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The *Atomaria gibbula* group of species

(Coleoptera, Cryptophagidae)

with 9 figures

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Introduction

Without doubt, the *Atomaria gibbula* group of species is one of the most difficult in the whole of the genus. This is due to the overall similarity in the external appearance of the many REITTERian species, as well as to a wide range of variation. That difficulties with regard to species-interpretation are more prevalent in this particular group can be readily explained by the fact that the majority of species are wingless, and since many are particularly to be found in mountainous regions, some isolation of populations is bound to occur and to result in local forms. However, these are not usually clearly defined.

REITTER (1887) recognised seven good species in the group. These were *graeseri* REITTER, *jonica* REITT., *gibbula* ERICHSON, *impubens* REITT., *rubricollis* BRISOUT, *thorictoides* REITT., and *laevis* REITT. A further species involved here, *atripennis* REITT., was placed in a different section of the genus. In a drastic shake-up, HOLDHAUS (1903) reduced these to four under the names *cognata* ERICHS., *gibbula* ERICHS., *graeseri* REITT. and *hislopi* WOLLASTON, relegating the remainder to either synonyms, varieties or subspecies. REITTER's conclusions were reached by studying series from widely scattered localities, and by looking into the inhabitants of those localities on their own merits. HOLDHAUS, on the other hand, examined the group of species as an entirety in itself, and he was struck by the great similarity and variation which led him to recognise fewer species. In some ways it would be difficult to disagree with HOLDHAUS's results on the observations which he presents, but to arrive at more valid conclusions it is necessary to extend studies in the group to a much greater depth than was done by either of these two workers.

Material and Acknowledgements

The present study is based upon nearly 650 specimens, including the type material of almost all described species, and, where necessary, lectotypes are designated along with paralectotypes. The locality and collector of examined specimens are listed under each species. Most species were described by REITTER, who did not have the concept of a holotype, and his collection of *Cryptophagidae* actually con-

sists of two separate collections. His own collection, which we must accept as being the more important, is conserved in the Hungarian Natural History Museum, Budapest. A second collection, which frequently contains species not represented in the main collection, was purchased by GROUVELLE, and is deposited in the Muséum National d'Histoire Naturelle, Paris. (NB. It must here be pointed out that many specimens in the latter collection bear a faded pink label with the word "Type" printed on it. This label does not occur on material in REITTER's own collection, so must have been added by GROUVELLE, or by the museum authorities a long time ago. Hence it is not to be construed too literally). In addition to these two collections, REITTER of course distributed material very widely on a financial basis, and consequently other specimens are likely to turn up in any European museum. Quite obviously it is virtually impossible to try and collect together this material — of unknown quantity and location — but a few specimens have never-the-less come to light, and, where necessary have been designated as paralectotypes.

For the loan of valuable material in connection with this work, the writer would like to thank the following colleagues and institutions:

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The gibbula group

As here understood, the *gibbula* group of species may be broadly defined thus.

Pronotum broadest at or behind the middle, the sides very feebly curved, or more usually sub-parallel in the basal half; base of the pronotum with a transverse depression in the middle, generally becoming less-defined towards the hind angles; surface of the pronotum not or finely shagreened, at least in the basal half, the punctuation of the pronotum and elytra of somewhat similar strength, or the former a little stronger; elytra usually rather humped at the basal third, where the greatest breadth lies in most species, the surface almost always shagreened to a greater or lesser extent; body form usually highly convex in most species; wings fully developed in very few species, the majority being apterous or occasionally brachypterous — ie. the wings narrow and shorter than the elytra; legs and antennae reddish-brown; antennae with the first segment not or but little longer than broad, the second longer and about as long as the third, segments four to eight alternately short (weakly transverse) and longer (quadrate to weakly elongate),

antennal club clearly deposited and with segments nine and ten clearly transverse (more so in the female). Male genitalia with the apex of the paramere plate rounded. Males are usually a little narrower than the females, with the elytra somewhat more acuminate apically.

In some respects *ruficornis* (MARSHAM) comes near the *gibbula* group, but it is easily recognised by the elytral puncturation being considerably finer than that of the closely punctured and frequently strongly shagreened pronotum, which is proportionately narrow compared to the elytral width. The Canarian *bulbosa* WOLLASTON, although closely allied to the *gibbula* group, is immediately separable by the sub-globose form, very fine puncturation, and absence of a basal transverse depression to the pronotum. A further ally is *montenegrina* REITTER. Although similar to *gibbula* in body form, this species possesses considerably thick antennae of which segments four to eight are all very short and similar, a character shared by the Caucasian *cephennoides* REITTER. Members of the *analis* group are more elongate (particularly the elytra) than the *gibbula* group, more weakly convex, and possess thinner antennae in which segments nine and ten are narrower resulting in the club being more weakly deposited. A further important character for this group is the extended and somewhat pointed apex to the paramere plate of the male genitalia.

Specific characters

When we study the male genitalia, it is immediately obvious that the species fall into two natural groups depending on the structure of the sclerotised distal end of the flagellum (hereafter referred to solely as the flagellum). In the first group, which comprises *gibbula* ERICHSON, *rubricollis* BRISOUT, *laevis* REITTER, *graeseri* REITTER, and *sparsula* REITTER, the flagellum is exceptionally fine and long, being approximately equal in length to or greater than the length of the penis. The second group on the other hand possess a proportionately thicker and much shorter flagellum, shorter than the penis in length. This latter group includes *jonica* REITTER, *parvula* REITTER, *hislopi* WOLLASTON and *rubida* REITTER (*cognata* auctt.). With the exception of *rubida* in which it is weakly curved, the apex of the paramere plate is virtually identical in all the species, with a similar and variable number of setae situated at the sides and apex. Variation also extends to the y-shaped basal region of the paramere plate. Although it is often possible to detect slight differences in shape between certain species, no significance is attributed to these as this structure rarely presents any useful characters in the genus as a whole. A few valuable characters are to be found in the penis, in addition to the flagellum discussed above. These include: the length of the apical region of the penis in proportion to the basal region; the actual shape of the penis apex — rather truncate in most species, but pointed in *gibbula*, somewhat rounded (?) in *sparsula*, whilst in *hislopi* it is narrowed as well as truncated; and also the shape of the internal sclerite situated approximately medially (the actual position may vary due to the degree of evagination of the internal armature) within the penis. This sclerite is V-shaped in most species, but a larger and more ample U-shape in *gibbula* and *hislopi*.

There are very few external characters, the most important being the length of the elytral pubescence, presence or absence of wings, general body form and size, and coloration. Puncturation is sometimes of value. However it must be stressed

that prime importance should be attached to the structure of the male genitalia, as this is the only reliable means of determining certain species, eg. *gibbula*, *jonica* and *parvula*. Male genitalia should be cleaned by boiling in caustic, then mounted in a suitable permanent mountant on celluloid — the writer uses 'Euparal'. Dry mounts are not recommended as they lead to distortion and an obscuring of the internal structure.

