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## BURMEISTER's work on Scoliidæ with especial reference to types and synonymy

(Hymenoptera: Scoliidæ)

These papers are the results of studies of the Scoliidæ in the BURMEISTER collection made by each of the authors independently, many years ago. BETREM's research involved all of the material of the Indo-Australasian species. This material was sent to him in the Netherlands for study. He designated (BETREM, 1928) lectotypes of most of those species that had been described by BURMEISTER. BRADLEY's study was confined solely to confirmation or selection of the types of eighteen of the twenty species of Scoliidæ described by BURMEISTER.

HERMANN CARL CONRAD BURMEISTER was born at Stralsund on the Baltic coast in 1807. He took the degree of M. D. at the University of Halle, where he became Professor of Zoology in 1842. In 1850 he began a two-year journey in Brazil, an account of which he published in 1853 (see BURMEISTER, 1853). His scoliid research was published the next year, so must probably have been initiated before he set out for Brazil. On two occasions, BURMEISTER was a delegate to the Prussian National Assembly. He made another journey to South America during 1857-60, this time to Argentina. He crossed the Andes into Chile, and returned to Europe by way of Panama and the West Indies. He resigned his chair at Halle in 1861, and shortly after settled in Buenos Aires. There he became director of the Museum of Natural History, a position terminated only the year of his death, 1892, his 85th year. BURMEISTER published eighty entomological titles, the first when he was twenty-two years of age, the last when he was eighty-one. He was not especially a specialist on Scoliidæ, but published on a wide variety of topics.

A biographer, R. M' LACHLAN, himself a noted entomologist, regards BURMEISTER as one of entomology's "most original and careful workers, of most versatile knowledge, most unflagging industry, and most untiring patience." His status is reflected by the fact that three of England's great societies, the Linnaean, the Zoological, and the Entomological, each elected him to Honorary Fellowship.

Dr. BETREM proposed in a letter to Dr. BRADLEY many years ago that certain groups of the genus *Scolia*, hitherto usually ranked as subgenera, should be elevated to generic status. BRADLEY and JACOT-GUILLARMOD are fully in accord with this proposal, and we make those changes here. So far as BURMEISTER's work is concerned they involve *Microscolia*, *Carinoscolia*, *Liacos*, *Triscolia* and *Megascolia*. *Triscolia* was given generic rank by GRIBODO in 1893

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and *Liacos* by MICHA in 1927. That *Liacos* should be regarded as a genus has been stated in BRADLEY and BETREM, 1964, p. 8, 9 and 18. *Carinoscolia* and *Microscolia* have not been published previously as genera. *Trielis* has been treated by BETREM, 1962. *Campsomeriella* BETREM, 1941, has to be considered as a genus also.

*Tristomeris* and *Phalerimeris* are manuscript subgeneric names that will soon be established by Dr. BETREM. They are used here as nomina nuda in order to link the species concerned with where they will eventually find place. The subgeneric position of all species of *Megascolia*, and *Scolia* has been published by BETREM and BRADLEY, 1964.

### Abbreviations

"BURM. C." indicates the BURMEISTER collection. "C. U." indicates that a specimen compared by BRADLEY with the type is in the collection of Cornell University.

When BURMEISTER employed the abbreviation "Kap" in publishing, or "Pr. b. sp." (Promontoria Bonae Spei, used by KLUG on his labels), he had reference in each case to the Cape of Good Hope.

BURMEISTER in publishing marked his new species with an asterisk, sometimes also on labels.

### Part I

#### The Types, Senior Synonyms, and Taxonomic Status of the Nominal Species of Scoliidae described by HERMANN BURMEISTER

By J. CHESTER BRADLEY

The collection of HERMANN CARL CONRAD BURMEISTER is in the Zoological Institute of the University of Halle, where I had opportunity to study it in 1929. I am indebted to the authorities of the University and especially to the late Dr. HAUPT for the privilege.

3. *anthracina* BURMEISTER, *Scolia*, ♂, ♀, 1854, p. 16. "Neu-Holland (v. Schwanenfluß)"

= *Campsomeria* (*Australelis*) *anthracina anthracina* (BURMEISTER), BETREM. The "hololectotype" selected, labelled, and published by BETREM, 1928 p. 113, in BURM. C., bears no locality. It runs to "*anthracina*" in BETREM's key, 1928, p. 74, Couplet 75 b. See also Part III.

