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Monograph of the genus *Archips* HÜBNER (*Lepidoptera, Tortricidae*)

[Pp. 55 — 206, 223 text-figs.]

Monografia rodzaju *Archips* HÜBNER (*Lepidoptera, Tortricidae*)

Abstract. The present paper contains a revision of the *Tortricinae* genus *Archips* HÜBNER. In the general part the morphology, bionomy and systematics are discussed. The genera *Archippus* FREEMAN and *Pararchips* KUZNETSOV are synonymised. In the systematic part 75 species are discussed, 10 species and 2 subspecies are described as new.

GENERAL PART

Acknowledgments

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Historical

The species of the genus in question were often described under the generic names *Tortrix* LINNAEUS and *Cacoecia* HÜBNER, and the latter name was utilised in almost all recent publications. The genus was revised several times either

(5 days in case of *A. rosanus* (L.)) into dark brown and bleach during the winter. The non-hibernation egg-masses are greenish. One female may deposite a total of 80 to 300 or more eggs (375 eggs for *A. podanus* (SCOP.)) in several groups. *A. rosanus* (L.) deposits usually ca 50 eggs in one mass but they may contain sometimes about 100 eggs each; *A. cerasivoranus* (FITCH.) deposites 25 to 200 eggs in one mass.

The hibernating eggs are deposited on the bark of trunks or limbs, often in the crevices or on bases of small shoots, e.g. *A. cerasivoranus* (FITCH.). The non-hibernating eggs are usually laid on the upper side of the leaves.

The egg stage of several species, e.g. *A. griseus* (ROB.), lasts 10 months but in the species hibernating as larvae that time is limited to ca 2 weeks. Incubation is often short and in *A. podanus* (SCOP.) it takes 17—23 days at the mean temperature 15—16°C. The embryo developes in those species immediately while in the hibernating eggs, its development is arrested in winter after a few days and further development takes place next spring. The embryology of *A. rosanus* (L.) is amply discussed by GENNELON (1966) who also provides a large number of references to the relating subject.

Hatching is sometimes quick as in the cases of *A. podanus* (SCOP.), or spans several days. The time needed for hatching all larvae of one egg-mass of *A. argyrospilus* (WALK.) is 5—26 days, depending on the climatic conditions, and 5—15 days for *A. rosanus* (L.). The influence of climate is remarkeble; for instance, the larvae of *A. rosanus* (L.) start hatching in Provance (France) at the beginning of March but one month later in the Netherlands.

Dispersal. The newly hatched larvae are very active and crawl immediately to the top of the shoots. Many of them spin silk and are transported by the wind. The majority of the larvae (third instar) of *A. purpuranus* (CLEM.) hibernate in fallen leaves and in the spring migrate back to the trees.

Feeding. The larvae which hatch in early spring feed first on the buds or leaves, spinning silken protections usually near edges of under side of leaves. Third instar larvae start to roll the leaves in various ways, e.g. *A. crateaganus* (Hbn.) along the main nerve and *A. xylostenaus* (L.) transversely. The first instar larvae of *A. argyrospilus* (WALK.) bore into the buds where they feed for 4—5 weeks, then attack the flowers and finally roll the leaves or eat the fruit. Usually the larvae stick leaves to the fruit and feed superficially under that protection, rarely they bore deeper into the fruit. Two species, viz., *A. cerasivoranus* (FITCH) and *A. fervidanus* (CLEM.) live gregariously, spinning webs around terminal growth and gradually enlarging the silk tents. The majority of the species have 5 larval instars (e.g. *A. rosanus* (L.), *A. crataeganus* (HBN.) etc.), however, in *A. podanus* (SCOP.) 7 stages are found. Duration of the larval stage is 1—2 months; 28—55 days in *A. rosanus* (L.) depending on the food conditions, temperature and humidity. Exceptionally this period is enlarged to 3 months. In *A. xylosteanus* (L.) duration of the larval stage was 30—40 days. In the hibernating larvae this period extends to eleven months.

Pupation takes place in the final feeding place of the larva. The pupal

stage is short and has a duration of 15—21 days in *A. podanus* (SCOP.), at a mean temperature of 14—16°C, 9—12 days in *A. xylosteanus* (L.), 10—14 days in *A. semiferanus* (WALK.) and 10—12 days in *A. argyrospilus* (WALK.).

Imago. The moth is active mainly in the evening and first half of the night, more rarely till 3 a. m. The culmination of flight is 1 hour after sunset. The flight period usually extends to 1·5 or 2 months.

