Studies on Cynipidae Alloxystinae 7. Remarks on Cameron's species and a discussion of Phaenoglyphis species with incomplete parapsidal furrows

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ABSTRACT. — Cameron's species of Alloxystinae, placed by him in the genera *Phaenoglyphis* Förster and *Allotria* Westwood, are discussed. A number of these species are synonymized after comparison with the Hartig and Thompson types. *Phaenoglyphis xanthochroa* Förster and *Alloxysta nullensis* (Cameron) are redescribed. Attention is paid to *Phaenoglyphis* species with incomplete parapsidal furrows and some types of Hartig and Thompson species are designated.

Between 1879 and 1889 Peter Cameron described 18 new species of Cynipidae Alloxystinae from Scotland, which he placed in the genera *Allotria* Westwood and *Phaenoglyphis* Förster (Cameron, 1879, 1883, 1886, 1888, 1889). He treated them, together with 13 more species in his monograph of British Cynipidae (Cameron, 1890). Although this work contains keys to identification, descriptions, and colour plates on which all 31 British species have been depicted, neither descriptions nor figures suffice to base reliable conclusions on their identity. This is hardly astonishing, considering the numerous small and similar species in this group and the superficial characters used to separate them in those days.

To make matters even more complicated, Kieffer (1902a, 1902b) did not agree with Cameron's conception of 6 species described by Hartig, Thomson and Förster. He considered them partly as new species and partly as varieties and gave them new names which have all to be interpreted as names in the species group. Two of them have been dealt with in earlier papers, viz., *Allotria citripes* Thomson var. *britannica* Kieffer (Evenhuis, 1976) and *Allotria arcuata* Kieffer (Evenhuis & Barbotin, 1977).

The number of names in Alloxystinae for which types may be expected in the Cameron material, thus amounts to 24. Quinlan (1974, 1978) dealt with the Cameron types of British Cynipoidea present in the British Museum (Natural History). Type material of 22 species of Charipinae (= Alloxystinae) could be found for which holotypes and lectotypes were designated. The types of the remaining 2 species must be considered lost.

During the first week of November 1976, I visited the British Museum in order to compare Cameron's types of Alloxystinae with specimens reared or collected from the Netherlands. As I have the Hartig and part of the Thomson material on loan, I have been able to include species of these authors in the investigations.

In the present paper the species will be dealt with under what I consider their valid names and in the sequence of Cameron's work of 1890. At the moment I am only able to treat 6 species; 4 more species were dealt with earlier (Evenhuis, 1976; Evenhuis & Barbotin, 1977). Thus there remain 12 species, which I hope to discuss later on.

Phaenoglyphis xanthochroa Förster, 1869

Phaenoglyphis xanthochroa Förster, 1869
Allotria (Auloxysta) rufa Thomson, 1877
Phaenoglyphis obfuscata Kieffer, 1902, syn.n.

Cameron (1890) wrote about what he considered to be this species: „Neither Förster nor Thomson states if the abdomen is to any extent marked with fuscous, as is the specimen I have described, so that it is possible it may represent another species". This caused Kieffer (1902a) to accept Cameron's specimen as belonging to a species different from that of Förster and Thom-

son; he named it *Phaenoglyphis obfuscata*. In the British Museum there is one female specimen under the name *Phaenoglyphis xanthochroa*, which must be that which Cameron had before him in describing the male of this species (1879). It is the holotype of *Phaenoglyphis obfuscata* Kieffer and has been dealt with by Quinlan (1978).

I have been unsuccessful in tracing the type material of *Phaenoglyphis xanthochroa* Förster. Neither Dr. M. Fischer nor Mr. H. J. Vlug who visited the „Naturhistorisches Museum", Vienna, in 1971, could find this Förster type material, nor could Dr. E. Königsmann find it in the „Zoologisches Museum", Berlin. However, the other three species of Allotrioidae (= Alloxystinae) described by Förster, namely *Hemicrisis ruficornis, Nephycta discreta* and *Dilyta subclavata* are present in the Vienna museum.