48. *aulica* BURMEISTER, *Scolia*, ♀, ♂, 1854, p. 33. "Sud Carolina"

= *Scolia* (*Discolia*) *dubia* SAY. There are one female and two males in the BURM. C. I hereby designate and have labelled the female to be "Lectotype". C. U.

35. *campestris* BURMEISTER, *Scolia*, ♀, ♂, 1854, p. 29. "In Minas Geraes"

= *Campsomeris* (*Aelocampsomeris*) *campestris* (BURMEISTER) BRADLEY. There are three males and two females in the BURM. C. that stand beside BURMEISTER's mss. label "*campestris* mihi Bras. Br.". All of these males and one of the females each bear a pin-label reading "Lagoa Santa". The other female bears a pin-

label reading "Congonh.". The latter is different and clearly not a syntype. I hereby select and have labelled "Lectotype" one of the three males. The lectotype agrees with the type of *pulchella* SAUSSURE except that it has also a band on tergite 6(5). Fine punctulation is not very dense on sternite 7 (6) and 8(7) and is absent on 6(5).

60. *cephalotes* BURMEISTER, *Scolia*, ♂, ♀, 1854, p. 37. "Java"

= *Microscolia capitata* (BURMEISTER), **n. comb.** BETREM, teste BETREM 1928, p. 200. The "hololectotype", ♀, chosen by BETREM, is in the BURM. C.; see remarks by BETREM, loco cit. See also Part III.

43. *chrysotricha* BURMEISTER, *Scolia*, ♀, 1854, p. 32. "Vom. Kap"

= *Scolia* (*Discolia*) *chrysotricha* BURMEISTER. A female in the BURM. C., without pin-label, stands beside BURMEISTER's mss. label "*Chrysotricha* Klug. Pr. b. sp.". This specimen I hereby designate the lectotype and have so labelled it. KLUG had this species in mss., and among other specimens in the Berlin Museum is one bearing KLUG's mss. label "*chrysotricha*". C. U.

*consularis* BURMEISTER, *Scolia* (*Elis*), 1874, p. 46. Argentina

= *Campsomeris* (*Pygodasis*) *terrestris* (SAUSSURE) BRADLEY. The type is presumed to be in Buenos Aires.

39. *decorata* BURMEISTER, *Scolia*, ♀, ♂, 1854, p. 30. "Tapanuli Bay, Sumatra"

= *Scolia* (*Discolia*) *decorata decorata* BURMEISTER, teste BETREM and BRADLEY, 1964, p. 93. BETREM has designated a female in the BURM. C. from "Padang, Sumatra" lectotype and has published it, as "hololectotype", cf. BETREM, 1928, p. 320. See also Part III.

50. *erythropyga* BURMEISTER, *Scolia*, ♀, 1854, p. 33. "Vom Kap"

= *Scolia* (*Discolia*) *erythropyga* BURMEISTER. There are two syntypes in the BURM. C. without pin-labels that stand beside BURMEISTER's mss. label "*erythropyga* Kl. Pr. b. sp.". I have labeled one "Lectotype". C. U.

1. *erythrosoma* BURMEISTER, *Scolia*, ♂, 1854, p. 15. "Vom G. Padang auf Sumatra"

= *Liacos erythrosoma* (BURMEISTER) BETREM, **n. comb.** An unique male in the BURM. C. without pin-label stands beside BURMEISTER's mss. label "*Erythrosoma mihi Sumatra*". It is the holotype and has been so labelled and published by BETREM, 1928, p. 168. The type runs to *erythrosoma* on p. 166 in BETREM's key to the species. See also Part III.

12. *fervida* BURMEISTER, *Scolia*, ♂, ♀, 1854, p. 20. "Mexico"

= *Triscolia ardens* (SMITH.) BETREM and BRADLEY. There are three females and one male in the BURM. C. without pin-labels that stand beside BURMEISTER's

mss. label "*fervida* mihi Mexico". I hereby designate the female as lectotype which I have so marked. C. U.