Host. Representatives of this genus are olifagous in first instars. The primary hosts are the plants on which the females normally deposite their eggs (the exception are cases of very dense populations when they utilise various further plants). The fully grown larvae were observed to feed on various secondary hosts (cf. CHAPMAN & LIENK, 1971). The most interesting case of polyphagy of full grown larvae is in *A. xylosteanus* (L.) which even utilise conifers. Usually the host plants are deciduous trees and bushes and only a few species (e.g. *A. pulcher* (BUTLER), *A. abiephagus* YAS., *A. issikii* KOD., *A. fumosus* KOD.) are bound to conifers primarily.

Economic importance. Several species of *Archips* HBN. are adapted to life in the orchards in all parts of the area of their distribution, but the majority of them are only slightly injurious. They are often taken under consideration as a complex consisting of various polifagous *Tortricidae*. For instance, *A. podanus* (SCOP.) occurs in 1—3% of that complex. Some species, however, are occasionally moderately injurious to some plants in particular parts of their area of distribution, e.g. *A. podanus* (SCOP.) which was important in England (THEOBALD, 1925), *A. semiferanus* (WALK.) to apple in 1915—1935 in Ontario, *A. xylosteanus* (L.) in 1933 to cherry in France or *A. rosanus* (L.) in various years in orchards of Ukraine. BOVEY (1966) and CHAPMAN & LIENK (1971) discuss all species of the genus injurious to the orchards.

Hibernation. Numerous species hibernate in the egg stage, other species in third larval instar. Rarely second instar larvae enter the diapause as do a small percentage of the caterpillars of *A. podanus* (SCOP.). The larvae build thick silken hibernacula in the bark crevices, under old bud-scales etc. The larvae of *A. purpuranus* (CLEM.) hibernate usually in the fallen leaves.

Number of generations. The species hibernating in the egg-stage as far as I know are monovoltine. The remaining species (with some exceptions, e.g. *A. purpuranus* (CLEM.)) have several generations yearly. YASUDA (1972) realised that they develope 2—3 generation a year. This problem needs further investigation as there is no data on the number of generations of the tropical species. Judging from the dates of collection they should have more than 3 generations in the year.

Distribution

This genus is represented in the Palaearctic, Nearctic and Oriental Regions. From the Oriental Region 25 species are known, while the Palaearctic Region is inhabited by 46 species. Sixteen native species are recorded from the Nearctic

Region. There is no species common for the Palaearctic and Nearctic Regions (for *A. rosanus* (L.) see below) whilst 3 species are common for Palaearctic and Oriental Regions and it is supposed that some species inhabiting the south-east part of the former may be included in this group.

On the basis of the present knowledge we can suppose that several species are endemic in some rather small territories. Only few species are widely distributed. *A. oporanus* (L.), *A. decretanus* (TREIT.) and *A. xylosteqanus* (L.) are known from whole Palaearctic Region, and first of them enters far southwards into East Asia. All these species are known from Japan. Another widely spread species, viz., *A. rosanus* (L.) may also be treated as transpalaearctic, however, it has not been recorded from Japan. Distribution of the species of this genus in Central Asia is little known, but probably it is limited to its more southern parts. Several species, e.g. *A. podanus* (SCOP.) or *A. crataeganus* (HBN.) are bound to the western part of the Palaearctic Region being distributed more or less far southwards. Some of them reach 64° of north latitude in Scandinavia and towards the South expanse to northern Mediterranean. There is very scarce data on the eastern limits of their distribution, but probably the West Palaearctic species reach the Urals. The East Asiatic species are mainly the Manchurian elements. To this group one may include for instance *A. subrufanus* (SNELL.), *A. breviplicanus* (WALS.) *A. capsigeranus* (KENN.), *A. issikii* KOD., *A. fumosus* KOD. It is supposed that some species recorded to date exclusively from Japan may belong here too. The data on the distribution of some species from South China are too scarce to draw any conclusion on the type of their distribution. Probably they are also inhabiting more northern territories as well as the northern zone of the Oriental Region.

The distribution of the Oriental species is insufficiently known. The majority of them are recorded from limited areas or even their type-localities only. However, some of the Oriental species are certainly widely distributed, e.g. *A. micaceanus* (WALK.) which is known from India to Malay Archipelago. The species of the western part of this region also enter the Palaearctic Region but they are certainly not numerous. To this group belongs only *A. subsidiarius* (MEYR.).

The Nearctic species are widely distributed. One may only distinguish more northerly and rather southerly species. One Palaearctic species, viz., *A. rosanus* (L.) has been introduced to North America before 1890 and acclimatized there in two separate areas and finding suitable conditions have became very common. The groups of the species (discussed on p. 63) are not characteristic geographically except for the *packardianus*- and *pulcher*- group. The former is bound to Nearctic the latter to the eastern part of Palaearctic Region.

