

- ZIMMERMANN, H., Ölkäfer (*Meloë proscarabaeus* L.) als Schädiger von Rotklee. Nachrichtenbl. Dtsch. Pflanzenschutzdienst, **2**, 35—37, 1922.
- ZWEIGBAUMÓWNA, Z., Grzyby okolic Skierniewic. Acta Soc. Bot. Poloniae, **2**, 1—27, 1925. (Zw. 25.).

Ceratopogonidae from Costa Rica

(Diptera)

By J. W. S. MACFIE †

(With 4 Text Figures)

The collection consists of 369 specimens, all of them taken at La Caja, 8 kil. W. of San José, Costa Rica, by Mr. H. SCHMIDT. Most of them are dated 1930, but a few (25) are labelled "7—XI—1931", and others (20) 1938. Unfortunately many of the insects are damaged, indeed, few of them are complete. I have been obliged to discard 36 (most of them specimens of *Atrichopogon*) because they are too much damaged for recognition or description. The remaining 333 all belong to well established genera, namely, *Forcipomyia* (49), *Lasiohelea* (5), *Atrichopogon* (144), *Culicoides* (2), and *Dasyhelea* (133). They include examples of 25 different species of which 7 appear to be new, namely, 5 species of *Atrichopogon*, and 2 species of *Dasyhelea*. One or two other species may also be new, but the specimens by which they are represented are too much damaged for certainty. Two species predominate in the collection — *Atrichopogon gordonii* Macfie (76), and *Dasyhelea scissurae* Macfie (131).

The numerous species of *Atrichopogon* from the Neotropical region are difficult to separate, and it is still uncertain to what degree variation may take place in some of the characters used for their differentiation. It is, indeed, probable that some of the identifications given below may have to be revised when our knowledge of the species of this genus is more firmly established. A number of males I have been unable to place, and have preferred not to describe, because they have no very characteristic features, and it is not possible at present to correlate them with any of the several species of which there are females in the collection.

The method of description employed is the same as that I have used in a number of recent reports. The measurements given are those of individuals selected for description, and are not averages. The unit used is approximately 3.5 μ .

All the types of the new species described are in the collection of the Deutsches Entomologisches Institut, Berlin¹⁾. I have to thank the late

¹⁾ The abbreviations mean: D.E.I.: the specimens are to be found in the collection of the Deutsches Entomologisches Institut, M.: in the collection of the author.

Direktor DR. WALTHER HORN for kindly giving me the opportunity to examine the collection.

Forcipomyia sp. probably *insigniforceps* Macfie

2 ♂ (damaged).

Forcipomyia inornatipennis (Aust.)

var. *ornaticrus* Ingram & Macfie

1 ♀ (damaged).

Forcipomyia sp. near *nigrescens* Macfie

1 ♀ (damaged). This insect probably belongs to a new species allied to *F. nigrescens*. It is so much damaged, however, that description would be profitless, and this should be deferred in any case until males are available for examination.

Forcipomyia ornatipennis Macfie

1 ♂ (damaged).

Forcipomyia quasi-ingrami Macfie

33 ♂ (all damaged). These specimens resemble closely *F. quasi-ingrami*, but differ from the type, which was taken in Brazil, in having the T. R. greater, 1.5—1.9 instead of about 1.3, and the last two segments of the palpi usually distinct, not fused together. They are not all alike, but fall into two groups. In the one group (A) the first tarsal segment of the hind legs is distinctly swollen near the base as it is in the type, in the other (B) it is not thus swollen. Specimens of the second group (B) have the T. R. slightly the greater, 1.7—1.9 as compared with 1.5—1.7 in the first group (A), and the chitination of the ventral wall of the aedeagus, which varies considerably, is usually more pronounced, sometimes obscuring the chitinated arch almost completely. These two groups may represent different species, both of which might be distinct from *F. quasi-ingrami*. I do not favour this view because all the insects are so similar, but prefer to regard them as belonging to a single species which, however, is variable.