26. *fimbriata* BURMEISTER, *Scolia*, ♀, 1854, p. 25. "Java"

= *Campsomeriella collaris aureicollis* (FABRICIUS, 1775), infrasubspecific form *fimbriata* BURMEISTER teste BETREM, Part III, and 1947, p. 413. The female lectotype ("lectoholotype") designated by BETREM, 1928, p. 127 (from Java, leg. JUNGHUHN), but not labelled by him, is in the BURM. C. and agrees precisely with the original description. I have labelled it "Lectotype". Another female belongs to *Campsomeris* (*Megacampsomeris*) *asiatica* (SAUSSURE), cf. BETREM, 1928, p. 140. See also Part III.

44. *fulvofimbriata* BURMEISTER, *Scolia*, ♀, 1854, p. 32. "Vom Kap"

= *Scolia* (*Discolia*) *fulvofimbriata* BURMEISTER. Two females in the BURM. C. stand beside BURMEISTER's mss. label reading "*fulvofimbriata* \*Pr. b. sp.", neither bears a pin-label. I hereby designate the one of these which I have so labelled to be the lectotype.

57. *guttata* BURMEISTER, *Scolia*, ♀, 1854, p. 36. "Mexico"

= *Scolia* (*Discolia*) *guttata* BURMEISTER. There are two females in the BURM. C. without pin-labels but standing beside BURMEISTER's mss. label "*guttata*\* Mex". These agree in size and color with the large and small individuals described by BURMEISTER. The smaller specimen is a different species. I hereby designate the large female lectotype and have so marked it.

49. *haematodes* BURMEISTER, *Scolia*, ♂, ♀, 1854, p. 33. "Mexico"

= *Scolia* (*Discolia*) *dubia haematodes* BURMEISTER, teste KROMBEIN, 1951, p. 774. One male and one female without pin-label in the BURM. C. stand beside BURMEISTER's mss. label "*haematodes* BURMEISTER Mex", I hereby designate the female lectotype and have so labelled it. C. U.

34. *limosa* BURMEISTER, *Scolia*, ♂, ♀, 1854, p. 28. "In Mexico"

= *Campsomeris* (*Xanthocampsomeris*) *limosa* (BURMEISTER). Two males and two females are pinned next to BURMEISTER's mss. label "*limosa* Br.". None bear pin-labels and three species are involved: *pilipes* SAUSSURE ♂, ♀ and ♂ of *fulvopilosa* BANKS, and another. Only the *fulvopilosa* agrees with the description. BURMEISTER wrote of the female "Hintersten Ringe rotbraun gefränzt". This applies only to female *fulvopilosa*. He stated that the spurs are spatulate. I, therefore, hereby designate as lectotype the female with the coppery fringes of the apical segment and pygidium. This female has all three bands divided into two spots. I have labelled it "Lectotype". *Scolia fulvopilosa* BANKS is therefore a junior synonym of *limosa*, **new synonym**.

63. *melanaria* BURMEISTER, *Scolia*, ♂, 1854, p. 38. "Vom Kap der guten Hoffnung"

= *Scolia* (*Discolia*) *ruficornis* FABRICIUS. There is a male in the BURM. C. without other label than BURMEISTER's mss. "*melanaria* Kl. Pr. b. sp.". Since according to BETREM there are other presumptive syntypes in the Berlin Museum, I hereby designate this male to be lectotype, although I labelled it "Holotype" when unaware of the others. C. U.

10. *patricialis* BURMEISTER, *Scolia*, ♂, 1854, p. 19. "Auf Sumatra (Padang)"

= *Megascolia* (*Regiscolia*) *capitata capitata* FABRICIUS infrasubspecific form *patricialis* BURMEISTER, teste BETREM and BRADLEY, 1964, p. 444. The holotype from Padang is in the BURM. C. and has been so labelled by BETREM. It runs to *patricialis* in BETREM's key, p. 227. C. U. See also Part III.

17. *quadriguttulata* BURMEISTER (*4-guttulata*), *Scolia*, ♀, 1854, p. 21. "Java"

= *Campsomeris* (*Sericocampsomeris*) *quadriguttulata* (BURMEISTER) BETREM, teste BETREM, 1937, p. 94 and 1941, p. 92. An unique female is in the BURM. C. without pin-label, but standing beside the mss. label "*4-guttulata* Burm. Padang". It agrees with the description, and as noted by BETREM, 1928, p. 115 is the holotype. I have so labelled it. It runs to "*C. peregrina* var. *4-guttulata* BURM." in BETREM's key, 1928, p. 73, couplet 64a. See also Part III.