Systematics

Position of the genus. The genus *Archips* HÜBN. belongs to the group of the most advanced *Archipina* together with *Choristoneura* HÜBNER, *Homona* WALKER and several other genera. All are characterized by atrophied costa of

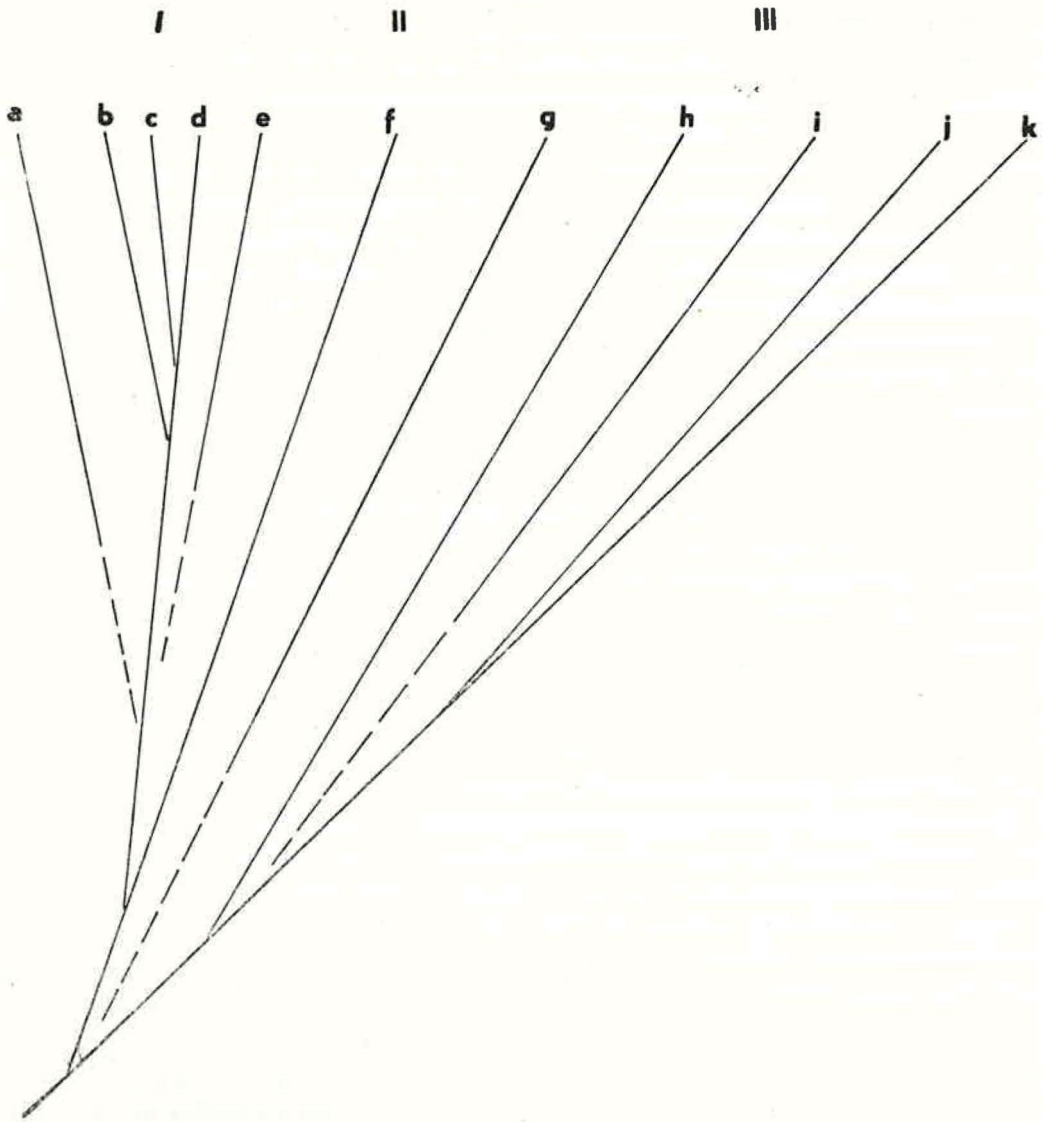


Fig. 1. Phylogenetic tree of *Archips* Hbn. I—III — main trends, a — *packardianus*-group, b-d — *asiaticus*-group (b — *asiaticus*-subgroup, c-d — *oporanus*-subgroups, d — *tharsaleopus*-infragroup), e — *formosanus*-group, f — *pulcher*-group, g-i — *termias*-group (b — *termias*-subgroup, c — *dispilanus*-subgroup, i — *micaceanus*-subgroup), j-k — *xylosteanus*-group (j — *xylosteanus*-subgroup, k — *rosanus*-subgroup)

(1972) also on the basis of the bionomy. I am preserving its position, however, some of its characters are shared with *xylosteanus*-group.