In one specimen the antenna (only one remains) is abnormal, segments 3—5 being fused together so as to form a single, very large, oval segment.

Forcipomyia sp.

11 ♀ (all damaged). These are small darkish brown or yellowish-brown insects with unadorned wings, without scales, with the T. R. about 2, and with two obovate spermathecae. Some, or all, of them may be the females of *F. quasi-ingrami*, but it is not possible to be certain of this, and they are too much damaged for detailed examination or description.

Lasiohelea styliifer (Lutz)

1 ♂, 4 ♀.

These insects are presumably *Lasiohelea styliifer*, a species described by LUTZ in 1913, but they are all more or less damaged, and are unsuitable for critical study.

The male resembles the female in general characteristics. As it has not previously been recorded the following details about it may be given. The pit in third palpal segment much smaller and more shallow than in female. The antennae are damaged, but lengths of segments 11—14 about 11, 28, 26, and 22 units respectively. Wings with numerous macrotrichia which, however, leave bare areas along veins. Second radial cell shorter than in female, only about one half longer than first (which is obliterated), and not very narrow. Fork of Cu at about same level as end of costa, not well proximal to this level as in female. T. R. about 2. Hypopygium similar to that of *L. nigeriae*; appearance in ventral view as shown in figure (Fig. 1).

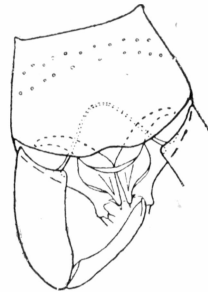


Fig. 1. *Lasiohelea styliifer* Lutz.
Hypopygium,
ventral view

Atrichopogon albinensis Ingram & Macfie

4 ♀.

Atrichopogon sp. probably *flumineus* Macfie

1 ♀ (damaged).

Atrichopogon glaber Macfie

1 ♂, 2 ♀ (all damaged).

Atrichopogon gordonii Macfie

3 ♂, 73 ♀. Some (but not all) of the specimens from Trinidad assigned by me (1938) to *A. insigniventris* really belong to this species.

Atrichopogon sp. probably *harrisi* Macfie

1 ♀ (damaged).

Atrichopogon novae-teutoniae Macfie

1 ♂, 10 ♀ (all damaged). These insects closely resemble *A. novae-teutoniae*, but are darker brown. Some of them, too, have a few macrotrichia on the wings between the branches of Cu; and the fork of Cu is at a level clearly distal to that of M. The male is not described because it has no very characteristic features, and because its association with this species is purely conjectural.

Atrichopogon pallidipes Kieffer

1 ♀.

This insect is perhaps the same as that from Paraguay described by KIEFFER (1917) under the name *A. pallidipes*, but differs from it in that the scutellum is not black, but is somewhat paler than the scutum. It resembles in almost every respect the species described elsewhere in this report as *A. utricularius* sp. n., but has a smaller and differently shaped spermatheca. It resembles, too, *A. flavicaudae* Macfie, but has the tip of the abdomen less clearly and less extensively yellowish, and has the spermatheca somewhat differently formed.

The specimen is damaged, but the following notes about it may be of service. Length of wing about 1.5 mm. Head, including palpi and antennae, as in *A. utricularius*, excepting that torus and third segment of antennae are dark brown not paler than rest of flagellum. Thorax very dark brown. Scutellum rather paler than scutum, bearing 4 blackish bristles and about 3 small hairs. Wings as in *A. utricularius*. Legs (what is left of them) as in *A. utricularius*; apical spine on hind tibiae yellowish-brown not blackish. Abdomen with all tergites excepting last very dark brown; venter paler, yellowish: tip therefore narrowly pale. Cerci pale brown. Spermatheca single, well chitinated, oval, about $96\ \mu$ by $86\ \mu$; the duct rather wide (about $17\ \mu$), and chitinated for some distance about $21\ \mu$.

Atrichopogon woodfordi Macfie

10 ♀.

Atrichopogon spp.