Cameron (1879) synonymized *Allotria* (*Auloxysta*) *rufa* Thomson, 1877, with *Phaenoglyphis xanthochroa* Förster, 1869, on the base of the original descriptions. I studied the two syntypes of *Allotria rufa* Thomson, a male and a female, which I consider conspecific. Thomson only mentioned the female. Thus, though the male has been prepared in a better way, I designated the female as the lectotype and the male as paralectotype. Both have been glued on the tip of a small triangular white cardboard. The pin with the lectotype also bears a rectangular white label with an illegible handwriting in pencil, above a white label with handwritten „rufa", and a rectangular light blue label with „1972 46". The paralectotype is accompanied by a small white rectangular label with an illegible hand-written word in pencil, a folded white label with hand-written „rufa" and a square light blue label with „1972 47".

In the paralectotype the hind border of the abdomen is fuscous, but not so in the lectotype. I consider this caracter as intraspecifically variable. In my own material, reared from aphid mummies as well as captured in the field, I find the same variation.

Though I did not see types of *Phaenoglyphis xanthochroa* Förster, it seems likely that Cameron's conception concerning its synonymy with *Allotria rufa* Thomson is right. This *Phaenoglyphis* species is conspicuous by its light brown colour, mentioned both by Förster and by Thomson.

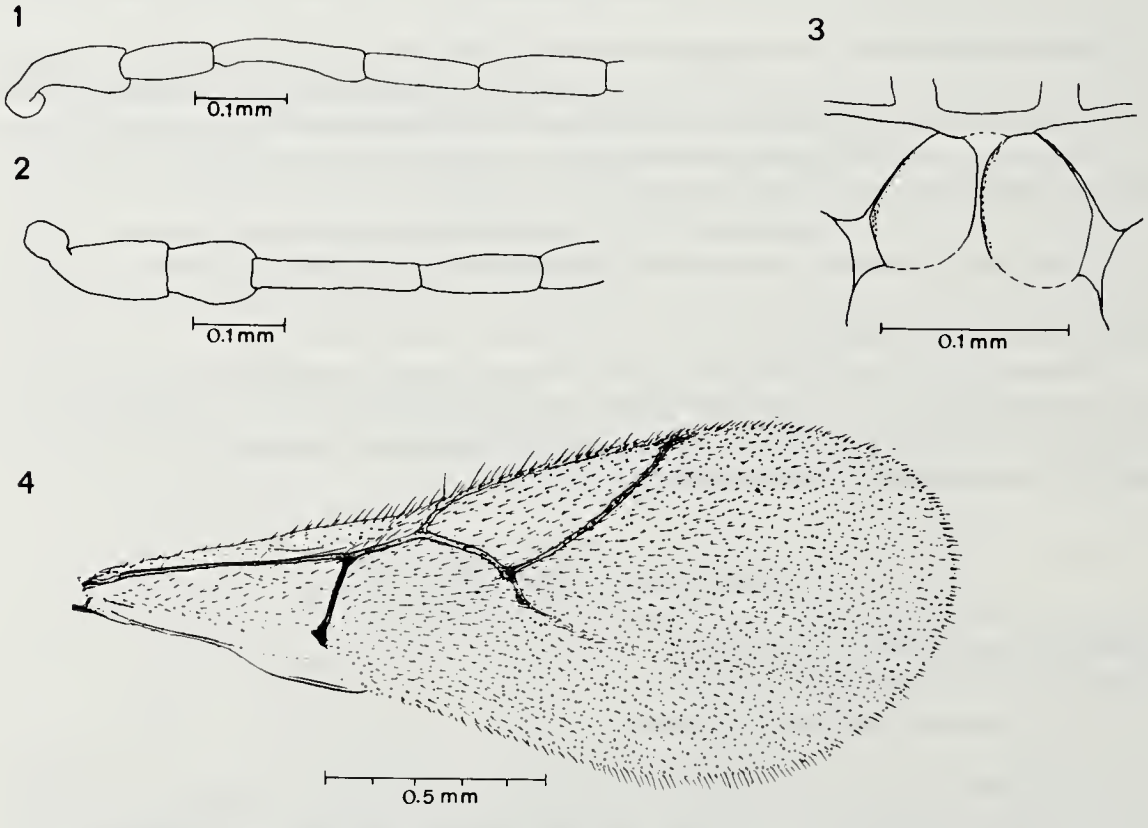

Fig. 1-4. *Phaenoglyphis xanthochroa* Förster. 1, Basal part of male antenna; 2, Basal part of female antenna; 3, Pits at base of scutellum; 4, Fore wing.