50. *terminalis* BURMEISTER, *Scolia erythropygga*, var., ♀, 1854, p. 33. "Vom Kap"

= *Scolia* (*Discolia*) *terminalis* BURMEISTER. The holotype is in the BURM. C., and bears BURMEISTER's mss. label "*terminalis* Kl. Pr. b. sp.". I have labelled it "Holotype". The name was KLUG's mss. name. C. U.

- 57a. *tristis* BURMEISTER, *Scolia*, ♂, 1854, p. 36 in note. Mexico

= *Scolia* (*Discolia*) *eximia* SAUSSURE, probably a color variant of *Scolia guttata*. This is the only known Mexican form with which *tristis* can be identified. At the time I studied the BURMEISTER collection I had not regarded *tristis* as an available name, and did not seek the type. For further discussion see Part III.

## Part II

### The Sources of BURMEISTER'S Material

By J. G. BETREM

SCHJÖDTE loaned BURMEISTER certain Fabrician material from the Copenhagen Museum. These included *Tiphia annulata*, see BURMEISTER, 1854, p. 26, note 2, *Scolia quadripustulata*, loc. cit., p. 37, and *Scolia cyanipennis*, both female and male, also loc. cit., p. 37. For further details in the last-mentioned two cases, see the list that follows. While BURMEISTER may have studied Fabrician material of other species, there is no evidence to that effect in his paper.

SAUSSURE and SICHEL, 1864, p. 192, note, and p. 195, note, stated that the reprint of BURMEISTER's paper, 1854, differs in two respects from the original paper. These are: 1) the name *javana*, p. 22, no. 18, has been altered to *cyani-pennis* FABRICIUS and is again referred to on p. 37, no. 59; 2) The name *4-guttulata*, p. 21, no. 17, and also p. 36, no. 68, has been changed to *4-pustulata*. It is not clear why BURMEISTER made these alterations. It is possible that after his paper had been published he concluded that he had misidentified his specimens of these species, which was true, but the matter is difficult to understand, since, as noted above, he had seen Fabrician material of each of them.

Although BURMEISTER only rarely indicated the collector of his material, or from where he had obtained it, it is known to have originated from five sources, as follows:

a) South American species, numbers 15, 19, 20, 21, 33?, 35, 36, and 37, were collected by BURMEISTER himself during his travel in Brazil. (See BURMEISTER, 1853).

b) Italian material: BURMEISTER collected some Scoliidae in September, 1853, during a visit to La Spezia, Piemonte, Italy. (See p. 16 of his monograph).

c) Material from KLUG: KLUG, the curator of insects in the Berlin Museum, sold specimens of insects and sometimes issued price-lists of those that he offered for sale. I regret that I have been unable to obtain either originals or photocopies of any of these lists. On p. 16 of his 1854 paper BURMEISTER quoted the title of one of these price-lists: "Preiss-Verzeichnisse der Naturalien, etc., von West Australien". The manuscript names that KLUG frequently used have found their way into many museums and publications, BURMEISTER's among them. BURMEISTER purchased a part of the material from KLUG.

The following of KLUG's manuscript names were recorded by BURMEISTER in his monograph:

- No. 1. *Scolia anthracina*.
- ? No. 11. *Scolia chinensis* (= *Scolia rubiginosa* FABRICIUS, according to BURMEISTER).
- No. 14. *Scolia cincta* (= *Scolia petiti* GUÉRIN, according to BURMEISTER).
- No. 43. *Scolia chrysotricha*.
- ? No. 44. *Scolia fulvofimbriata*.
- No. 48. *Scolia aulica*.
- No. 50. *Scolia erythropyga*.  
*Scolia erythropyga* var. *terminalis*.
- No. 63. *Scolia melanaria*.
- No. 64. *Scolia aterrima* (= *Scolia cyanea* LEPELETIER according to BURMEISTER).

It is possible that KLUG was the source of the three Mexican species, no. 34, *Scolia limosa*, no. 49, *Scolia haematodes*, and no. 57, *Scolia guttata*, as well as no. 14, *Scolia cincta*, listed above. No. 44, *fulvofimbriata*, and no. 63, *melanaria*, both come from the Cape of Good Hope. BURMEISTER did not state that he received these from KLUG, but he probably did, since KLUG was the source of all of his other Cape of Good Hope material. He doubtless also purchased some north-central African material from KLUG.

d) Indonesian Material: BURMEISTER received all of his Indonesian material from a personal friend, a certain Dr. Fr. JUNGHUHN. The letters appearing on many labels refer to this gentlemen.