19 ♂. Some of these are *A. gordonii*. The others it is not possible to correlate with any particular females, and as they possess no outstanding features such as could be readily recognised again, they are not described.

Atrichopogon costaricae sp. n.

A small and very dark brown species with the legs and the tip of the abdomen yellowish, and the wings without macrotrichia.

♀ — Length of wing about 1 mm, greatest breadth nearly 0.4 mm.

Head blackish. Eyes rather densely hairy. Palpi darkish brown, rather short, third segment with deep pit at distal end: lengths of last three segments in one specimen about 11, 6, and 7 units respectively. Antennae almost uniformly darkish brown, torus only slightly darker than flagellum: segments 4–10 from sub-spherical to shortly oval, measuring in one specimen from 7 by 7 to 8 by 7 units; 11–14 more elongate, sub-equal, about 20 by 6–7 units; 15 about 30 (including stylet of about 5 units) by 6 units. The combined lengths of segments 3–10, 4–10, and 11–15 about 59, 49, and 104 units respectively.

Thorax very dark brown or blackish. Scutellum also very dark, bearing 4 bristles, but apparently no small hairs.

Wings unadorned, the veins brownish. No macrotrichia. Costa extending about three-quarters length of wing. Radial veins with very few bristles. First radial cell a mere slit; second well formed, over three times as long as first. Petiole of M nearly as long as cross-vein. Fork of Cu only slightly distal to level of that of M. Halteres with white knobs.

Legs almost uniformly yellowish, only terminal segments of tarsi little infuscated. T. R. nearly 3. Form of segments, claws, and empodium normal.

Abdomen very dark brown, but with tip and cerci paler, yellowish. No ventral armature. Spermatheca single, highly chitinated, oval, in one specimen about 57μ by 46μ ; duct not exceptionally wide, chitinated for only a very short distance.

5 ♀ (D.E.I.: 3 ♀, M.: 2 ♀).

This species resembles *A. depilis* Macfie and the one which elsewhere (1939) I have assumed to be *A. columbianus* Kieffer, but differs from both in having the tip of the abdomen and the cerci yellowish.

Atrichopogon didymothecae sp. n.

A small, yellowish-brown species, resembling in many respects *A. flavicaudae* Macfie, but much paler in colour, and with a single long, almost tubular, spermatheca.

♀ - Length of wing about 0.95 mm, greatest breadth 0.37 mm.

Head darkish yellow-brown. Eyes hairy in part at least. Palpi darkish yellow-brown, slender, third segment with deep pit: lengths of last three segments about 13, 9, and 7 units respectively. Antennae with torus and base of third segment yellowish-brown, rest of flagellum darker, darkish brown: segments 4-10 all ellipsoidal, ranging in one specimen from about 9 by 5-6 to 10 by 4-5 units; 11-14 more elongate, sub-equal, about 20 by 4-5 units; 15 about 31 (including stylet of about 6 units) by 4-5 units. The combined lengths of segments 3-10, 4-10, and 11-15 in this specimen about 83, 70, and 110 units respectively.

Thorax yellowish-brown, with darker brown bands forming the usual pattern. Body filled with an opaque whitish substance. Scutellum yellowish-brown, paler than scutum, bearing 4 dark bristles, and one or two small hairs.

Wings unadorned, much as in *A. flavicaudae*. Macrotrichia at tip only, a fair number in cell R 5, a few in cell M 1 and at end of vein M 1, and an odd one or two in cell M 2 and at end of vein M 2. Costa extending about two-thirds length of wing; radial veins with very few bristles. Both radial cells open; second about four times as long as first. Petiole of M shorter than cross-vein. Fork of Cu well distal to level of that of M. Anal lobe poorly developed, the angle very obtuse. Halteres with white knobs.

Legs almost uniformly yellowish-brown. Tibiae of hind legs with apical spine large, dark brown or blackish. T. R. about 2.5. No exceptionally long bristles. Form of segments, claws, and empodium normal.