Morphological characters

Antennae in both sexes somewhat longer than body; third segment in male long, slender, slightly curved; fourth somewhat narrower than the following (fig. 1); in the female the third antennal segment distinctly longer than the fourth (fig. 2). Parapsidal furrows deep, percurrent, converging behind; lateral borders of scutellar pits converging in front (fig. 3). Radial cell closed (fig. 4).

Colour pattern

Whole body light yellowish brown. Four basal antennal segments in the male and three in the female and the legs somewhat lighter; eyes conspicuously black. Hind border of the abdomen to a more or less large extent dark fuscous, in some specimens not darkened at all.

Length male and female: 1.1-1.6 mm, average 1.3 mm.

I reared this species from *Microlophium evansi* (Theobald) on *Urtica dioica* L. through *Aphidius ervi* Haliday, from *Macrosiphum rosae* (Linnaeus) on cultivated roses through *Aphidius rosae* Haliday and from *Hyperomyzus lactucae* (Linnaeus) on *Sonchus asper* (L.) Hill through *Aphidius sonchi* Marshall. It might have the same host specialization as *Alloxysta victrix* (Westwood) (Evenhuis, 1976), that is to say the larger *Aphidius* species as direct hosts and various aphid species as indirect hosts. Though it does not seem rare in the Netherlands, yet it is certainly less common than *Alloxysta victrix*.

Phaenoglyphis salicis (Cameron, 1883)

Allotria salicis Cameron, 1883

This is one of the four European species of Alloxystinae described with incomplete parapsidal furrows. Two of these, viz., *Hemicrisis ruficornis* Förster, 1869, and *Allotria* (*Auloxysta*) *pubicollis* Thomson, 1877, I treated earlier (Evenhuis, 1973). They are one and the same species, *Phaenoglyphis ruficornis* (Förster), easily recognized by its wholly pubescent mesoscutum. It is an oligophagous hyperparasite of Aphididae Lachninae on Coniferinae through various *Pauesia* species as primary parasites (Liebscher, 1974). Though it is probably widely distributed, it does not seem common. I have reared only one female specimen from the Netherlands: Lunteren, from an aphid mummy collected on *Thuja* sp. 21.VII.1974.

The remaining European species described with incomplete parapsidal furrows is *Allotria* (*Auloxysta*) *abbreviata* Thomson, 1877. I studied the types of both *Allotria salicis* Cameron and *Allotria abbreviata* Thomson, and first thought they were one and the same species. However, I also studied specimens apparently belonging to this species, reared from the aphid *Cavariella theobaldi* (Gilette & Bragg) (identification A. van Harten, Wageningen) through the Aphidiid *Trioxys heraclei* (Haliday), and specimens reared in France from *Myzus cerasi* (Linnaeus) on cherry through *Ephedrus* sp., kindly sent to me by Mr. F. Barbotin, Saint-Malo, France. As it did not seem likely that one and the same species could be reared from such different combinations of primary and secondary parasites, I re-examined the specimens anew and found differences in the shape of the scutellar pits.

The specimens reared from *Myzus cerasi* agree with the two conspecific types of *Allotria abbreviata*. I labelled one of these as the lectotype. It is accompanied by a small narrow white label with some illegible hand-writing in ink; however, „12 aug 38" is visible. Below this label is a small card-board with the ♀-sign, also on the pin is a square blue label with „1972 50". The paralectotype is accompanied by a label with hand-written „abbreviata", a small square label with „Sm", and two square blue labels with „1969 89" and „1972 49", respectively.

The holotype of *Allotria salicis* has been discussed by Quinlan (1978). Mr. Quinlan informed me about the shape of the scutellar pits (the question of the pits only arose after my visit to the British Museum) which are apparently different from those of either *Allotria abbreviata* and specimens reared from *Cavariella theobaldi*. However, the female of the latter agrees with the only specimen of *Xystus longicornis* Hartig, 1840, which I labelled as its holotype. It has been glued on

the tip of a narrow triangular cardboard. Below it, perforated by the pin, is apparently the gall of „Nematus Vallisnerii" [Pontania proxima (Lepeletier)], mentioned in Hartig's paper (1840). Below this gall there is a small square orange label with the number 711. No doubt Hartig's specimen emerged from an aphid mummy within the sawfly gall. The species is *Phaenoglyphis longicornis* (Hartig) (comb. nov.).