Key to palaearctic species

- 1 Elytra broadest about the middle, hardly humped at the basal third, with a distinct humeral callus; wings always fully developed; aedeagus as in fig. 9. Length 1.39–1.68 mm; reddish-brown species, very rarely black; pronotum usually extremely finely and sparsely punctured, the basal depression weak; elytral pubescence as long or three-quarters the length of a claw joint. **rubida** REITTER
- Elytra broadest generally at the basal third, where they are usually humped, the apex rather acuminate in most species; humeral callus absent; paramere plate more extended apically. 2
- 2 Pronotum strongly humped across the middle, base with a wide and deep transverse depression in the middle half, this becoming shallower at its edges; black species with fully developed wings; length 1.62–1.85 mm, large and broad species; antennal segments 9 and 10 strongly transverse; aedeagus as in fig. 8. Elytral pubescence about three quarters the length of a claw joint; pronotum shagreened, at least near the hind angles. **hislopi** WOLLASTON
- Pronotum not or weakly humped across the middle, with a narrower and not so deep basal depression which often extends to the hind angles; yellowish-brown to reddish species, but if black then apterous; average size smaller, 1.36–1.68 mm; antennal segments 9 and 10 not so strongly transverse. 3
- 3 Head and pronotum generally reddish to reddish-brown, lighter than the elytra which are brown to black; very rarely is the body black in the nominotypical form; apterous to fully winged; aedeagus as in fig. 3. Length 1.44–1.68 mm; pronotum usually obviously shagreened at the base; pronotal puncturation usually fine and sparse. 4
- Body unicolorous yellowish-brown, reddish to black; if black then pronotum more strongly and closely punctured; always apterous species. 5
- 4 Elytral pubescence longer, 0.024–0.032 mm, half to three-quarters the length of a claw joint; usually apterous, very rarely brachypterous or fully winged. **rubricollis** BRISOUT
- Elytral pubescence very short, c. 0.016 mm, about a third the length of a claw joint; usually fully winged, rarely brachypterous, very rarely apterous. **rubricollis atripennis** REITTER
- 5 Elytral pubescence very short, c. 0.016 mm, the hairs about a third the length of a claw joint; pronotum rather broad, 0.67–0.72 mm; elytra very feebly curved at the sides, so that the humeri are almost right angled; elytra broadly rounded apically; aedeagus as in fig. 4. Reddish-brown species, length 1.55–1.60 mm, antennae rather thick; pronotum obviously shagreened, the base with a transverse depression which almost reaches the hind angles; pronotum finely and sparsely punctured, the elytra more so. **laevis** REITTER

- Elytral pubescence longer, 0.032–0.087 mm, at least as long as a claw joint; pronotum not so broad, 0.50–0.69 mm; elytra rather acuminate apically 6
- 6 Elytral pubescence long and outstanding, 0.064–0.087 mm, at least twice as long as a claw joint; aedeagus as in fig. 5. Reddish species. **graeseri** REITTER
- Elytral pubescence shorter and more depressed, 0.032–0.052 mm, at the most one and a third times the length of a claw joint. 7
- 7 Aedeagus with a long flagellum, as in figs. 1–2. 8
Aedeagus with a short flagellum, as in figs. 6–7. 10
- 8 Yellowish-brown species; base of pronotum obviously shagreened; aedeagus as in fig. 2. Pronotal puncturation fine and sparse; elytral pubescence c. 0.032 mm. **sparsula** REITTER
- Reddish or black species; base of the pronotum not or indistinctly shagreened; aedeagus as in fig. 1. 9
- 9 Elytral pubescence 0.04–0.052 mm, as long or 1.3 times longer than a claw joint; reddish or black species; pronotal puncturation somewhat strong and close. **gibbula** ERICHSON
- Elytral pubescence shorter, 0.032–0.04 mm, slightly shorter than a claw joint; reddish species; pronotal puncturation somewhat fine and sparse. **gibbula thorictoides** REITTER
- 10 Aedeagus as in fig. 6. **jonica** REITTER
- Aedeagus as in fig. 7. **parvula** REITTER

(a) Flagellum very long and narrow (*gibbula* section)

(1) ***Atomaria (Anchicera) gibbula* ERICHSON**

Atomaria gibbula ERICHSON 1846, Naturgesch. Ins. Deutschl. Col. 3: 393.

Atomaria hiemalis BAUDI 1870, Berl. Ent. Zeitschr. XIV: 56.

Atomaria gibbula; REITTER 1887, Verh. Nat. Ver. Brünn XXVI (Best.-Tab. 16): 51.

Atomaria gibbula; HOLDHAUS 1903, Münch. Kol. Zeitschr. I: 380.

Length 1.41–1.71 mm; pronotal breadth 0.54–0.65 mm; elytral breadth 0.64–0.80 mm; elytral pubescence 0.04–0.052 mm (average 0.048 mm), the hairs usually conspicuously curved, as long or upto one and a third times longer than a claw joint; base of the pronotum not or indistinctly shagreened; reddish to black species, apterous. Aedeagus as in fig. 1.

Type Material ERICHSON's collection in the Museum für Naturkunde, Humboldt-Universität zu Berlin contains a single specimen labelled "Austr.", "7850", "*gibbula* ER., Lectotypus, det. G. A. LOHSE" — designation not published. The present writer has dissected out the male genitalia from this specimen, and this organ has been mounted on a strip of celluloid beneath the specimen, which is herewith designated as the lectotype of *gibbula* ERICHSON. The colouration is reddish.

In the Università di Torino, six specimens from "Pedemonte" are standing over *hiemalis* in the BAUDI collection. None of the specimens bear any written labels other than "♂ ♀" on two pins, on each of which are two card-mounted specimens. The writer has dissected out and mounted the genitalia from two males. The absence of data labels prevents us from saying whether all the material is syntypical, so only a lectotype is being selected to fix the identity of the species, which is an

absolute synonym of the reddish form of *gibbula*. One of the dissected males, now re-mounted, is herewith designated as the lectotype, and the following labels have been added to it: "LECTOTYPE ♂, *Atomaria hiemalis* BAUDI, det. C. JOHNSON '69", and "*A. gibbula* ERICHs. = *hiemalis* BAUDI, det C. JOHNSON '69"