JUNGHUHN was a student of medicine at the University of Halle from 1827 until 1832. During the last two years of this period he and BURMEISTER became close friends. Toward the end of the year 1835 JUNGHUHN departed as a physician to Indonesia. He became so interested in natural history that he neglected his patients. Shortly he was charged with responsibility for investigating the natural history of Java, geology as well as botany and zoology. He was the first European to visit the volcanoes of Java, almost all of them, and he attained eminence as a botanist, mycologist and geologist. He became a member of the Government Commission for the Study of Natural History. The material that he collected was, therefore, sent to the Museum at Leiden. In view of his position it appears to me remarkable that he was able to send his Scoliidae, possibly also other insects, to his friend BURMEISTER in Halle. From October 1840 until March 1842, JUNGHUHN was in Sumatra where he made very important studies about the highlands of the Batak country, at that time almost unknown.

BURMEISTER received in all 16 species of Scoliidae from JUNGHUHN, the list of which, as recorded in his monograph, follows:

- No. 1. *Scolia erythrosoma*, G. Padang, Sumatra.
- No. 9. *Scolia procer* FABRICIUS, Java.
- No. 10. *Scolia patricialis*, Padang, Sumatra.
- No. 11. *Scolia rubiginosa* FABRICIUS, Java.
- No. 17. *Scolia quadriguttulata*, Java.
- No. 18. *Scolia javana* LEPELETIER, Java, Sumatra.
- No. 22. *Scolia grossa* FABRICIUS, Java.
- No. 24. *Scolia senilis* FABRICIUS, Java.
- No. 26. *Scolia fimbriata*, Java.
- No. 27. *Scolia quadrifasciata* FABRICIUS, Java.
- No. 28. *Scolia iris* LEPELETIER, Java.
- No. 39. *Scolia decorata*, Sumatra (Tapanuli).
- No. 58. *Scolia quadripustulata* FABRICIUS, Sumatra.
- No. 59. *Scolia cyanipennis* FABRICIUS, Java.
- No. 60. *Scolia cephalotes*, Java.
- No. 61. *Scolia verticalis* FABRICIUS, Sumatra.

e) Scoliids from STURM: BURMEISTER, 1854, p. 16, stated that he had received a specimen from STURM from the Cape of Good Hope which he identified as *Scolia dimidiata* GUÉRIN. This must have been a misidentification. He also received *Scolia tristis* from STURM. There were no further collectors or sources mentioned by BURMEISTER from which he obtained material.

### Part III

#### Notes on the Indo-Australian Species

By J. G. BETREM

No. 3. *anthracina* BURMEISTER

There are two specimens of each sex in the BURM. C. I have designated a female "hololectotype" and a male "allolectotype". In addition, there are two males that BURMEISTER described as a variety without naming it, but the spec-

imens are marked "*bipunctata*", probably a manuscript name given them by KLUG, from whom BURMEISTER obtained his specimens of this species. They belong to *consanguinea* SAUSSURE, which I now consider to be an infrasubspecific form of *anthracina*.

No. 60. *cephalotes* BURMEISTER

There are one female and six males, collected by JUNGHUHN in Java, in the BURM. C. The label bears the abbreviation Jghn. The males are *Carinoscolia melanosoma* (SAUSSURE, 1859), **n. comb.**, teste BETREM, 1928, p. 181.

No. 59. *cyanipennis* FABRICIUS

The three females in the BURM. C., all belong to *Carinoscolia melanosoma* (SAUSSURE, 1859).

No. 39. *decorata* BURMEISTER

There are two specimens of each sex in the collection. They are labelled as coming from Padang, but the text reads from the Bay of Tapanuli. In 1928 I designated one of the females "hololectotype", and one of the males "allolectotype". *Scolia histrionica* FABRICIUS is not *decorata*, as has been thought, but is *japonica* SMITH, teste BRADLEY and BETREM, 1964, p. 15. See also Part I.

No. 2. *dimidiata* GUÉRIN

There is one male in the collection. It stands under the label *Scolia rubiginosa* FABRICIUS. It came from Java, and is *Liacos erythrosoma pyrrhopyga* MICHA, 1927.