Cameron (1890) reported his specimen to be "bred from a black aphid found in the galls of *Euura pentandrae* on *Salix pentandra*". Thus both Hartig and Cameron reared their species from an aphid on *Salix*. The mummy of *Cavariella theobaldi*, parasitized by *Trioxys heraclei*, is light brown; however, Cameron mentions its colour as black. Most probably this refers to the colour of the mummy, as it is a general habit of parasitized aphids to hide in crevices and other spaces before they die and mummify. If, indeed, Cameron referred to the colour of the mummy, the primary parasite should have been an *Ephedrus* species or some Aphelinid.

I shall leave the solution of the question of these *Phaenoglyphis* species with incomplete parapsidal furrows to a later time, when I hope to have collected and reared more material.

It has to be mentioned that Hedicke (1928) described a new species, which he named *Phaenoglyphis longicornis*, after a single female specimen. I have not been able to trace the type, and the description is too poor to reach a conclusion about its identity. In order not to overburden literature with a superfluent new name for this homonym, it seems unwise to rename Hedicke's species at this moment.

It is interesting to note that *Xystus longicornis* Hartig has never been recognized as a *Phaenoglyphis* species. The genus *Phaenoglyphis* was founded by Förster in 1869 on account of the parapsidal furrows. In fact Hartig did not pay any attention to parapsidal furrows. Later workers interpreted Hartig's species only from the original, very incomplete descriptions and took it for granted, wrongly, that none of the species described by this author, would have parapsidal furrows. So, in fact, did Dalla Torre & Kieffer (1910), whose work, even up to today, is generally used for identification purposes. As a typical example in this respect might be taken Cameron's remark (1890) on another *Phaenoglyphis* species, namely *P. forticornis* Cameron: "This may be *A.* (= *Allotria*) *testacea* Htg., but Hartig would surely have stated if that species had parapsidal furrows if they were present".

Alloxysta pleuralis (Cameron, 1879)

Allotria pleuralis Cameron, 1879, syn.n.
Alloxysta Gautieri Kieffer, 1922

Though Cameron ranged this species under the *Allotria* species with a closed radial cell, the radial cell is distinctly open in the lectotype and the two paratypes, designated by Quinlan (1974). The species may be easily recognized, especially by the four longitudinal carinae on the propodeum (Evenhuis, 1971), a character that I failed to see in any other *Alloxysta* species studied up to now.

Alloxysta ruficollis (Cameron, 1883)

Allotria ruficollis Cameron, 1883, syn.n.
Alloxysta rubriceps Kieffer, 1904
Alloxysta erythrothorax Hartig, var. *dubia* Kieffer, 1904
Charips pruni Hedicke, 1928

Just like the preceding species, Cameron placed it wrongly under those with a closed radial cell. Quinlan (1974) discussed the holotype. I dealt with this species earlier (Evenhuis, 1971).

Alloxysta ancylocera (Cameron, 1886)

Allotria ancylocera Cameron, 1886, syn.n.
Allotria brassicae Ashmead, 1887
Allotria victrix Westwood, var. *infuscata* Kieffer, 1902

This species is the common hyperparasite of *Brevicoryne brassicae* (Linnaeus) through *Diaeretiella rapae* (McIntosh). It has, obviously together with its direct and indirect hosts, been spread throughout the world where cabbage is grown. As a result of poor identification possibilities it has been mentioned under several names (Evenhuis, 1971, 1972).

Quinlan (1974) discussed the holotype of *Allotria ancylocera*, which name he synonymized with *Allotria victrix* Westwood, 1833. I consider the latter as a different species and thus lift *A. ancylocera* here from its synonymy.

Alloxysta mullensis (Cameron, 1833)

Allotria Mullensis Cameron, 1883

I reared this species from *Aphis urticata* (Fabricius) on *Urtica dioica* L. through *Lysiphlebus fabarum* (Marshall) and from *Aphis fabae* L. s.l. from *Philadelphus coronarius* L., also through *Lysiphlebus fabarum*. Quinlan (1974) discussed the holotype.

Morphological characters

Antennae in male somewhat longer and in female somewhat shorter than body. Antennal segments 3, 4 and 5 in female conspicuously shorter and narrower than the remaining segments; 4 and 5 subequal and 3 a little longer (fig. 5). Pronotum for the greater part pubescent, without longitudinal carinae (fig. 6) or at most in some individuals with a faint indication. Propodeal carinae present, more or less parallel, enclosing a rather narrow longitudinal field (fig. 7). Radial cell in fore wing small, closed, with accentuated distal corner along the fore edge (fig. 8).

