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***Kaweckia* gen. n. in the *Eriococcidae* (Homoptera, Coccoidea) and notes on related genera**

[with 5 text-figs]

Kaweckia gen. n. w rodzinie *Eriococcidae* (Homoptera, Coccoidea) i uwagi o rodzajach pokrewnych

Abstract. A new genus *Kaweckia*, with type species *Eriococcus glyceriae* GREEN, 1921, is proposed. Generic diagnoses of *Kaweckia* gen. n. and *Greenisca* BORCHSENIUS, and a list of included species are presented. The validity of *Anophococcus* BALACHOWSKY is discussed on the background of the European *Eriococcidae*.

A reexamination of species assigned to *Greenisca* (BORCHSENIUS and DANZIG, 1966) revealed that this genus represented a heterogeneous assemblage. The differences between *glyceriae* and *gouxi* groups, mentioned by the above authors, appeared to have a much greater taxonomic value than they had been assumed. This and further studies on some Palearctic *Eriococcidae* inclined us to propose a new genus for *glyceriae* and related species.

In the same paper BORCHSENIUS and DANZIG corrected the identification of the material on which the genus *Greenisca* had been based. It appeared to be *Anophococcus gouxi* BALACHOWSKY and not *Eriococcus inermis* GREEN as indicated in the original designation. Taxonomic and nomenclatural consequences arising from this fact are discussed on the background of the current status of *Eriococcus*, *Acanthococcus* and *Rhizococcus*.

The new genus is named in honour of Prof. Dr hab. Zbigniew KAWECKI.

We would like to acknowledge with thanks the kind assistance of Dr K. KALTENBACH from Naturhistorisches Museum in Vienna in lending specimens of *Rhizococcus gnidii* from the SIGNORET's collection. We are also very indebted to Dr E. M. DANZIG (Zoological Institute, Academy of Sciences, Leningrad), Dr D. R. MILLER (Systematic Entomology Laboratory, Agricultural Research Center, Beltsville) and Dr D. J. WILLIAMS (British Museum Natural History, London) for reviewing the manuscript and valuable suggestions.

The investigations have been partly supported by the Polish Academy of Sciences (Research Program MR. II. 3).

Kaweckia gen. n.

Genus D KOTEJA, 1974a: 296.

Type species *Eriococcus glyceriae* GREEN, 1921: 146—148, Fig. 1.

Diagnosis. Body elongate, parallel-sided; preantennal tubercles absent; antennae and legs well developed; the former attached at very body margin; loop of piercing stylets reaching midcoxae; hindtibia with 4 setae; spiracles surrounded by a sclerotized ring; anal lobes present, with 3 enlarged dorsal setae; anal ring circular, broad, cellular, with 6—8 setae; sessile pores uniform, with 5—9 loculi, on dorsum (in one species only single pores present on frontal margin) and venter; macro-, and microtubular ducts on dorsum and venter; cruciform pores on dorsum and ventral margin; enlarged setae confined to abdominal margin and anal lobes; dorsal setae minute, needle-like; living specimens red; on stems and in leaf sheaths of *Poaceae*.

Kaweckia shares some of the above characters, but at least the presence of sessile pores on dorsum, with *Tolypecoccus* HOY, 1962, *Pseudochermes* NITSCHKE, 1895, *Oregmomyia* HOY, 1963, *Ovaticoccus* KLOET, 1944, *Spiroporococcus* MILLER, 1967, *Cornoculus* FERRIS, 1955a, *Neoacanthococcus* BORCHSENIUS, 1948, *Greenisca* BORCHSENIUS, 1948, *Phacelococcus* MILLER, 1970 and *Atriplicia* COCKERELL and ROHWER, 1909.

It may be distinguished from the above genera as follows (characters different from those in *Kaweckia* are listed):

from *Tolypecoccus* (on *Malvaceae*, New Zealand) by the absence of cruciform pores on dorsum, two types of sessile pores and oval body;

from *Pseudochermes* by the open anal ring, spine-like anal ring setae, enlarged setae on dorsal surface of abdomen and hemispherical body;

from *Oregmomyia* by the poorly developed anal lobes and anal ring, and presence of spine-like setae on dorsum;

from *Ovaticoccus* by the absence of anal lobes, non-cellular anal ring and oval body;

from *Spiroporococcus* by the absence of cruciform pores on dorsum and presence of sessile pores in spiracular atrium;

from *Cornoculus* by the modified anal ring, poorly developed or lacking anal lobes, and blunt apical setae on tibia;

from *Neoacanthococcus* by the presence of enlarged setae on entire dorsum, absence of cruciform pores on this surface and life conditions;

from *Phacelococcus* (Tasmania) by the oval body, modified anal lobes and very numerous clusters of sessile pores;

from *Atriplicia* by the hair-like anal lobe setae, lack of cruciform pores, very large posterior coxa, oval body shape and peculiar galls that this genus form;

from *Greenisca* by the absence of cruciform pores on dorsum and presence of two-typed sessile pores (for further comparison see Tab. I and Figs 1—3).