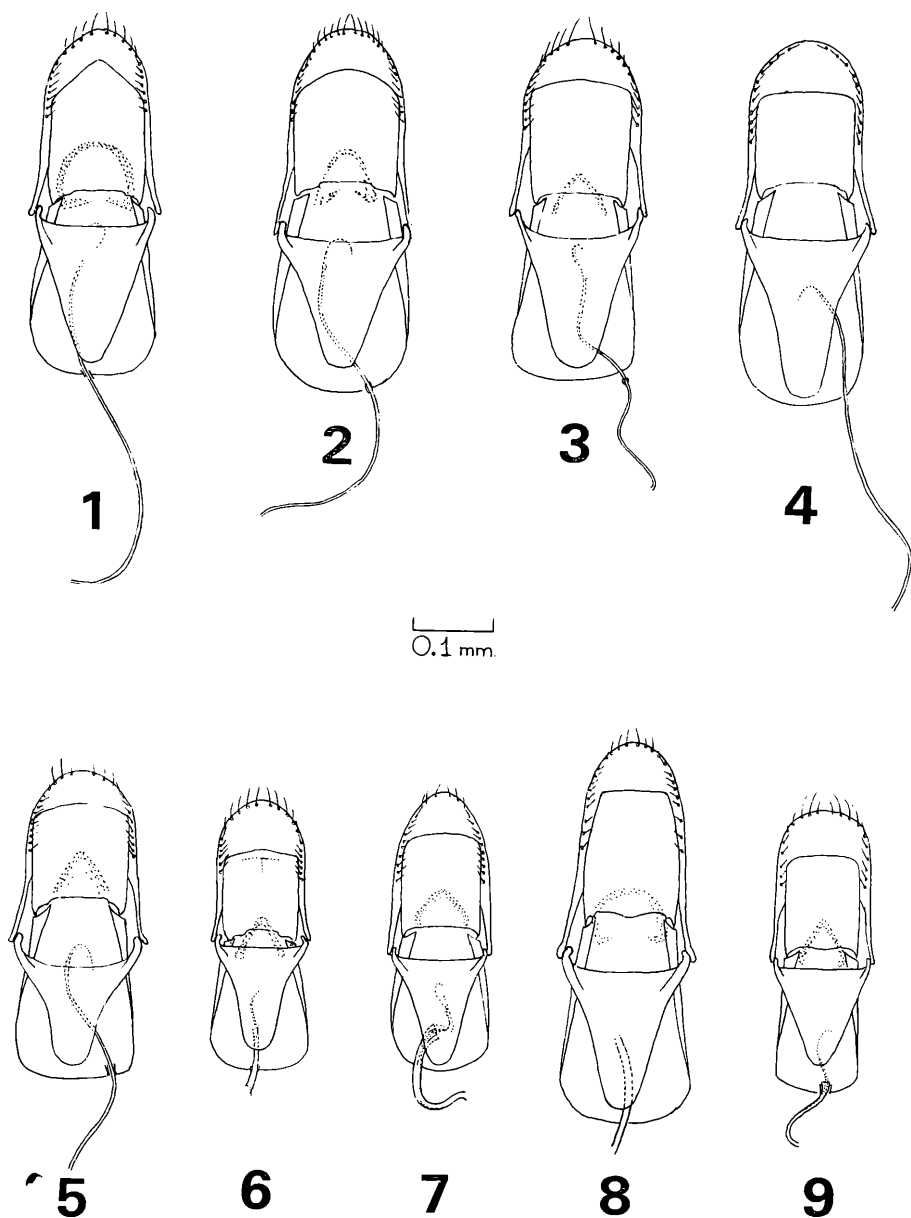
Distribution *A. gibbula* seems to range widely from Saxony in the north to southern Italy, and from France eastwards to Hungary and Bosnia. One male from eastern Siberia has also been seen (difficult to explain for an apterous species!), and it is possible that the species also occurs in the Caucasus, as a single female from that area has been seen. In the absence of a Caucasian male however, the record cannot be accepted. Most previously published records of *gibbula* must be considered unreliable, as there is no doubt that many of them refer to *jonica* REITTER: for example this is the case with the aedeagal figures of both SJÖBERG (1947: 119) and LOHSE (1967: 150). Because of the impossibility of separating most females of *jonica* from *gibbula*, only records of dissected males are given below. Austria: Osttirol: Braverei, umg. Lienz (KOFLER); Nieder: Wien (BREIT); Maria-brünn, umg. Wien (SKALITZKY); Hunzheimer Kögel (BESUCHET); Lunz (GANGL-BAUER); Ober: Linz (leg. LOHSE). — Czechoslovakia: Bohemia: Hrádec Králové (= Königsgratz) (KRACIK, SKALITZKY); Praha (SKALITZKY); Brandýs (= Brandeis am Adler) (SKALITZKY); Davle (ZEMAN); Stromovka (OBENBERGER); Moravia: Cejč (FLEISCHER). — France: Seine-et-Oise, Vallargoujard (ODIER). — Germany: Bavaria: Alling (IHSEN); Regensburg (IHSEN); Ammer See (FRIESER); Starnberger See area — Wurm Moos, Pöcking, Petersbrunn (STOCKLEIN); Saxony: Leipzig (DORN); Naumberg (MAERTENS). — Hungary: Ócsa, Nagyerdő (KASZAB & SZEKESY, HÁMORINÉ & KOVÁCSNÉ). — Italy: Calabria: Oriolo (SOLARI); Liguria: Genoa (SOLARI); Lombardia: Val Camonica — Mte. Glisente, Borno (KRÜGER); Alp. Bergam., Olitre il Colle (BREIT coll.); Piemonte: (STIERLIN); Pedemonte (BAUDI, KRAATZ). — U.S.S.R.: East Siberia: Khabarovsk (= Chabarowka) (REITTER). — Yugoslavia: Bosnia: Bosnian-Brod (OBENBERGER); Sarajevo (APFELBECK); Croatia: Velebit (FLEISCHER); Slovenia: Bled (LOKAY); Ljubljana (FRANZ coll.). — Reputed Danish specimens are not this species, but *rubricollis*.

***Atomaria (Anchicera) gibbula thorictoides* REITTER**

Atomaria thorictoides REITTER 1875, Deutsche Ent. Zeitschr. XIX: 50, 77.
Atomaria thorictoides; REITT. 1887, Verh. Nat. Ver. Brünn XXVI (Best.-Tab. 16): 52.
Atomaria cognata ssp. *thorictoides*; HOLDHAUS 1903, Münch. Kol. Zeitschr. I: 380.
 Length 1.40–1.60 mm; pronotal breadth 0.55–0.66 mm; elytral breadth 0.67–0.82 mm; elytral pubescence 0.032–0.040 mm, the hairs very feebly curved, slightly shorter than a claw joint; base of the pronotum not or indistinctly shagreened; reddish species, apterous. Aedeagus as in *gibbula* (fig. 1).

This subspecies seems to be very constant from the material studied. It differs from the nominotypical form by its finer and sparser puncturation — especially on the pronotum, and shorter and more depressed elytral pubescence. The pronotum is also frequently rather more parallel-sided in the basal half.

Type material In his description, REITTER wrote, concerning the data, "In der Samml. des H. vom BRUCK, u. von ihm in Toscana gef." The vom BRUCK collection, formerly located in the Museum Koenig, Bonn, was however, destroyed

Figs. 1—9. Aedeagi of *Atomaria* (*Anchicera*) sp.