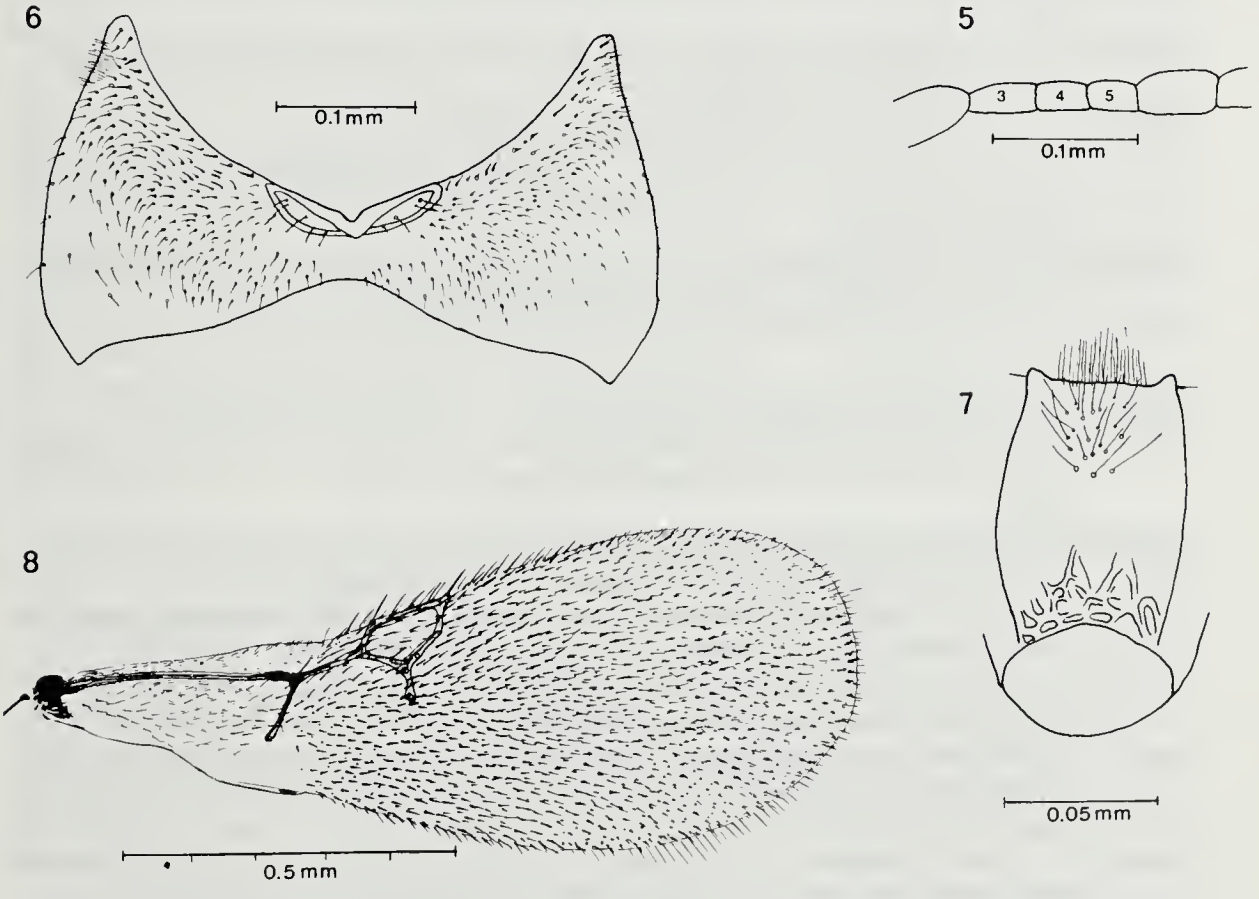

Fig. 5-8. *Alloxysta mullensis* (Cameron). 5, Part of female antenna; 6, Pronotum; 7, Middle part of propodeum; 8, Fore wing.

Colour pattern

Male and female: Black. Mouthparts yellowish; antennae brown with the five proximal segments brownish yellow. Legs yellowish, femora in the center and tibia somewhat darkened.

Length male and female: 0.7-0.9 mm (average 0.8 mm).

