*. Wing-length 9.5-12.5 mm.

Restonica Valley, common. Valdoniello Forest, 1 ♀.

57-66. *Tipula cinerascens* Lw., *T. juncea* Mg., *T. lateralis* M., *T. lutescens* F., *T. limitata* Schum., *T. nervosa* Mg., *T. paludosa* Mg. *T. scripta* Mg., *T. variicornis* Schum. and *T. maxima* Poda. Recorded by Kuntze but not found by me. It is probable that some of Kuntze's records refer to other species, as noted below.

67. *Tipula corsica* Pierre. Calvi, 1 ♂. Asco, X. 1907, 1 ♀ (Forsyth-Major). This is probably the Corsican representative of *T. maxima* and if so Kuntze's record of Poda's species probably refers to *T. corsica*, which evidently has a wide distribution in the island. Pierre described the ♀ only, his type being from Valdoniello Forest. The ♂ hypopygium is of the same type as that of *T. maxima*, the ninth tergite having two median setulose lobes and a sharp point ou each side, but the inner claspers differ in shape.

68. *Tipula pallidicosta* Pierre. Vizzavona, VII, 1893, 2 ♂ 2 ♀ (Yerbury). This is not confined to Corsica; I have taken it myself at St Rochus, Vorarlberg. It is so much like *T. scripta* (except for the longer antennae) that Kuntze may have confused the tvo.

69. *Tipula marginata* Mg. Biguglia, common.

70. *Tipula montium* Egg. Common in Restonica Valley, also at Porto and Calvi. It is probably, in part at least, the species recorded by Kuntze as *T. lateralis* Mg.

71. *Tipula oleracea* L. Typical male specimens were taken at Biguglia and Calvi.

72. *Tipula mediterranea* Lackschewitz MS. Restonica Valley, common; also found at Biguglia and Calvi. This seems to be the southern representative of *T. czizeki* de Jong.

73. *Tipula* sp. inc. Resembles *T. oleracea*, but has a conspicuous dark seam along vein *Cu*, somewhat as in the S. African *T. soror* Wied. Restonica Valley, 1 ♀.

74. **Tipula macciana** sp. n. (Fig. 6, a).

♂ *Head* greyish brown, darker in front, paler round eyes. Frontal tubercle moderate. Rostrum yellowish at sides, darker above and below ; no nasus. Palpi black. Antennae with scape brownish-ochreous, flagellum black ; if bent black would reach almost to end of second abdominal segment ; flagellar segments (except first) slightly enlarged at base, verticils as long as segments. *Thorax* : Pronotum with its anterior division brownish, posterior division yellow. Praescutum greyish-brown with four dull dark brown stripes. Scutal lobes largely dark brown. Scutellum greyish brown with narrow median dark line. Postnotum greyish. Pleurae mostly light grey, with some lemon-yellow mottling round base of halteres ; dorsopleural membrane yellow. *Abdomen* brown, somewhat dusted with grey, tergites

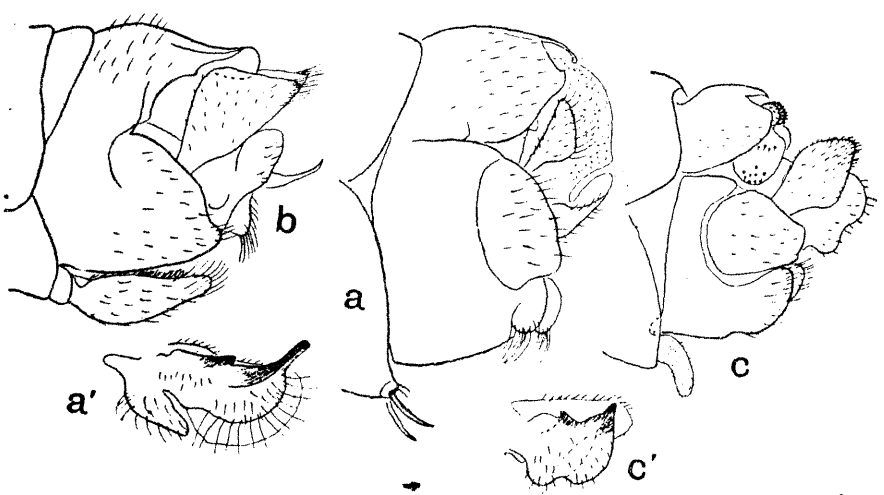

Fig. 6. — Hypopygium of Corsican Tipulidae in side view. **a**, *Tipula macciana* sp. n. (inner clasper from inside shown separately at **a'**). **b**, *T. hulzi* sp. n. **c**, *Nephrotoma submaculosa* sp. n. (inner clasper from indside shown separately as **c'**).