The *pulcher*-group (former subgenus *Pararchips* Kuzn.) shows the second evolutionary trend. Its characteristic is given above, but it should also be mentioned that the uncus is distinctly broadened terminally, rounded apically as in the species of the *xylosteanus*-group, or bifid.

All the groups of these trends are characterised by the hibernation in the egg-stage and absence of scent scales in the female hindwing.

The third trend is represented by two groups of species. In the *termias*-group (species 29—51) the uncus is much more slender than in the representatives of the preceding trends. The sacculus is simple, exceptionally developing a rounded postbasal lobe, provided with short, usually subtriangular, smooth, free termination. The pregenital sternite in female is normally developed, without lobes. In the distal portion of the costa of the female hindwing a group of scent scales is present. The embryology is unknown. It may be supposed that the majority of the species are multivoltine. There are two subgroups; in the first of them (*termias*-subgroup; species 29—43), the caulis is much shorter than in the *dispilanus*-subgroup (species 44—45). The position of *A. atrolucens* (DIAK.) is doubtful.

The *xylosteanus*-group is characterised by terminally expanding and apically rounded uncus. The ventral complex of the apparatus tends to strengthen by broadening of the dorsal part of the sacculus. The sterigma is variably developed. This group may be divided into subgroups. The species of the *xylosteanus*-group (46—74) are monovoltine and hibernate in the egg stage (with exception of *A. purpuranus* (CLEM.) which shows some peculiar morphological characters and has an isolated systematic position). The embryology has been studied only in *A. rosanus* (L.) (cf. p. 60) but we may suppose that the development of the embryo, arrested after a short initial period, is characteristic of all species of this subgroup. The *xylosteanus*-subgroup is formed by several infra-groups. To the first of them belongs *A. issikii* KOD.) and *A. fumosus* KOD. the larvae of which feed on conifers. They are characterised by rather long lamella postvaginalis, fairly short cup-shaped part of the sterigma and presence of a process on aedeagus. The species closely correlated with *A. xylosteanus* (L.) (species 54—57) usually possess the process of the aedeagus but the females developed short lamella postvaginalis and long cup-shaped part of sterigma fused with the antrum. *A. inopinatanus* (KENN.) has an isolated position and is characterised by 5 pairs of dorsal pits. The male of this species is unknown and the problem of its position remains unsolved. This species and the species close to *A. fuscocupreanus* (WALSM.) (species 59—61) have proportionally short sterigma and short signum. The females protect the egg-masses with the scales of the terminal part of the abdomen. The sacculus in the known males is strongly broadened from beyond base. The species closely correlated to *A. rosanus* (L.) (species 62—73) are distributed mainly in the Nearctic Region. Only two species of that infra-group are recorded from Palaearctic Region. In *A. rosanus* (L.) the sterigma is long with large cup-shaped part but in some North American species it is very short and the cup-shaped part is ill-defined, which is probably a progressive character. The *micaceana*-subgroup is insufficiently studied. It is characterised by a broad uncus, long caulis, very short coecum penis, long ductus bursae and large signum. There is no data on the diapause of those species. Probably they are multivoltine as one can judge from the dates

of collection of the moths. I am placing this subgroup provisionally before the *xylosteanus*-subgroup.