This species may be recognized by the absence of pronotal carinae and in the female sex also by the characteristic structure of the antennae. It might be a parasite of various *Aphis* species through *Lysiphlebus fabarum* as a primary parasite. However, my data are too scanty and should be confirmed by further rearings.

I am indebted to Mr. F. Barbotin, Saint-Malo, France, for kindly presenting me material and informations, to Mr. R. Danielsson, Lund, Sweden, Mr. E. Diller, Munich, Federal Republic of Germany, and Dr. E. Königsmann, Berlin, German Democratic Republic, for loan of type specimens and for informations, to Dr. D. Hille Ris Lambers and Mr. A. van Harten, Wageningen, the Netherlands, for informations concerning aphid hosts, to Prof. Dr. J. T. Wiebes, Leyden, the Netherlands, and Dr. J. Quinlan, London, England, for critically reading the manuscript, and especially to Dr. J. Quinlan for his hospitality and for discussion of Alloxystinae problems during my stay at the British Museum.

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BIOCHEMICAL DIFFERENTIATION IN INSECT GLANDS. (W. Beermann, ed.), 1977 (deel 8 van de reeks Results and Problems in Cell Differentiation). pp. XII + 215. Springer Verlag, Berlin. ISBN 3—540—08286—7. Heidelberg-New York. Prijs (gebonden) DM 78,—.

Kliercellen zijn zeer gespecialiseerde cellen die één of enkele secretieprodukten, meestal eiwitten, synthetiseren in zeer grote hoeveelheden. Daarnaast bezitten verschillende insekteklieren reuzechromosomen, waardoor naast moleculair biologisch ook cytologisch en cytogenetisch onderzoek mogelijk wordt.

Twee artikelen van dit boek hebben betrekking op de speekselklier en de rol van puffs (Balbianiringen) bij de specifieke eitwitsynthese (Grossbach, Baudisch). De belangrijkste problematiek is: coderen bepaalde puffs voor één dan wel voor meerdere polypeptiden? Het overzicht van Suzuki heeft vooral betrekking op de spinklier van *Bombyx mori*. Deze klier vormt het relatief eenvoudige eiwit fibroine, als belangrijkste bestanddeel van de zijde. Van dit eiwit werd het eerste boodschapper-RNA uit insekten geïsoleerd. Het vormt een prachtig modelsysteem voor studies betreffende differentiële gen-aktiviteit.

Een groot gedeelte van het boek (100 pagina's) is ingeruimd voor het artikel van Kafatos en medewerkers (Harvard) over de rol van het follikelepitheel bij de chorionvorming van het ei. Dit complexe systeem blijkt zich toch goed te lenen voor moleculair biologisch onderzoek. Hun werk over choriogenesis bij de *Cecropia*-zijdevlinder en bij *Drosophila melanogaster* is een goed voorbeeld van fraai opgezet moleculair biologisch onderzoek.

Het boek lijkt vooral van belang voor ontwikkelingsbiologen en entomologen met een goede kennis van de moleculaire biologie. — C. A. D. de Kort, Laboratorium voor Entomologie, Wageningen.

HIGGINS, L. G. & N. D. RILEY, 1978, DIE TAGFALTER EUROPAS UND NORDWESTAFRIKAS. Duitse bewerking door W. Forster, tweede druk. pp. 377, 60 platen, 1145 figs. Verlag Paul Parey, Hamburg. ISBN 3-490-01918-0. Prijs gebonden DM 44.

De tweede Duitse druk van deze handige dagvlindergids is geheel bijgewerkt volgens de derde druk van de Engelse uitgave, maar bevat bovendien nog aanvullingen die na de publicatie van deze laatste bekend werden. Ook de verspreidingskaartjes zijn zoveel mogelijk gecorrigeerd. Vergeleken met de eerste druk zijn er dan ook nogal wat veranderingen: *Pieris cheiranthi* (Hübner) als zelfstandige soort, de kleinere witjes in het nu zelfstandige genus *Artogeia* enz. Deze uitgave kan dan ook aanbevolen worden voor wie weer eens een modernere versie van de gids wil bezitten.

Het wordt overigens wel tijd, dat de Engelse uitgever er één of twee platen bij laat maken, waarop alle soorten afgebeeld worden die na publicatie van de eerste druk uit het behandelde gebied bekend geworden zijn. — B. J. Lempke.