2-5 extensively reddish-brown at sides. Hypopygium of moderate size. Ninth tergite with deep U-shaped emargination, at each corner of which is a small inwardly-directed tooth. Eighth sternite bearing a pair of short, stout, reddish spines, each arising from a small papilla, but no hair-tuft. Outer clasper small, somewhat axe-shaped. Inner clasper (fig. 6, a) moderately large, yellowish, bare but tuberculate on outer side, fringed with long hairs within, shape as figured. *Legs* with coxae greyish ; femora brown with tips darkened ; tibiae and tarsi blackish ; spurs normal ; claws simple and rather small. *Wings* faintly greyish, stigma light brown ; a rather conspicuous oblique white mark before stigma extending from near costa into basal half of discal cell ; no pale area beyond stigma. Only a few very minute hairs on angle of squama. *Rs* long ; *R2* complete, longer than *R2* + 3 ; discal cell rather long ; cell *M1* pointed at base, twice as long as its stem. Halteres with blackish knob. Wing-length 15-19 mm.

♀. Resembles ♂ in colour and venation. Antennae shorter, if bent back would reach to wing-root; flagellar segments not enlarged at base. Ovipositor with basal segment shining dark brown, cerci equal to this in length, straight and sharply pointed.

Restonica Valley and near Evisa; very common on dry hillsides among maquis, in such situations being the only species of *Tipula* present. It is apparently related to *T. acuminata* Strobl, but I am unable to identify it with this or with any of the species mentioned in Riedel's monograph or described subsequently by Pierre. Superficially it resembles *T. selene* Mg.

75. **Tipula butzi**, sp. n. (Fig. 6, **b**).

♂. Closely allied to *T. variicornis* Schum., differing chiefly as follows: Flagellum blackish, only the first two segments more or less pale apically. Hypopygium with sublateral teeth of ninth tergite scarcely indicated; appendage of eighth sternite with the two halves separate to the base, not connected by membrane, and not turned downwards; swellings of ninth sternite with a few yellow hairs only, no strong spines; outer clasper very much broader, the hairs at its tip all yellow, not black. Wing-length 12,5 mm.

La Foce de Vizzavona, 21.VI.1893, 1 ♂ (Yerbury). This is perhaps the species recorded by Kuntze as *T. variicornis*. It is now known that there are several closely allied species of this group in Europe. The present species is named after Herr Butz, the coleopterist who was landlord of the hotel at La Foce at the time of Kuntze's visit (with Becker and others) in 1907.

76. *Nephrotoma zonata* (Pierre). La Foce de Vizzavona, VI-VII, 1893, 2 ♂ 2 ♀ (Yerbury).

77. *Nephrotoma crinicauda* (Riedel). Biguglia, 1 ♀.

78. *Nephrotoma maculosa* (Mg.), var. Common in Restonica Valley and near Evisa, on dry hillsides. All the specimens have the stigma rather conspicuous and the scutellum entirely black, but the hypopygium has quite the same structure as in British exemples.

79. **Nephrotoma submaculosa** sp. n. (Fig. 6, **c**).

Closely allied to *N. maculosa* Mg., differing as follows: — Antennae of ♂ slightly longer; in both sexes the first segment brownish, not black. The black spots on eye-margins above antennae much smaller. Scutellum brownish with median dark line. Front coxae with the apical half yellow. Hypopygium with the outer claspers smaller and narrower; inner claspers (fig. 6, c) quite differently shaped, without flattened ventral expansion. Eighth and ninth sternites with shorter yellow hairs beneath; basal appendage of ninth

sternite smaller, pale yellow, without dense covering of reddish setae on inner surface.

River Porto near Evisa, type ♂. Calvi, 2 ♂ 1 ♀.

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