1 *gibbula* Erichson — 2. *sparsula* Reitter — 3: *rubricollis* Brisout — 4: *laevis* Reitter — 5: *graeseri* Reitter — 6: *jonica* Reitter — 7: *parvula* Reitter — 8: *hislopi* Wollaston — 9: *rubida* Reitter.

in 1945 (SACHTLEBEN 1961: 490), so for original material of this species (and *morula* — see under *rubricollis*) we are dependant on any examples in REITTER's collection. No specimens are represented in his own collection in Budapest, but four specimens stand over this name in the GROUVELLE collection in Paris. Two of these are the Caucasian *cephennoides* REITTER, the others *thorictoides* as here understood. Of the latter, one is labelled "Ch. Pesio, 7.97" and cannot be syntypical, whilst the second one bears the label "*thorictoides* m. Toscana v BRUCK" in REITTER's hand, and three printed labels thus: "250", "Coll. REITTER" and "Type", indicating it to be one of the original series. This specimen, which lacks a left antenna, has had the abdomen removed and the spermatheca dissected out by the writer. It is herewith designated as the lectotype and the following labels added to it: "LECTOTYPE ♀, *Atomaria thorictoides* REITT., det. C. JOHNSON '69", and "*At. gibbula* ssp. *thorictoides* REITT. det C. JOHNSON '69"

Distribution The subspecies seems to be restricted to north west Italy and Tuscany. Only one locality (Oltre il Colle) is common to this and the nominotypical form, although a specimen of the latter from Piedmont has been seen.

Italy: Liguria: Buta (LOKAY); Lombardia: Alp. Bergam., Oltre il Colle (BREIT coll.); Piemonte: Crissolo (BREIT coll.); Terme di Valdieri (BREIT coll.); Certosa di Pesio (KÜNNEMAN); Val Pesio (FIORI); Toscana (BRUCK).

(2) *Atomaria (Anchicera) sparsula* REITTER

Atomaria rubricollis v. *sparsula* REITTER 1887, Verh. Nat. Ver. Brünn XXVI (Best.-Tab. 16): 52.

Atomaria cognata ssp. *thorictoides*; HOLDHAUS 1903, Münch. Kol. Zeitschr. I: 380. (Not REITTER).

Length 1.39—1.60 mm; pronotal breadth 0.56—0.64 mm; elytral breadth 0.69—0.78 mm; elytral pubescence c. 0.032 mm, about as long as a claw joint; base of the pronotum shagreened, the elytral rather strongly shagreened; yellowish-brown species, apterous. Aedeagus as fig. 2.

In the lectotype male (see below) the aedeagus has the internal sac partially evaginated, and it is therefore difficult to make out the precise structure of the penis apex: consequently fig. 2 might not be too accurate in this region. Even if the penis apex should prove to be as in *rubricollis*, there are still other significant differences between these two species in the shape of the flagellum and internal V-shaped sclerite. Compared with *gibbula thorictoides*, which it resembles in the length of elytral pubescence, *sparsula* has much more strongly shagreened elytra, is more yellowish in colour, as well as having the penis apex and internal sclerite of a different form. Specimens of *sparsula* from Circassien are a darker shade than syntypical material, but no males have been seen from this area.

Type material There are seven specimens standing over this name in the REITTER collection in Budapest. Five of these (with printed locality labels but no labels in REITTER's hand) are undoubtedly *rubricollis atripennis* REITTER and are not syntypical. A further specimen with the label "Caucasus, Swanetien, LEDER-REITTER" has longer pubescence and is probably a *gibbula* (female). The remaining specimen, a male, bears the labels "Kaukas, LEDER" (printed) and "*rubricollis* v *sparsula* m. 1886" (in REITTER's hand). The aedeagus has now been dissected out and mounted on celluloid, and as the present writer considers the

specimen to be an undoubted syntype, it is herewith designated as the lectotype, and the following labels added to it: "LECTOTYPE ♂, *At. rubricollis* v. *sparsula* REITT. det. C. JOHNSON '69", "*At. sparsula* REITT. det C. JOHNSON '69"

Of the six specimens standing in the GROUVELLE collection, one is *rubricollis atripennis* and is labelled "Caucasus" and "*A. sparsus* m." (sic). Because the label is different from that on the lectotype, this specimen is probably not syntypical, and neither are three further specimens, all unfortunately females, with the label (printed) "Caucas. Occ., Circassien, LEDER-REITTER" REITTER recorded the species from this locality after (1888: 173) he had described it (1887, antea). The two remaining specimens, again both females, agree in colour with the lectotype, unlike the Circassien specimens which are darker. One has the identical "Kaukas, LEDER" label, as well as a "Coll. REITTER" one, and is considered to be a syntype: it is now labelled as a paralectotype. The last specimen of *sparsula* bears a hand-written "Caucasus" label, and is not thought to be syntypical due to this label being different from that of the lectotype.

Distribution U.S.S.R.: Caucasus: no precise locality (LEDER-REITTER); Circassia (LEDER-REITTER).

(3) *Atomaria (Anchicera) rubricollis* BRISOUT

Atomaria rubricollis BRISOUT 1863, Mater. Fn. Franc. in Grenier Cat. Col. Fr.: 68.

Atomaria morula REITTER 1875, Deutsche Ent. Zeitschr. XIX: 50, 75.

Atomaria divisa RYE 1876, Ent. Monthly Mag. XII: 178.

Atomaria rubricollis; REITTER 1887, Verh. Nat. Ver. Brünn XXVI (Best.-Tab. 16): 52.

Atomaria cognata ssp. *rubricollis*; HOLDHAUS 1903, Münch. Kol. Zeitschr. I: 380.

Atomaria rubricollis; SJÖBERG 1947, Entom. Tidskr. 68: 101, 116, 119.

Length 1.40–1.68 mm; pronotal breadth 0.50–0.61 mm; elytral breadth 0.72–0.77 mm; elytral pubescence 0.024–0.032 mm, the hairs feebly curved, half to three-quarters the length of a claw joint; base of the pronotum usually with distinct shagreenation, this frequently extending over the whole surface; head and pronotum generally reddish to reddish-brown, lighter than the elytra which are brown to black; very rarely the whole body is entirely black; usually an apterous species, very rarely brachypterous or even (Greece) fully winged. Aedeagus as in fig. 3.

This species is frequently less humped and with the elytra less curved at the sides than in *gibbula*, *jonica* etc.

Type material It has not been possible to study the type material of BRISOUT's species unfortunately, but it seems very likely that the species is correctly interpreted.