No. 1. *erythrosoma* BURMEISTER

BURMEISTER's text reads, as the locality, "G. Padang", which is an abbreviation for Gunung Padang. Gunung is the Malayan word for mountain. Here it may apply to Padang Mountain, but more probably to the high table-land and mountains behind Padang.

No. 26. *fimbriata* BURMEISTER

There are three females in the collection. One, measuring 26 mm. in length, I have previously selected it as lectotype; a second specimen measures only 18 mm; the third is a specimen of *Campsomeris* (*Megacampsomeris*) *asiatica* (SAUSSURE, 1859), a species that occurs above 1,000 m. in the hills.

I am now of the opinion that the best status for *fimbriata* is that of an infrasubspecific form of *quadrifasciata*: *Campsomeriella collaris quadrifasciata* (FABRICIUS), var. *fimbriata* BURMEISTER, cf. BETREM p. 189 in BRADLEY and BETREM, 1964 (first part). It is a local variety, occurring in central Java, colored like *Campsomeriella collaris collaris*, but with a distributional area far remote from that of the latter subspecies. Its area, that of the variety *fimbriata*, borders



on that of *Campsomeriella agilis* SMITH, **new comb.** [= *C. leefmansii* BETREM, 1928, **new synonymy**], which also has the same collar of white setae that characterizes both *fimbriata* and the subspecies *collaris*. The abbreviation "Juv" (probably for *juventus*, juvenile) has been written on the label.

No. 19. ***grossa*** FABRICIUS

The two females that are identified as *grossa* are *Campsomeris* (*Megacampsomeris*) *habrocoma* (SMITH, 1855). This is an endemic lowland species in Java.

No. 6. ***hortorum*** FABRICIUS

It is strange that BURMEISTER cited *hortorum* only from the *Systema piezatorum*, without mentioning the earlier works in which FABRICIUS included it. In BRADLEY and BETREM, 1964, p. 33, I have shown that *hortorum* in the *Systema piezatorum* refers to the males of *Scolia flavifrons*, but the older references to *hortorum* are senior synonyms of *Scolia interstincta* KLUG. At that time I rejected *hortorum* FABRICIUS as a *nomen oblitum*. But I have since discovered that MICHA in Mitt. Zool. Mus. Berlin, 1927, 13: 132, wrote "CYRILLO deutet die *Scolia hortorum* F., die mit der *Discolia interstincta* KLUG identisch ist, falsch und versteht darunter das Männchen von *Triscolia maculata flavifrons* F.". It is very difficult to say whether this constitutes use of the name as a senior synonym in the sense of Art. 23 (b) of the Code, but assuming that it does, it being within the fifty-year period, we have no choice except to adopt *hortorum* FABRICIUS in place of *interstincta* KLUG, although the latter name is in general use.

No. 28. ***iris*** LEPELETIER, ***Colpa***

Two females in the BURMEISTER collection are *Campsomeris* (*Megacampsomeris*) *limbata* (SAUSSURE, 1864), a species endemic to the mountains of Java. One female and a male are *Campsomeris* (*Megacampsomeris*) *lindenii* LEPELETIER, 1845. Two males are *Campsomeris* (*Tristomeris*) *javana* (LEPELETIER, 1845), the males of which are described by LEPELETIER as *Colpa iris*. Which of BURMEISTER's specimens were caught in "Hinterindien" can no longer be established.

No. 18. ***javana*** LEPELETIER

Two females from Padang, leg. JUNGHUHN, are *Campsomeris* (*Tristomeris*) *javana* (LEPELETIER, 1845).

No. 10. ***patricialis*** BURMEISTER

See part I.

No. 9. ***procer*** FABRICIUS

The unique male, from Java, is a specimen of *Megascolia* (*Megascolia*) *procer javanensis* BETREM, 1964, in BETREM and BRADLEY, 1964, p. 439.