List of species

1. *A. dissitanus* (GROTE) ..... Nearctic Region
2. *A. strianus* FERNALD ..... Nearctic Region: Canada
3. *A. packardianus* (FERNALD) ..... Nearctic Region
4. *A. tsugunus* (POWELL) ..... Canada
5. *A. alberta* (McDUNNOUGH) ..... Nearctic Region: Canada
6. *A. arcanus* sp. nov. ..... China
7. *A. paredreus* (MEYRICK) ..... Taiwan
8. *A. capsigeranus* (KENNEL) ..... East Palaearctic Asia
9. *A. alcmaeonis* (MEYRICK) ..... India: Assam
10. *A. asiaticus* (WALSINGHAM) ..... China, Korea
11. *A. audax* sp. nov. ..... Japan
11. *A. tharsaleopus tharsaleopus* (MEYRICK). ..... China: Chekiang, S. Shansi
12a. *A. tharsaleopus yunnanus* ssp. nov. ..... China: N. Yunnan
13. *A. ingentanus* (CHRISTOPH) ..... East Palaearctic Asia
14. *A. enodis* sp. nov. ..... China: Chekinag
15. *A. subrufanus* (SNELLEN) ..... East Palaearctic Asia
15. *A. seditiosus seditiosus* (MEYRICK) ..... Vietnam, Malaya, Java
16a. *A. seditiosus orientalis* (DIAKONOFF) ..... E. Java
17. *A. oporanus* (LINNAEUS) ..... Palaearctic Region
18. *A. decretanus* (TREITSCHKE) ..... Palaearctic Region
19. *A. podanus* (SCOPOLI) ..... West Palaearctic Region
20. *A. vulpeculanus* (FUCHS) ..... Asia Minor
21. *A. breviplicanus* (WALSINGHAM) ..... East Palaearctic Asia
22. *A. semistructus* (MEYRICK) ..... China, Japan
23. *A. insulanus* KAWABE ..... S. Japan
24. *A. strojny* sp. nov. ..... China
25. *A. peratratus* YASUDA ..... Japan
26. *A. formosanus* (KAWABE) ..... Taiwan
27. *A. pulcher* (BUTLER) ..... East Palaearctic Asia
28. *A. abiephagus* YASUDA ..... Japan
29. *A. inanis* sp. nov. ..... Afghanistan
30. *A. ceylonicus* sp. nov. ..... Ceylon
31. *A. pruneticolus* (MEYRICK) ..... India
32. *A. citimus* sp. nov. ..... Afghanistan
33. *A. dierli* DIAKONOFF ..... Nepal
34. *A. transcutatus* (MEYRICK) ..... Java
35. *A. atrolucens* DIAKONOFF ..... Java
36. *A. binigratus* (MEYRICK) ..... India: Assam

37. *A. euryplinthus* (MEYRICK) ..... India: Darjeeling
38. *A. philippus* (MEYRICK) ..... Pakistan: Peshawar
39. *A. subsidiarius* (MEYRICK) ..... India: Kashmir
40. *A. solidus* (MEYRICK) ..... India: Darjeeling
41. *A. termias termias* (MEYRICK) ..... India: Assam
41a. *A. termias stenoptychus* (DIAKONOFF) ..... Burma
41b. *A. termias argutus* DIAKONOFF ..... Nepal
42. *A. compitalis* sp. nov. ..... China
43. *A. limatus limatus* sp., ssp. nov. ..... China
43a. *A. limatus albatus* ssp. nov ..... China: Chekiang
44. *A. displanus* (WALKER) ..... India, Bhutan, Ceylon
45. *A. pensilis* (MEYRICK) ..... India
46. *A. machlopis* (MEYRICK) ..... East Oriental Region
47. *A. apertus* DIAKONOFF ..... Philippine
48. *A. expansus* DIAKONOFF ..... Java
49. *A. micaceanus* (WALKER) ..... Vietnam, Burma, Malaya, ?India
50. *A. seminubilus* (MEYRICK) ..... Vietnam, Java, India, China: Chekiang
51. *A. excurvatus* (MEYRICK) ..... Vietnam
52. *A. issikii* KODAMA ..... Japan, U.S.S.R.: Iouzhnoe Primore
53. *A. fumosus* KODAMA ..... Japan: Hokkaido, China: N. Yunnan
54. *A. viola* FALKOVITSH ..... U.S.S.R.: Iuzhnoe Primore, Japan
55. *A. crataeganus* (HÜBNER) ..... Europe
56. *A. endoi* YASUDA ..... Japan: Hokkaido
57. *A. xylosteanus* (LINNAEUS) ..... Palaearctic Region
58. *A. inopinatanus* (KENNEL) ..... China, U.S.S.R.: Iuzhnoe Primore
59. *A. nigricaudanus* (WALSINGHAM) ..... East Palaearctic Asia
60. *A. dichotomus* FALKOVITSH ..... China, Korea, U.S.S.R.: Iuzhnoe Primore
61. *A. fuscocupreanus* WALSINGHAM ..... East Palaearctic Asia
62. *A. rosanus* (LINNAEUS) ..... Palaearctic Region (Nearctic Region—artif. introduced)
63. *A. rudy* sp. nov. ..... China: Tsinling
64. *A. infumatanus* (ZELLER) ..... Nearctic Region
65. *A. fervidanus* (CLEMENS) ..... Nearctic Region
66. *A. cerasivoranus* (FITCH) ..... Nearctic Region
67. *A. rileyanus* (GROTE) ..... S. Nearctic Region
68. *A. argyrospilus* (WALKER) ..... Nearctic Region

69. *A. magnolianus* (FERLAND) ..... U.S.A.
70. *A. georgianus* (WALKER) ..... U.S.A.
71. *A. griseus* (ROBINSON) ..... U.S.A.
72. *A. negundanus* (DYAR) ..... Nearctic Region
73. *A. semiferanus* (WALKER) ..... Nearctic Region
74. *A. purpuranus* (CLEMENS) ..... Nearctic Region
75. *A. ignescanus* (KUZNETSOV) ..... East Palaearctic Asia