A. morula was described on material "Aus Meran. In der Sammlung des H. vom BRUCK" (REITTER 1875: 76), but as we have seen previously, the vom BRUCK collection was destroyed in 1945. No specimens are to be found in REITTER's own collection, but there is a single specimen in the GROUVELLE collection in the Paris Museum. This latter bears the following labels: "*morula* m. Meran, vom BRUCK" (REITTER's hand), "Coll. REITTER", "Type" and "244", and is a male specimen from which the writer has since dissected out and mounted the aedeagus. This organ shows the species to be the entirely black form of *rubricollis*, and the specimen is herewith designated as the lectotype. The following labels have now been added. "LECTOTYPE ♂, *At. morula* REITT., det. C. JOHNSON '69", and "*rubricollis* BRIS. = *morula* REITT., det. C. JOHNSON '69"

The E. C. RYE collection in the Museum and Art Gallery, Bolton, contains the unique specimen of *divisa* RYE. It is labelled thus "C. E. RYE" (printed), "*divisa* RYE" (in RYE's handwriting?), "7513", and "apparently *rubripennis* (sic) BRIS., A. A. ALLEN det. 1963". The writer has added two further labels to this specimen: "HOLOTYPE ♀, *Atomaria divisa* RYE, det. C. JOHNSON '69" and "*Atomaria rubricollis* BRIS., C. JOHNSON det." (printed).

Distribution A widely distributed species occurring spasmodically from southern Finland in the north to Greece, but seemingly absent from the eastern parts of central Europe.

Austria Kärnten: Mallnitz (KLIMSCH); Koralpe (KLIMSCH); Rattendorf (LOHSE); Nordtirol: Hall-Hasenthal (WOHLMANN); Gaiberbach (HEISS); Taxerhof (HEISS); Matrei (ZSCHÄSTAK). — Denmark: Kjeld Skov (HANSEN); Sundby Storskov (HANSEN). — British Isles: England (RYE); Scarborough (LAWSON); Barcombe (SAUNDERS); Windsor Forest (ALLEN); Ireland: Killarney (BULLOCK). — Finland: Helsing (HOLMQUIST, STOCKMAN); Pälkäne (SÖDERMAN); Tuusula (LINNANIEMI); Espoo (PALMEN). — France: South France (STRAND coll.); Vosges (BODEMEYER); Lisieux (de ROUGEMONT). — Germany: Iklei, Hamburg (LOHSE); Forst Bredow, Umg. Berlin (LIEBMANN); Finkenkrug (WAGNER); Barmen (LETZNER); Arnstadt (LIEBMANN). — Greece: (SCHILSKY); Attika (KELECSÉNYI); Attika, Leonis (ROUBAL); Morea, Hagios Wlassis (BRENSKE); Corfu (LEONHARD, FLEISCHER). — Italy: Calabria: Oriolo (SOLARI); Tortora (SOLARI); Emilia: Casinalbo (FIORI); Bavone (FIORI); Trentino: Merano (BRUCK); Bressanone (PEEZ). — Switzerland: Cossonay (BUGNION). — Yugoslavia: Croatia: Rijeka (= Fiume) (REITTER); Herzegovina: Velez-Planina (LEONHARD).

***Atomaria (Anchicera) rubricollis atripennis* REITTER**

Atomaria atripennis REITTER 1887, Verh. Nat. Ver. Brünn XXVI (Best.-Tab. 16) 42–3.

Atomaria impubens REITTER 1887, Verh. Nat. Ver. Brünn XXVI (Best.-Tab. 16): 52.

Atomaria cognata ssp. *rubricollis*; HOLDHAUS 1903, Münch. Kol. Zeitschr. I: 380. *Atomaria atripennis*; JOHNSON 1969, Norsk Ent. Tidsskr. 16: 77–78.

This subspecies is identical with the nominotypical form in most respects, except that no entirely black specimens have been seen. It differs in the very short and inconspicuous elytral pubescence, length c. 0.016 mm, which is about a third the length of a claw joint, and being usually fully winged; brachypterous forms are rarer, whereas it is only very rarely apterous. The base of the pronotum usually lacks shagreenation.

Type material The recently selected lectotype of *atripennis* is in the Paris Museum (JOHNSON, antea).

Standing over the name *impubens* in REITTER's own collection are eight specimens, all of which bear the printed label "Turkmenia, LEDER-REITTER". In addition, one of these is labelled in REITTER's hand "*A. impubens* m. Turcm. 1887": this specimen is herewith designated as the lectotype and the following labels added to it — "LECTOTYPE ♂, *At. impubens* REITT., det. C. JOHNSON '69", and "*atripennis* REITT., = *impubens* REITT., det. C. JOHNSON '69". The remaining seven specimens are herewith designated paralectotypes. Eight specimens with the same label are represented in the GROUVELLE collection, and these are also desig-

nated paralectotypes. Other paralectotypes are also to be found in the Zoologische Sammlung des Bayerischen Staates, München (one specimen) and the Deutsches Entomologisches Institut, Eberswalde (five specimens). It is likely that further specimens will turn up in other museums.

Distribution This subspecies replaces the nominotypical form in Asia Minor, the Near East and Soviet Middle Asia.

Israel: Haifa (REITTER). — Jordan: Amman (KLAPPERICH). — Turkey: Samsun (KORB). — U. S. S. R.: Caucasus, 'Swanetien' (LEDER-REITTER); Caspian Sea area, Liryk (LEDER-REITTER); Neu-Saratov, Transcaspia (Mus. Praha); Turkmenia (LEDER-REITTER).

(4) *Atomaria (Anchicera) laevis* REITTER

Atomaria laevis REITTER 1884, Deutsche Ent. Zeitschr. 28: 252.

Atomaria cognata ssp. *thorictoides*; HOLDHAUS 1903, Münch. Kol. Zeitschr. I: 380. (Not REITTER).

Length 1.55–1.60 mm; pronotal breadth 0.67–0.72 mm; elytral breadth 0.80–0.83 mm; elytral pubescence 0.016 mm, the hairs feebly curved, about a third the length of a claw joint; base of the pronotum finely shagreened; reddish-brown species, apterous; sides of the elytra more weakly curved, and the apex much more rounded than in other species. Aedeagus as in fig. 4.

An easily recognisable species due to the rather thick antennae, very short elytral pubescence, and the short and broad body form. The elytra are weakly curved at the sides resulting in the humeral angle being almost right angled, and the elytral apex is more rounded, i.e. less acuminate than in other species. No importance should be attached to the form of the setae on the paramere plate (fig. 4), where they do not protrude beyond the plate. This condition is probably accidental. The directions in which apical setae point, and their apparent length, depend on the preparation procedure to some extent. Only the one male has been seen.

Type material There are three specimens standing over this name in REITTER's collection. One is mounted on a triangular piece of celluloid, and bears a handwritten (REITTER's) label "*A. laevis* m. Syrien", whilst the other two specimens each possess a printed "Kaifa (sic.), Syrien, REITTER" label and the number "708 102". It seems likely that these two latter specimens are not syntypical, as this identical printed label is to be found on specimens of *sparsutula* REITTER, which was described from Syria and the Morea in 1887. The first-mentioned specimen is therefore designated as the lectotype, and the following label added: "LECTOTYPE ♀, *Atomaria laevis* REITT., det. C. JOHNSON '69" GROUVELLE's collection contains four examples with the "Kaifa (sic.) Syrien, REITTER" label, as in the other two specimens in REITTER's collection. In the Deutsches Entomologisches Institut, Eberswalde, is a single specimen with the printed label "Haifa, Syrien, REITTER" in a different style, but it is not possible to say whether this is syntypical or not.