No. 27. *quadrifasciata* FABRICIUS

Three different species stand behind this label in BURMEISTER's collection:

a) Two males that I described, 1928, p. 96, as *Campsomeris burmeisteri*, are stated to come from Java. Up to the present time never a specimen has been found in the Indo-Australian Region that has the characters of these males. An entirely black clypeus, especially when combined with a yellow metanotum, is most unusual among the males of the genus *Campsomeris*. They are in fact males of *Campsomeris* (*Dielis*) *plumipes* (DRURY), a North American species and Java is an erroneous statement of their locality. This is **new synonymy**. If found in South Carolina they should belong to the subspecies *fossulana* (FABRICIUS). They are certainly misplaced specimens that belong in the BURM. C. with no. 33, *Scolia radula* FABRICIUS, a synonym of *plumipes*. BURMEISTER's description of the males of *quadrifasciata* does not agree with these specimens.

b) Two females of *Campsomeris* (*Phalerimeris*) *annulata* (FABRICIUS) from Java. BURMEISTER had Fabrician syntypes of *annulata* sent to him from Copenhagen, to compare with these specimens.

c) A single male of *Campsomeris* (*Megacampsomeris*) *asiatica* (SAUSSURE) labelled "var. *major*". Its coloration is in accord with the description given by BURMEISTER. It is a species endemic to the mountains of Java.

No. 17. *quadriguttulata* BURMEISTER

See Part 1.

No. 58. *quadripustulata* FABRICIUS

There was no specimen labelled "*4-pustulata*" amongst the BURMEISTER material that was loaned to me. BURMEISTER records it from Sumatra where it has never been caught. *Campsomeris quadriguttulata* (BURMEISTER) does occur in Sumatra, and this is probably what he had before him, because it was only in the reprint of his monograph that he changed the name *4-guttulata* to *4-pustulata*.

No. 11. *rubiginosa* FABRICIUS

These are *Megascolia* (*Regiscolia*) *azurea* (CHRIST, 1791). There are two females and three males in the BURM. C. Two females are *Megascolia* (*Regiscolia*) *azurea azurea* (CHRIST, 1791). Two males belong to *Megascolia* (*Regiscolia*) *azurea christiana*, BETREM and GUIGLIA, 1958. The remaining male is *M. (R.) azurea* (CHRIST), infrasubspecific form *rubiginosa* FABRICIUS, 1793 [= *intermedia* BETREM].

No. 24. *senilis* FABRICIUS

Two females, one from Java, and one from Padang in Sumatra are *Campsomeriella collaris quadrifasciata* (FABRICIUS) BETREM. One specimen of each sex from St. Johanna in the Comoro Islands, and two females from Nubia belong to *Campsomeriella thoracica coelebs* SICHEL, 1864.

No. 57a. *tristis* BURMEISTER

In a note under the heading "*Sc. guttata*" BURMEISTER stated that he had received from FR. STURM a highly similar male from Mexico under the name of *Scolia tristis*. He added that the abdomen is uniformly blue-black, and thought that it might well be the male of *guttata*. We can add to its characters "wings black-blue" because he states that to be the case in *guttata* and it is the case.

This brief characterization seems to cover the requirements of Articles 11 and 12 of the Code in making the name *tristis* available, with BURMEISTER as its author. It is a primary homonym of *Scolia tristis* PANZER, 1805.

STURM made the figures for PANZER's Fauna Insectorum Germaniae, and because of their close relationship one might be led to suspect that the male that he labeled "*tristis*" and sent to BURMEISTER was actually *Scolia tristis* PANZER. This cannot be the case, because PANZER compared his *tristis* with *violacea*, a species with "unicolorous yellow" wings as well as four yellow spots on the abdomen. PANZER's *tristis* cannot be determined, but DALLA TORRE listed it as a synonym of *Scolia insubrica* SCOPOLI, because he incorrectly synonymized *Scolia violacea* with that species. See also Part I.

No. 61. *verticalis* FABRICIUS

According to a specimen in the BURM. C. the male that BURMEISTER identified as *Scolia verticalis* FABRICIUS is *Scolia (Discolia) erratica* SMITH, 1855, cf., BETREM, 1928, p. 271. BURMEISTER did not mention the female, but a specimen of that sex in his collection labeled *verticalis* FABRICIUS is actually *Scolia (Discolia) vollenhoveni* SAUSSURE, 1859, cf. BETREM, 1928, p. 289.

## Summary

The two authors have independently studied the Scoliidae of the BURMEISTER collection in the University of Halle. Professor BRADLEY was solely concerned with identifying holotypes and selecting lectotypes of BURMEISTER's species. The results, along with the currently correct nomenclature of each nominal species, are recorded in the first part of this paper. Dr. BETREM has supplemented this with a study of the nominal Indo-Australian species of other authors recorded by BURMEISTER in his monograph. He has listed the correct identification and current name of each of these.