Species incertae sedis

The following species are known to me of the literature only. Their types are probably lost. The systematic position of these species is doubtful and there is only slight possibility they belong in the genus *Archips* HÜBNER.

cirrhocrossa MEYRICK (*Cacoecia*) ..... Sarawak
menotoma MEYRICK (*Cacoecia*) ..... China: Yunnan
unimaculata SHIRAKI (*Archips*) ..... Taiwan

Species excluded from *Archips* HÜBNER

Archips minor SHIRAKI, 1913, Special Rept., Bull. Agric. Exp. Station, Formosa, **8**: 356. SONAN (in SHIRAKI, 1933: 81) synonymised it with *Adoxophyes privatana* (WALKER) and KAWABE (1968:[125]) with *Adoxophyes orana* (FISCHER v. RÖSLERSTAMM).

Archips citrinella SHIRAKI, 1913, Taiwan Agr. Exp. Station; Special Rept. No. 8 : 345 described from Taiwan synonymised by SONAN (above cited paper, p. 79) with *Epimactis tolantas* MEYRICK, *Xyloryctidae*.

Cacoecia delibatana ROTSCHILD, 1912, Rovart, Lap., **19**: 27, 49. REBEL (1913, ibid.: 87) synonymised it with *Clepsis neglectana* (HERRICH-SCHÄFFER). It was placed by OBRAZTSOV (1955:207) in *Archips*, however. In same paper the latter author mentions *Pandemis educatana* (WALKER) in the genus in question but this was transferred to *Choristoneura* HÜBNER and then to *Hoshinoa* KAWABE (cf. YASUDA, 1975: 111).

Several species described in the genera *Cacoecia* HÜBNER and *Tortrix* LINNAEUS and temporarily placed in *Archips* HÜBNER (e.g. CLARKE, 1958: 39—59) are not included in this paper. Those species (e.g. *Cacoecia salaconis* MEYRICK, *C. difficilis* MEYR., *C. permutata* MEYR., *Tortrix encausta* MEYR. etc.) need reexamination. DIAKONOFF (1948: 509, and further papers) included some of them in *Homona* WALKER but then changed his opinion (DIAKONOFF, 1967: 24) and transferred them to this genus. Moreover, a new species of that group, viz. *Archips diceus* DIAK. was described.

Abbreviations

AMNH — American Museum Natural History, New York
ANSPh — Academy of Natural Sciences of Philadelphia
BM — British Museum (Natural History), London
BRI — Biosystematics Research Institute, Ottawa
CUI — Cornell University, Ithaca
EIHU — Entomological Institute, Hokkaido University, Sapporo
LNK — Landessammlungen für Naturkunde, Karlsruhe
LS — Linnean Society, London
MNHNP — Muséum National d'Histoire Naturelle, Paris
NRS — Naturhistoriska Riksmuseet, Stockholm
RNH — Rijksmuseum van Natuurlijke Historie, Leiden
USNM — United States National Museum, Washington
UOP — University of Osaka Prefecture, Sakai, Osaka
ZFMK — Zoologisches Forschungsinstitut und Museum „Alexander KÖNIG", Bonn
ZIANL — Zoologitcheskij Institut Akademii Nauk U.S.S.R., Leningrad
ZMB — Institut für Spezielle Zoologie und Zoologisches Museum der HUMBOLDT Universität, Berlin
ZSM — Zoologische Sammlung des Bayerischen Staates, München
ZZSD — Zakład Zoologii Systematycznej i Doświadczalnej PAN, Kraków

SYSTEMATIC PART

Archips HÜBNER, [1822]