Distribution Only known from the Near East.

Israel: Haifa (REITTER). — Lebanon: Beirut (recorded by HOLDHAUS, 1903: 374, but specimens not seen by the writer).

(5) *Atomaria (Anchicera) graeseri* REITTER

Atomaria graeseri REITTER 1887, Verh. Nat. Ver. Brünn XXVI (Best.-Tab. 16): 49. *Atomaria graeseri*; HOLDHAUS 1903, Münch. Kol. Zeitschr. I: 380.

Length 1.52–1.60 mm; pronotal breadth 0.58–0.67 mm; elytral breadth 0.67–0.83 mm; elytral pubescence 0.064–0.087, the hairs at least twice the length of a claw joint, and outstanding; base of the pronotum not or indistinctly shagreened; reddish species, apterous. Aedeagus as in fig. 5.

In general appearance, this species greatly resembles *gibbula* and *jonica*, but it is immediately separable from these and all other members of the group by its obviously longer and outstanding elytral pubescence.

Type material There is a single specimen on a triangular mount in REITTER's own collection with the labels " (illegible), Wladivostok, Sibir.", and "Graeseri m." This is herewith designated as the lectotype, and the following label added: "LECTOTYPE ♀, *Atomaria graeseri* REITT., det. C. JOHNSON '69" GROUVELLE's collection contains five specimens standing over this name from 'Chabarowka', but these are not syntypical as the species was only described from Vladivostok. One of these specimens is actually a small male *gibbula*.

Distribution U.S.S.R.: East Siberia Vladivostok (GRAESER-REITTER); Khabarovsk (= Chabarowka) (REITTER).

(b) Flagellum short and somewhat thick (*jonica* section)

(6) ***Atomaria (Anchicera) jonica* REITTER**

Atomaria jonica REITTER 1887, Verh. Nat. Ver. Brünn XXVI (Best.-Tab. 16) 50.

Atomaria gibbula var. *mehadiensis* GANGLBAUER 1899, Käf. Mitteleur. 3: 735.

Atomaria gibbula var. *hiemalis*; HOLDHAUS 1903, Münch. Kol Zeitschr. I: 380.

(Not BAUDI).

Atomaria jureceki OBENBERGER 1916, Arch. Natg. 82: 23–4.

Atomaria gibbula; SJÖBERG 1947, Entom. Tidskr. 68: 101, 119. (Not ERICHSON).

Atomaria gibbula; LOHSE 1967, Die Käf. Mitteleurop. 7: 151. (Not ERICHSON).

Length 1.35–1.70 mm; pronotal breadth 0.54–0.69 mm; elytral breadth 0.70–0.86 mm; elytral pubescence 0.04–0.052 mm; the hairs weakly to conspicuously curved, about as long to one and a third times longer than a claw joint; base of the pronotum not or indistinctly shagreened; reddish to black species, apterous. Aedeagus as in fig. 6.

Although certain separation from *gibbula* and *parvula* is generally only possible on male genitalia characters, extreme forms of *jonica* can usually be identified without recourse to dissection. Specimens from the maritime alps have more depressed elytral pubescence than either *gibbula* or *parvula*. At the other extreme, specimens from Corfu and parts of Bulgaria have more curved and less depressed elytral pubescence than either of the two afore-mentioned species, whilst some Corfu males have particularly long antennae. Colouration seems to vary between localities and areas, and often one is dominant, eg. reddish: Corfu, Bavaria, Italy (not Trentino), black: Trentino, Styria, Yugoslavia and Hungary. From all the specimens examined, *jonica* does not seem to occur in company with *gibbula*. Only one locality (Olitre il Colle, Alp. Bergam.) from some seventy listed is common to both species.

Type material Four specimens are represented in REITTER's collection in Budapest. These all bear a printed label "Corfu, REITTER" (two of them the number "708 101"), one in addition bearing the name "*Atomaria jonica* REITTER" This latter specimen, a male with long antennae, is herewith designated as the lectotype and to it has been added the label "LECTOTYPE ♂, *Atomaria jonica* REITT., det. C. JOHNSON '69" The remaining three specimens are designated paralecto-

types. GROUVELLE's collection contains eight specimens standing over *jonica*, one of which is the *analys pallidipennis* of HOLDHAUS. Five of the others, all correct, are labelled with the same data label as the Budapest specimens, are therefore now designated paralectotypes. The two other specimens lack the distinctive data label, and are thus not designated. Single syntypical specimens with the customary "Corfu, REITTER" are to be found in the Deutsches Entomologisches Institut, Eberswalde, and in the Naturhistorisches Museum, Wien, and these too are designated paralectotypes.

GANGLBAUER's collection in the Naturhistorisches Museum, Wien, contains two specimens of his *gibbula* var. *mehadiensis*. The writer has dissected out the aedeagus from one of these specimens, which is labelled (printed) "GANGLB. 95, Herkulesbad" and "v. *mehadiensis* GANGLB." This is herewith designated as the lectotype and the following labels added to it: "LECTOTYPE ♂, *Atomaria gibbula* v. *mehadiensis* GANGLB., det. C. JOHNSON '69", and "*Atomaria jonica* REITT., det. C. JOHNSON '69" The second specimen, labelled "Herkulesb. WINGELM." is designated a paralectotype.

A. jureceki was described by OBENBERGER on material from Südtirol. Two specimens labelled "Rovereto" and "TYPUS", and with an OBENBERGER det. label are in the National Museum of Natural History, Praha, and there is a further specimen, identically labelled, in the Deutsches Entomologisches Institut, Eberswalde. The two Praha specimens have had the aedeagus dissected out by the writer, and one of them is herewith selected as the lectotype and so labelled. The second specimen and the D. E. I. one are designated paralectotypes.

Distribution A widely distributed species in central, southern and south eastern Europe, commonly mixed with *gibbula* in collections. The following records all refer to males, unless stated otherwise.