Abdomen yellowish-brown, filled with a yellowish material which shows through cuticle especially at base, sides, and tip. Tergites 2-5 darkish brown, but venter, base, and tip of abdomen and cerci pale, yellowish. No ventral armature. Spermatheca single, rather feebly chitinated, spirally striated, very long and narrow, sack-like or almost tubular, but a little constricted near middle and expanded at end, about $175\ \mu$ by $43\ \mu$ (maximum); only the very commencement of duct chitinated.

3 ♀ (D. E. I.: 2 ♀, M.: 1 ♀).

Atrichopogon lacajae sp. n.

A dark brown or yellowish-brown species with a few macrotrichia on the wings, and a characteristic hypopygium.

♂ - Length of wing about 1.3 mm, greatest breadth 0.36 mm.

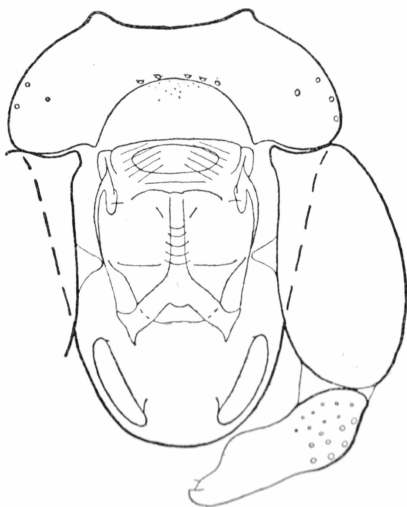


Fig. 2. *Atrichopogon lacajae* sp. n.
Hypopygium, ventral view

Head dark yellowish-brown. Eyes hairy in part at least. Palpi brownish, slender, third segment with a small pit in distal third: lengths of last three segments about 18, 9, and 10 units respectively. Torus dark brown, rest of antennae missing.

Thorax dark brown with a yellowish tint. Scutellum about same colour as scutum.

Wings unadorned, the veins pale. A few macrotrichia at tip, in cell R 5, but none elsewhere. Costa extending about two-thirds length of wing. Only one or two bristles on radial veins. Both radial cells open; second about three times as long as first. Petiole of M shorter than cross-vein. Fork of Cu well distal to level of that of M. Halteres with white knobs.

Legs almost uniformly yellowish-brown, the terminal segments of tarsi only slightly infuscated. T. R. about 2.2. Apical spine on hind tibiae long, yellow. Lance-like spines of first tarsal segment of hind legs conspicuous. Form of segments, claws, and empodium normal.

Abdomen dark brown, but with a yellowish tint. Hypopygium large and characteristic, appearing in ventral view as shown in figure (Fig. 2). Ninth sternite rather deeply excavated in middle line posteriorly, the membrane joining it to aedeagus spiculate at base only. Ninth tergite

densely clothed with shortish bristles (not shown in figure), with ventral hairy processes unusually large. Side-pieces about twice as long as broad; densely clothed with shortish bristles. Claspers of unusual form, bearing strong bristles at base. Aedeagus complex, in ventral view as suggested in figure.

2 ♂ (D.E.I.: 1 ♂, M.: 1 ♂).

The males of many species of *Atrichopogon* are so closely similar that it is seldom worth while to describe them apart from the corresponding females. I have made an exception in the case of this insect because the hypopygium is characteristic, and should enable the species to be recognised with ease.

***Atrichopogon pachygnemus* sp. n.**

A very dark brown species with pale brown legs which are short and stumpy, with macrotrichia restricted to the tip of the wing in cells R 5 and M 1, and with no ventral armature.

♀ — Length of wing nearly 1.5 mm, greatest breadth about 0.5 mm.

Head blackish. Eyes apparently bare. Palpi dark brown, third segment slightly inflated, with deep pit: lengths of last three segments about 16, 8, and 12 units respectively. Antennae rather short, torus dark brown, flagellum paler, darkish brown: segments 4—10 sub-spherical to oval, ranging from about 8 by 8—9 to 10 by 7—8 units; 11—14 sub-equal, say 22 by 6—7 units; 15 about 36 (including pointed stylet of 4—5 units) by 6—7 units. The combined lengths of segments 3—10, 4—10, and 11—15 about 76, 63, and 124 units respectively.