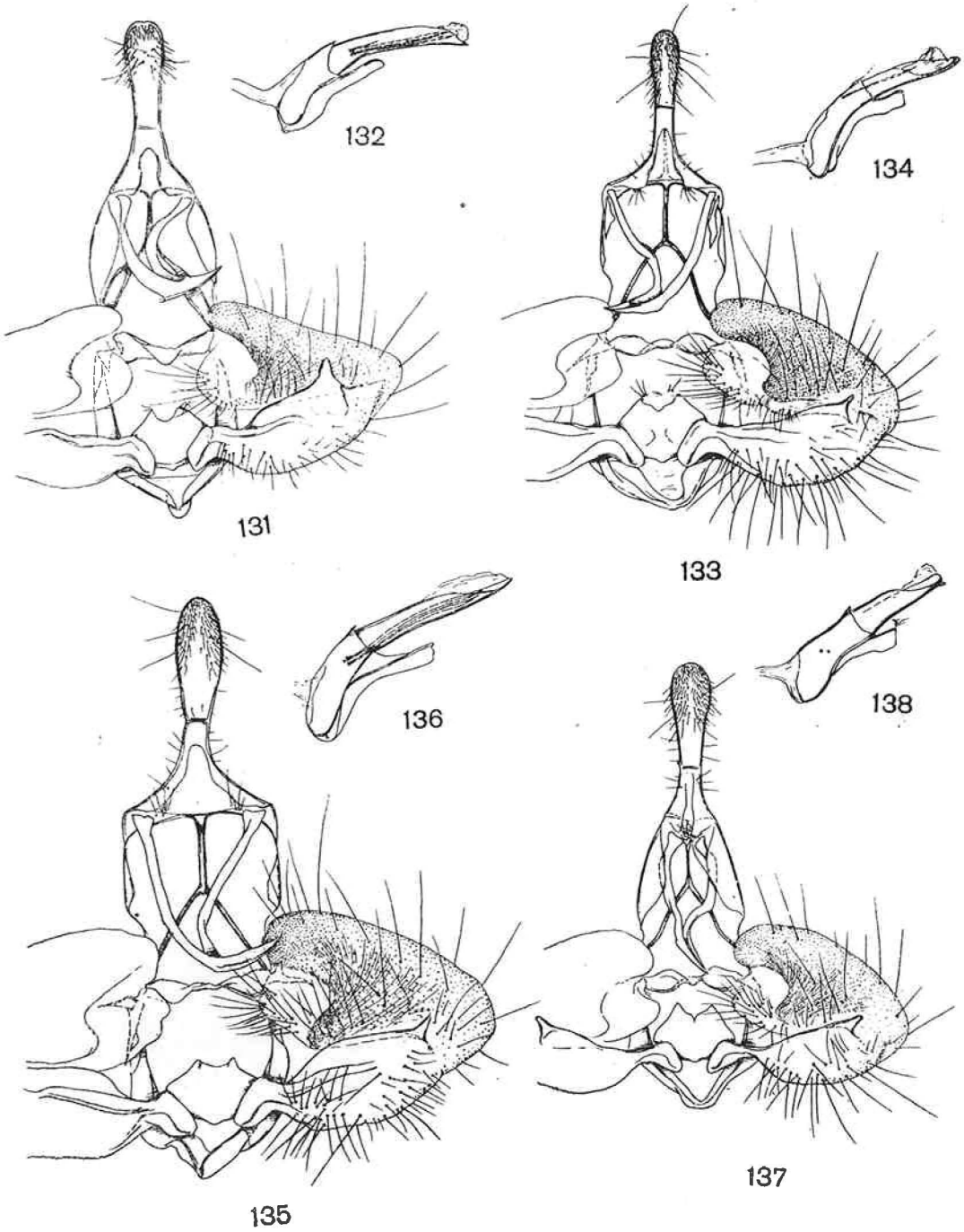
Airchips HÜBNER, [1822], Syst. alphab. Verz.: 58. Type-species: *Phalaena Tortrix xylosteana* LINNAEUS, 1758, by subsequent designation (by OBRAZTSOV, 1954, Tijdschr. Ent., **97**(3):175).

Cacoecia HÜBNER, [1825], Verz. bekannter Schmett.: 388. Type-species: *Phalaena Tortrix xylosteana* LINNAEUS, 1758, by subsequent designation (FERNALD, 1908, Genera *Totricidae*: 14).