Albania: Avlona (v. OERTZEN), female. — Austria: Steiermark: Turnau (BREIT coll.); Selzthal (MOOSEBRUGGER); Pürgschachenmoor b. Selzthal (FRANZ); Umg. Admont (FRANZ); Graz (FRANZ). — Bulgaria: Samakov (HILF); Trevna (HILF); Krske (HILF); Tschamkonja (HILF); Vitos, Kajaževo (RAMBOUSEK). — France: Alp. marit.: St. Martin-Vésobrie (BUCHET). — Germany: Bavaria: München (PFAUNDLER, IHSEN, OETTEL, DANIEL); Birket (PFAUNDLER); Allach (DYCKE); Dach-Moos (DYCKE); Schofs-Moos (STÖCKLEIN). — Greece: Corfu (REITTER, PAGANETTI, HUMMLER). — Hungary: Velencei-hegys (KASZAB). — Italy: Emilia: Casinalbo (FIORI); Mt. Capra (FIORI); Catissalbo (FIORI); Pavalbo (FIORI); Lombardia: Alp. Bergam., Olitre il Colle (BREIT coll.); Piemonte: Crissolo (BREIT coll.); Trentino: 'Tirol m.' (JUREČEK); Rovereto (JUREČEK); Vallarsa (JUREČEK); Veneto: Colli Euganei (BREIT coll., WINKLER, HOLDHAUS). — Romania: Comana Vlasca (MONTANDON); M. Rodni (= Rodnaer Gebirge) (DEUBEL), Baile Herculane (= Herkulesbad) (GANGLBAUER, WINGELMÜLLER). — Yugoslavia: Bosnia: Derwent (HILF); Prozor (LEONHARD); Bjelašnica (LEONHARD); Herzegovina: Jablanica (LEONHARD); Slovenia: Maribor (= Marberg) (HEISS coll.); Serbia: Azanja (FLECK).

(7) *Atomaria (Anchicera) parvula* REITTER

Atomaria parvula REITTER 1875, Deutsche Ent. Zeitschr. XIX: 50, 77.

Atomaria gibbula var. *hiemalis*; REITTER 1887, Verh. Nat. Ver. Brünn XXVI (Best.-Tab. 16): 51. (Not BAUDI).

Atomaria gibbula var. *hiemalis*; HOLDHAUS 1903, Münch. Kol. Zeitschr. I: 380. (Not BAUDI).

♂ ♂ Length 1.31–1.39 mm; pronotal breadth 0.53–0.58 mm; elytral breadth 0.66–0.70 mm; elytral pubescence 0.04–0.048 mm, the hairs somewhat weakly curved and depressed, slightly longer than a claw joint; brownish-black species, apterous; base of the pronotum not or indistinctly shagreened. Aedeagus as in fig. 7.

The present species can only be identified from the structure of the male genitalia, in which the shape of the flagellum is characteristic. On external features, *parvula* is like a small *gibbula/jonica*.

Type material *A. parvula* was originally described from Dalmatia (as Illyria) and Italy, and although not represented in REITTER's own collection, there are two specimens standing over this name in the GROUVELLE collection. One of these, a female *jonica*, is a MONTANDON-collected specimen from Comana Vlasca, but the second specimen is a probable syntype. It is labelled "*parvula* m. (*parvula*) m. Valombrosa, v. BRUCK" in REITTER's hand, and bears the usual printed labels "Coll. REITTER", "Type" and "246" The writer has dissected out the aedeagus from this specimen, which is herewith designated as a lectotype, and the following label added "LECTOTYPE ♂, *Atomaria parvula* REITT., det. C. JOHNSON '69" It is possible that the Dalmatian record may refer to small *jonica*, since *parvula* as now understood cannot be recognised on external features.

Distribution This is one of the rarest species in the group, and only three males have been seen. A single female from Mte. Pagano is thought to be this species, as it was captured by PAGANETTI.

Italy: Central: Vallombrosa, Toscana (BRUCK); Mte. Pagano, Abruzzo/Molise (PAGANETTI); Camerata Nuova (KRÜGER).

(8) *Atomaria (Anchicera) hislopi* WOLLASTON

Atomaria hislopi WOLLASTON 1857, Trans. Ent. Soc. Lond. IV: 77–8.

Atomaria gibbula var. *hislopi*; REITTER 1887, Verh. Nat. Ver. Brünn XXVI (Best.-Tab. 16): 51.

Atomaria hislopi; HOLDHAUS 1903, Münch. Kol. Zeitschr. I: 382.

Atomaria hislopi; SJÖBERG 1947, Entom. Tidskr. 68: 101, 115–6, 119.

Atomaria hislopi; LOHSE 1967, Die Käf. Mitteleurop. 7: 151.

Length 1.62–1.85 mm; pronotal breadth 0.69–0.78 mm; elytral breadth 0.83–0.96 mm; elytral pubescence 0.032–0.048 mm, the hairs feebly curved, as long or three quarters the length of a claw joint; base of the pronotum usually clearly shagreened; black species, fully winged. Aedeagus as in fig. 8.

A distinctive species due to the large size, black colouration, humped pronotum with the exceptionally well-developed depression in the middle half of the base, well-developed antennal club in both sexes, and the fully developed wings.

Type material The writer has only been able to trace a single syntypical specimen, the one referred to by the describer as being in the STEPHENSian cabinet in the British Museum (Nat. Hist.), London. It is glued onto a small triangular mount, and bears a rough label with the word "*Hislopi* W" written in black ink, probably in WOLLASTON's hand. This specimen is herewith designated as the lectotype, and the following label affixed "LECTOTYPE ♂, *Atomaria hislopi* WOLL., det. C. JOHNSON '69"

Distribution Scattered in Fennoscandia and the northern parts of the British Isles. A male has also been seen from the Russian Carpathians. The species frequents dung, especially that of deer etc., in early summer, particularly in wooded localities.

British Isles: England: Scarborough (LAWSON); Scotland: (CROTCH); Falkirk (HISLOP); Garelochhead (SHARP); Glasgow (POWER); Rannoch (HARWOOD, POWER, SHARP, BEDWELL); Braemar (SHARP); Glen Quoich, nr. Braemar (JOHNSON). — Norway: Svartskog (STRAND). — Finland: Karislojo (SAHLBERG); Pirkkala (SAARINEN); Pälkäne (SÖDERMAN); Lammi, EH. (LINNAVUORI); Uusikaupunki (SÖDERMAN). — Sweden: By, Dlr. (PALM); Simonstorp, Ögtl. (EHNSTRÖM, BARANOWSKI); Vingang, Vrml. (BARANOWSKI). — U. S. S. R.: Carpath. or., Mt. Pożyzewska nr. Vorochta (LOKAY).

(9) *Atomaria (Anchicera) rubida* REITTER

Atomaria rubida REITTER 1875, Deutsche Ent. Zeitschr. XIX: 50, 74.

Atomaria testacea var. *rubida*; REITTER 1887, Verh. Nat. Ver. Brünn XXVI (Best.-Tab. 16): 50.

Atomaria testacea var. *viennensis* REITTER 1887, Verh. Nat. Ver. Brünn XXVI (Best.-Tab. 16) 50. (Not REITTER 1875?).

Atomaria versicolor; FOWLER 1889, Col. British Islds. 3: 343–4. (Not ERICHSON).

Atomaria cognata; GANGLBAUER 1899, Käf. Mitteleurop. 3: 733. (Not ERICHSON).

Atomaria cognata; HOLDHAUS 1903, Münch. Kol. Zeitschr. I: 380. (Not ERICHSON).