Thorax very dark brown above, but paler, more yellowish, at sides. Scutellum paler than scutum, yellowish-brown, bearing 4 bristles, and a number of small hairs.

Wings unadorned. Macrotrichia at tip only, a fair number at periphery in cell R 5, and a few in cell M 1 and at end of vein M 1; none elsewhere. Costa extending about three-quarters length of wing; radial veins with numerous bristles. Both radial cells open; second about three times as long as first. Petiole of M very short, much shorter than cross-vein. Fork of Cu more distal, at about same level as middle of first radial cell. Halteres with whitish knobs.

Legs pale brown, the terminal segments of tarsi infuscated; short and thick, and without any exceptionally long bristles. T. R. about 2.4. Form of segments, claws, and empodium otherwise normal.

Abdomen rather dark brown, but not as dark as scutum; rather bristly in appearance. Cerci pale brown. No ventral armature. Spermatheca single, highly chitinised, partly collapsed but probably sub-spherical, diameter about 80 μ : duct narrow, chitinised at its commencement for about 10 μ .

1 ♀ (D.E.I.).

This insect must be distinguished from *A. pectinatus* Macfie with which, having antennae with segments 11—15 together less than twice the length of 3—10 combined, it would be associated in my key to the Brazilian species of *Atrichopogon*. This may readily be done, for *A. pectinatus* bears a characteristic, comb-like, ventral abdominal armature lacking in his species.

Atrichopogon utricularius sp. n.

A very dark brown or, when dry, blackish species, with yellowish-brown legs, resembling in type *A. flavicaudae* Macfie, but with the tip of the abdomen dark brown, not yellowish, and the spermatheca very large.

♀ — Length of wing about 1.3 mm, greatest breadth 0.5 mm.

Head blackish. Eyes hairy. Palpi very dark brown, third segment somewhat inflated about middle, with deep pit, fourth unusually long: lengths of last three segments about 20, 11, and 10 units respectively. Antennae with torus and base of third segment yellowish-brown, rest dark brown: segments 4—10 all elliptical, ranging from about 11 by 7 to 14 by 5—6 units; 11—14 elongate, measuring in one specimen about 24, 24, 27, and 31 by 4—5 units respectively; 15 about 42 (including srylet of about 7 units) by 6—7 units. The combined lengths of segments 3—10, 4—10, and 11—15 about 104, 87, and 150 units respectively.

Thorax very dark brown or blackish. Scutellum also blackish, bearing 4 bristles, and one or two small hairs.

Wings unadorned. Macrotrichia at tip only, a fair number in cell R 5, a few in cell M 1 and at ends of veins M 1 and M 2, and an odd one or two in cell M 2: none elsewhere. Costa extending about two-thirds length of wing; bristles all along radial veins. First radial cell not open or a mere slit; second well open, over four times as long as first. Petiole of M distinct, but shorter than cross-vein. Fork of Cu slightly distal to level of that of M. Halteres with white knobs.

Legs almost uniformly yellowish-brown, but terminal segments of all tarsi a little infuscated; slender, without especially long bristles. Apical spine on hind tibiae well developed, yellowish, not dark. T. R. about 2.6. Form of segments, claws, and empodium normal.

Abdomen very dark brown, the tip not paler than rest. Cerci paler, brown. Spermatheca single, sometimes rather feebly chitinised, large, partly collapsed in the specimens examined but probably oval and about 180 μ by 140 μ : the duct relatively very narrow (about 4 μ), its commencement for about 25 μ slightly more chitinised than rest and moniliform.

7 ♀ (D. E. I.: 2 ♀, M.: 5 ♀).

Culicoides diabolicus Hoff.

1 ♀.

Culicoides paraensis (Goeldi)

1 ♀.

Dasyhelea scissurae Macfie

78 ♂, 53 ♀.