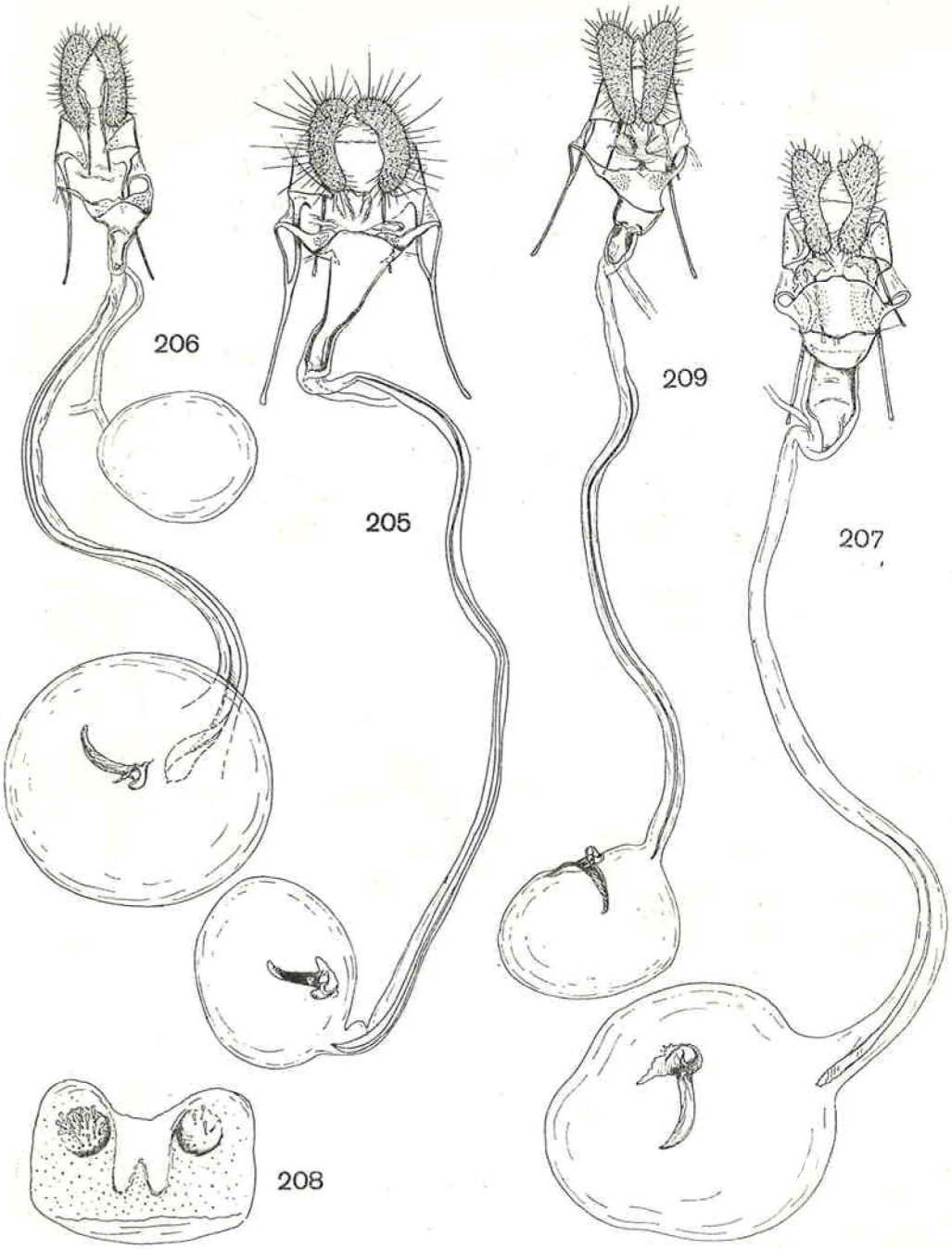
Archiceps WEISS & DICKERSON, 1921, J. N. Y. ent. Soc., **29**: 142. Name mistakenly used instead of *Archips*.

Archippus FREEMAN, 1958, Can. Ent., **90**, Suppl., **7**: 15. Type-species: *Tortrix packardiana* FERNALD, 1886, by original designation.

Archips Pararchips KUZNETSOV, 1970, Ent. Obozr., **49**(2):448. Type-species: *Ariola pulchra* BUTLER, 1879, by original designation and monotypy.



Figs. 131—138. Male genitalia of *Archips* HBN.: 131 — *A. rileyanus* (GROTE), „Iowa", G. Sl. 19804 [BM], 132 — aedeagus of same specimen, 133 — *A. argyrospilus* (WALK.), „Aweme, Man., N. CRIDDLE, 2. VII. 1921", G. Sl. 21420, 134 — aedeagus of same specimen, 135 — *A. magnolianus* (FERN.), „Mountain L., Va., July 4, 1938, L. J. & W. J. MILNE", G. Sl. 21414, 136 — aedeagus of same specimen, 137 — *A. georgianus* (WALK.), Quincy Gudsen Fla, 5. V. 1963, W. B. TAPPER", G. Sl. 21418, 138 — aedeagus of same specimen



Figs. 205—209. Female genitalia of *Archips* HBN.: 205 — *A. endoi* YAS., „Japan - Akita, Yaata (pupa), 14. VI. 1955 leaves rolled of *Pyrus simonii*; 20. VI. 1955 (emergence)", G. Sl. 12647, 206 — *A. xylosteanus* (L.), „Poznań - Dębina, 7. VII. 35, M. R. LEWANDOWSKI", G. Sl. 12638, 207 — *A. inopinatanus* (KENN.), „Manchuria, Hsiaoling (Prov. Kirin), 19. VIII. 1939", G. Sl. 12606, 208 — eighth sternite of same specimen, 209 — *A. nigricaudanus* (WALS.), „Japan, Honsyu, Wakayama Katuura, T. FODAMA", G. Sl. 12659