Atomaria viennensis; HUBENTHAL 1928, Ent. Blätter 24: 77. (Not REITTER 1875?).

Atomaria cognata; SJÖBERG 1947, Entom. Tidskr. 68: 101, 119. (Not ERICHSON).

Atomaria cognata; LOHSE 1967, Die Käf. Mitteleurop. 7: 151. (Not ERICHSON).

Length 1.39–1.68 mm; pronotal breadth 0.56–0.69 mm; elytral breadth 0.69–0.85 mm; elytral pubescence 0.032–0.048 mm, the hairs weakly curved, about as long or three-quarters the length of a claw joint; colouration reddish-brown, rarely black; fully winged; base of the pronotum not or weakly shagreened. Aedeagus as in fig. 9.

This species is immediately separable from other species included in the *gibbula* group on account of the elytra being broadest about the middle, elytra with a distinct humeral callus, and the wings always being fully developed. The pronotum is usually extremely finely and sparsely punctured, and the basal depression often weak. Specimens from the area around Vienna and parts of Bosnia are darker and more coarsely punctured than from other areas, and have closer and longer pubescence.

Nomenclature This species has usually been known as *cognata* ERICHSON since the turn of the century, but an investigation into the nomenclature has revealed much confusion.

In the first place, ERICHSON (1846: 392) states that his *cognata* is larger than *analis*, has shorter pubescence, is black but with lighter shoulders and apex to the elytra, and has darkened legs. This description certainly does not apply to *cognata* auctt. ERICHSON's collection contains four specimens standing over this name, two *analis* and two *morio* KOLENATI, and although on this basis HUBENTHAL (loc. cit.) synonymised *cognata* with *morio*, the description of *cognata* deviates from *morio* in several respects. In the writer's opinion, ERICHSON's description can hardly apply to any one *Atomaria* species. The size would seem to rule out dark *rubricollis* BRISOUT, whilst certain other details eliminate *peltata* KRAATZ. It seems best to consider the *cognata* description as referring to more than one species, and to place the name doubtfully in part synonymy with *analis* and *morio*. It is interesting to note that some workers, notably STURM (1846: 40) and REITTER (1875: 61), evidently interpreted *cognata* as being the species known to us as *morio* KOLENATI.

Two other names figure in this nomenclatorial discussion, *rubida* REITTER and *viennensis* REITTER. *A. viennensis* was described by REITTER (1875: 74–5) on material from Austria and Serbia, and the size and colour given suggest to the writer that this species is probably a female *analys*, as these characters hardly fit *cognata* auctt. On the other hand, in REITTER's "Bestimmungstabellen" (1887: 50), *viennensis* is given as a var. of *testacea* STEPHENS (ie. *analys* ERICHSON), and the brief description seems now to apply to *cognata* auctt.! In a still later work (1911: 72) by REITTER, *viennensis* is given as a synonym of *cognata* ERICHSON (ie. *cognata* auctt.), and *rubida* as an aberration. Unfortunately there is no type material of *viennensis* in Budapest or Paris, nor in the Vienna Museum.

A. rubida, of which again there is no type material in either of REITTER's collections, was originally described from Austria and Italy (REITTER 1875: 74). In the writer's opinion, the description points to *cognata* auctt., although in the "Bestimmungstabellen" the name could apply to certain forms of *analys*. In fact the writer has seen some *analys pallidipennis* HOLDHAUS from Corsica which REITTER has labelled as *rubida*. But even if we concede *rubida* sensu REITTER 1887 to apply to the former species, this does not alter the fact that *rubida* REITTER 1875 points to *cognata* auctt. and is therefore available as a valid name. Even if types of *viennensis* should be found and are identical with *cognata* auctt., *rubida* still has priority through being described before *viennensis*. As indicated above, in his 1911 work, REITTER considered *rubida* to be an aberration of *cognata*.

Distribution Scattered throughout the major part of Europe, but rarer in the north; also occurring in the Caucasus. Like *hislopi*, *rubida* seems to frequent dung of herbivorous animals, although it has been found in many other situations. Austria: Nordtirol: Hall-Hasenthal (WOHLMANN); Amras (WOHLMANN); Steiermark: Liezen (BREIT coll.); Mariazell (LOHSE coll.); Umg. Admont (FRANZ); Kärnten: Metnitz (KLIMSCH); Umg. Illmitz (FRANZ); Nieder: Wien (SCLERETH); Rekawinkel, Wienerwald (SCHILSKY, GANGLBAUER); Ober: Lunz (GANGLBAUER). — British Isles: England: Water Eaton (COLLINS); Wytham (COLLINS); New Forest (SHARP, WALKER); Wan Fell (BRITTEN); Scotland: Kinloch, Rhum (STEEL); Wales: Barmouth (BLATCH). — Czechoslovakia: Silesia: Skalice (NOHEL). — Germany: Hinterbrühl, Baden (HOLDHAUS). — Italy: Abruzzi/Molise: Mte. Pagano (PAGANETTI); Lazio: Roma (BRENSKE), Liguria: Borghetta (FIORI); Lombardia: Alp. Bergam., Oltre il Colle (BREIT coll.); Piemonte: Antorsto (FIORI); Sicily: Ficuzza (LEONHARD); Toscana: Isle of Elba (HOLDHAUS); Veneto: Mte. Grappa (FIORI); Mte. Pavione (HOLDHAUS). — Spain: Santander: Reinos (SHARP). — Switzerland: Suglez (THEROND coll.). — U.S.S.R.: Caucasus (LEDER). — Yugoslavia: Bosnia: Korična (LEONHARD); Čelič (MATCHA, KREISS); Serbia: Azanja (FLECK); Slovenia: Jesenice (= Jauerburg) (GANGLBAUER).

The most northerly record for this species would seem to be from Finland (KANGAS 1961: 115), but no specimens have yet been seen by the present writer.

Summary

In the foregoing paper, the species of the *Atomaria* (*Anchicera*) *gibbula* group are revised, most of the type material studied, nine good species keyed out and described, and their male genitalia figured. These species are *gibbula* ERICHSON, *sparula* REITTER, *rubricollis* BRISOUT, *laevis* REITTER, *graeseri* REITTER, *jonica* REITTER, *parvula* REITTER, *hislopi* WOLLASTON and *rubida* REITTER. Two subspecies are also recognised, *gibbula thoricoides* REITTER and *rubricollis atri-*

pennis REITTER. In addition, lectotypes are designated for the following thirteen 'species': *gibbula* ERICHSON, *hiemalis* BAUDI, *thorictoides* REITTER, *rubricollis* var. *sparsula* REITTER, *morula* REITTER, *impubens* REITTER, *laevis* REITTER, *graeseri* REITTER, *jonica* REITTER, *jureceki* OBENBERGER, *gibbula* var. *mehadiensis* GANGLBAUER, *parvula* REITTER and *hislopi* WOLLASTON. The locality and collector are listed for all studied specimens.

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