♀ — The female, which has not previously been identified, is similar to the male. Length of wing about 0.9 mm, greatest breadth 0.36 mm.

Head similar. Antennae rather dark brown, the segments forming an almost continuous series: segments 4—10 sub-equal, in one specimen about 9—10 by 6—7 units; 11—14 sub-equal, about 11 by 5—6 units, 15 about 14 by 6 units, without stylet. The combined lengths of segments 3—10, 4—10, and 11—15 about 73, 64, and 56 units respectively. Thorax similar. Wings similar, but macrotrichia rather more numerous, extending almost to base between M and Cu, and second radial cell sometimes slightly longer than broad. Legs similar: T. R. about 2.4. Abdomen dark or very dark brown. Spermatheca single, highly chitinised, obovate, about 46μ by 35μ ; the duct narrow and chitinised at its commencement for about 10μ , in part (last 7μ) rather feebly.

Dasyhelea sp. probably *thalestris* Macfie

1 ♀ (damaged).

Dasyhelea philotherma sp. n.

A small blackish species with the scutellum entirely blackish, the second radial cell small and square, and the femora and tibiae dark brown.

♂ — Length of wing about 1 mm, greatest breadth 0.3 mm.

Head blackish. Eyes densely hairy. Palpi darkish brown, third segment without pit. Antennae darkish brown, with dark plume and sculptured segments: segments 4—11 gradually narrowing from about 10 by 9 to 9 by 5 units; 12—14 binodose, sub-equal, lengths about 22 bis 23 units; 15 about 17 by 7 (maximum) units, tapering distally, without stylet.

Thorax very dark brown or blackish. Scutellum blackish, not paler at sides, bearing 2 lateral and 5 centro-marginal bristles, and one small hair.

Wings unadorned, the veins brownish. Macrotrichia rather scanty, leaving distinct bare areas along veins, and extending towards base between M and Cu only slightly beyond level of cross-vein. Costa extending about half length of wing. First radial cell obliterated; second very small, square. Petiole of M about same length as cross-vein. Fork of Cu well distal to level of end of costa. Halteres with deeply infuscated knobs.

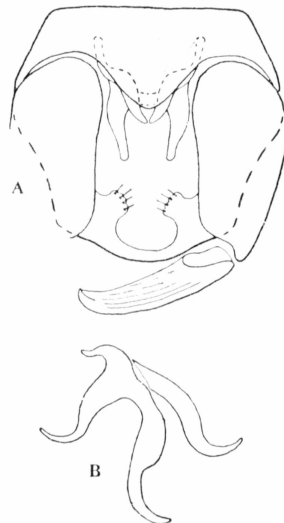


Fig. 3. *Dasyhelea philotherma* sp. n. Hypopygium, ventral views. A. — ninth segment and aedeagus. B. — harpes

Legs with femora and tibiae dark brown; tarsal segments paler, but last 2—3 somewhat infuscated. Form of segments and claws normal. T. R. not quite 2 (1.9).

Abdomen very dark brown. Hypopygium dark, the appearance in ventral view as shown in the figures (Fig.3). Ninth sternite without bristles, prolonged posteriorly as a bluntly conical process. Claspers dark brown, simple, with scoop-like ends, and longitudinally striated. Harpes consisting of an irregularly shaped transverse band, and a long posterior process arching beyond aedeagus. Chitinated portions of aedeagus in ventral view as shown in figure.

1 ♂ (D. E. I.).

Dasyhelea pyrsonota sp. n.

A small, yellowish, species with a yellowish scutellum, and the second radial cell longer than broad.

♂ — Length of wing about 1 mm.



Fig.4. *Dasyhelea pyrsonota* sp. n.
Hypopygium, ventral views.

A. — ninth segment and aedeagus. B. — harpes

Head dark yellowish-brown. Eyes hairy. Palpi pale brown, third segment without pit. Antennae with torus dark brown, flagellum and plume pale brown, the segments well sculptured: segments 4—11 gradually narrowing from about 10 by 9 to 10 by 6 units; 12—14 binodose, lengths about 20, 26, and 22 units respectively; 15 rather broader than penultimate segment, about 18 by 6 units, with pointed end but no stylet.