## Zusammenfassung

Die beiden Autoren haben unabhängig voneinander die Scoliidae in der Sammlung von BURMEISTER an der Universität Halle untersucht. Professor BRADLEY ging es nur um die Identifizierung von Holotypen und die Auswahl von Lectotypen von BURMEISTERS Arten. Der erste Teil dieser Arbeit enthält seine Ergebnisse sowie die nach dem gegenwärtigen Stand richtige Nomenklatur jeder nominalen Art. Als Ergänzung dazu hat Dr. BETREM die nominalen indo-australischen Arten anderer Autoren, die BURMEISTER in seiner Monographie verzeichnete, untersucht. Er stellt die korrekte Determination und den gegenwärtigen Namen jeder dieser Arten zusammen.

## Резюме

Оба автора независимо друг от друга исследовали Scoliidæ коллекции BURMEISTER в университете в Галле. Профессор BRADLEY ставил себе только задачу идентифицировать голотипы и отобрать лектотипы видов BURMEISTER. Первая часть работы содержит результаты его исследований, а также правильную, по теперешнему состоянию, номенклатуру каждого номинального вида. Как дополнение к этому, д-р ВЕТРЕМ исследовал номинальные индо-австралийские виды других авторов, которые BURMEISTER указал в своей монографии. ВЕТРЕМ составил правильное определение и существующие в настоящее время названия каждого из этих видов.

## References

- BETREM, J. G., Monographie der Indo-Australischen Scoliden (Hym., Acul.). Mit zoogeographischen Betrachtungen. Treubia, **9** (Suppl.), 388 pp.; 1928.
- , The males of the Indo-Australian *Campsomeris* species with yellow metanotum (Hymenoptera, Scoliidæ). Proc. R. Ent. Soc. London (B), **6**, 91—96; 1937.
- , Étude systématique des Scoliidæ de Chine et leurs relations avec les autres groupes de Scoliidæ. Notes Ent. Chin., **8**, 47—188; 1941.
- , Analyse van enkele fauna-elementen van de Maleische Scoliden. Tijdschr. Ent., **88**, 409—416; 1947.
- , The Taxon *Triclis* (Hym. Scoliidæ) and its Type. Ent. News, **73**, p. 146; 1962.
- BETREM, J. G. & BRADLEY, J. C., Annotations on the genera *Triscolia*, *Megascolia* and *Scolia* (Hymenoptera, Scoliidæ). Zool. Mededel., **39**, 433—444 [First part]; 1964. **40**, 89—96 [Second part]; 1964.
- BRADLEY, J. C. & BETREM, J. G., The type-specimens of the Scoliidæ described by AMÉDÉE LEPELETIER, Comte de Saint-Fargeau (With notes by J. G. BETREM) and by the Marchese MASSIMILIANO SPINOLA. Ann. Mus. Stor. Nat. Genova, **75**, 186—196; 1964.
- , The Fabrician types of Scoliidæ. Spolia zool. Mus. Hauniensis, No. 21, 38 pp.; 1964.
- BURMEISTER, H. C. C., Reise nach Brasilien durch die Provinzen von Rio de Janeiro und Minas Geraës. Berlin, VIII & 608 pp.; 1853.
- , Bemerkungen über den allgemeinen Bau und die Geschlechtsunterschiede bei den Arten der Gattung *Scolia* FABR. Abh. Naturf. Ges. Halle, **1** (4), 46 pp.; 1853.<sup>2</sup>
- , Scoliae Argentinae. Quelques notices sur les espèces de l'ancien genre *Scolia*, vivant dans le territoire du Rio de la Plata. Bol. Acad. nac. Cordoba, **1**, 36—47; 1874.
- KROMBEIN, K. V., Superfamily Scolioidea, p. 735—749. In: MUESEBECK, C. F. W. et al., Hymenoptera of America north of Mexico. Synoptic Catalog. Washington, 1420 pp.; 1951.
- SAUSSURE, H. DE & SICHEL, J., Catalogue des espèces de l'ancien genre *Scolia*. Genève & Paris, 350 pp.; 1864.

<sup>2</sup> Reprint of this paper: Halle, 46 pp.; 1854. For differences from the original see BETREM in Part II of this paper.