Thorax yellowish-brown, with rather darker brown bands forming the usual pattern, and containing an opaque whitish substance which is soluble in caustic potash. Scutellum yellowish, paler than scutum, bearing 2 lateral and 3 centro-marginal bristles, and a single small hair.

Wings unadorned, the veins pale brown: crumpled in the unique specimen so that details cannot be distinguished. Macrotrichia

fairly numerous. Costa extending rather more than half length of wing. First radial cell obliterated; second longer than broad. Halteres with whitish knobs.

Legs almost uniformly pale yellowish-brown, but with actual knee spots dark brown. T. R. about 2.4. Form of segments and claws normal.

Abdomen darkish yellow-brown, containing a whitish substance similar to that in thorax. Hypopygium in ventral view appearing as shown in the figures (Fig.4). Ninth tergite bearing posteriorly a pair of

finger-like processes and a pair of hairy processes. Ninth sternite without bristles, prolonged posteriorly in middle line as a blunt process bearing three short ridges. Side-pieces very broad at base. Claspers small, with a small knob about middle from which arises a strong bristle. Harpes irregularly band-like, with a posterior limb which tapers to a point and is bent ventrally at its end. Aedeagus with a pair of chitinised processes projecting posteriorly from a stout, transverse, basal bar.

1 ♂.

Berichtigung zur Abhandlung von Kraatz über Jacob Sturm's „Insecten Cabinet“

Von L. E. RAUTENBERG, Berlin

(Mit 3 Textfiguren)

In der Deutschen Entomologischen Zeitschrift, **9**, 157—160, 1875, hat G. KRAATZ eine Abhandlung über JACOB STURMS „Insecten Cabinet“ veröffentlicht. Dieser Aufsatz enthält eine Anzahl Fehler, die ich jetzt bei der Überprüfung des Index zu PANZERS „Faunae Insectorum Germanicae initia“ und an Hand des im Besitze des Berliner Naturkundemuseums befindlichen Exemplars des „Insecten Cabinets“ fand. In den folgenden Zeilen berichtige ich diese Fehler und teile gleichzeitig einige neue Erkenntnisse mit.

JACOB STURM jr. wurde am 21. März 1771 und nicht 1871, wie KRAATZ angibt, in Nürnberg als Sohn des bekannten Kupferstechers JACOB STURM geboren. Vater STURM war einer der bedeutendsten Kupferstecher Nürnbergs. Sein Signum findet man häufig auf Tafeln der schönsten zoologischen und botanischen Werke, welche in der 2. Hälfte des 18. Jahrhunderts erschienen. Der Sohn erlernte dasselbe Handwerk und veröffentlichte, erst 20jährig, im Jahre 1791 das 1. Heft seines „Insecten Cabinets“, welches er selbst I-tes Stük nennt. In demselbem Jahre erschienen noch das II. und III. Stük, während das IV. Stük im Jahre 1792 herausgegeben wurde. Die Kupfer des I. und II. Stüks wurden auf Velin-Papier, die des III. und IV. Stüks auf dünnem Papier gedruckt. Jedes Stük enthält 25 Tafeln im Format $13,4 \times 10,3$ cm, die sich in einer Einsteckhülle befinden, welche mit marmoriertem Papier bezogen ist. Auf der Außenseite dieser Hülle ist der in Fig. 1 abgebildete gestochene Titel in der Größe $7,8 \times 6,8$ cm aufgeklebt. Die 1 und 2 in 1791 und 1792, sowie die Nummer des Stüks sind mit Tinte nachgetragen.

STURM hat sein Werk auf kleine Kupferplatten der verschiedensten Größe gestochen. Diese Platten sind so klein, daß der volle Plattenrand auf jeder Tafel sichtbar ist. Da die Größe der verwendeten Kupferplatten

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