Host and habitat. Larvae and females infest various grasses; live within

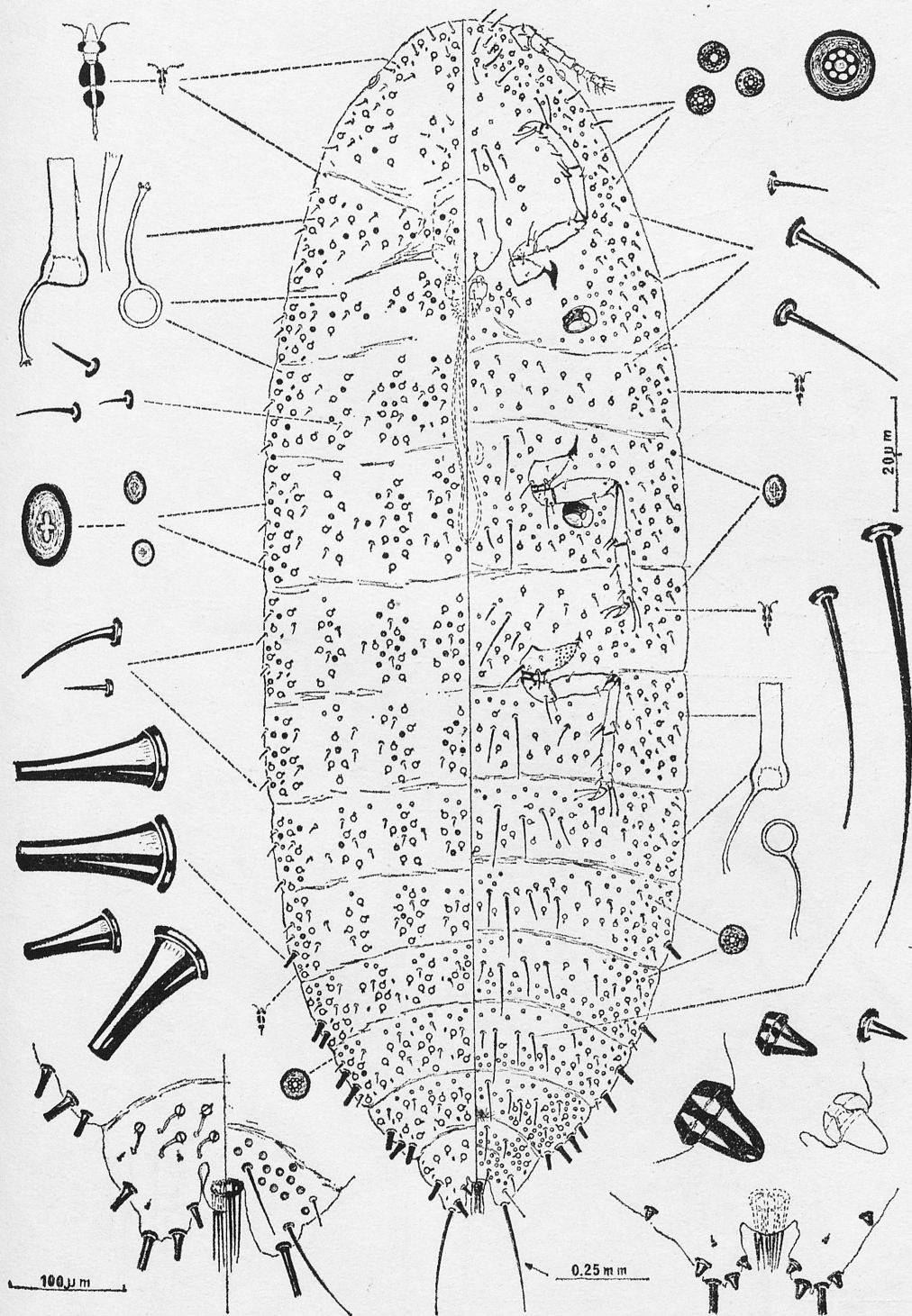


Fig. 1. *Kaweckia glyceriae*; *K. laticoris* (right corner at bottom)

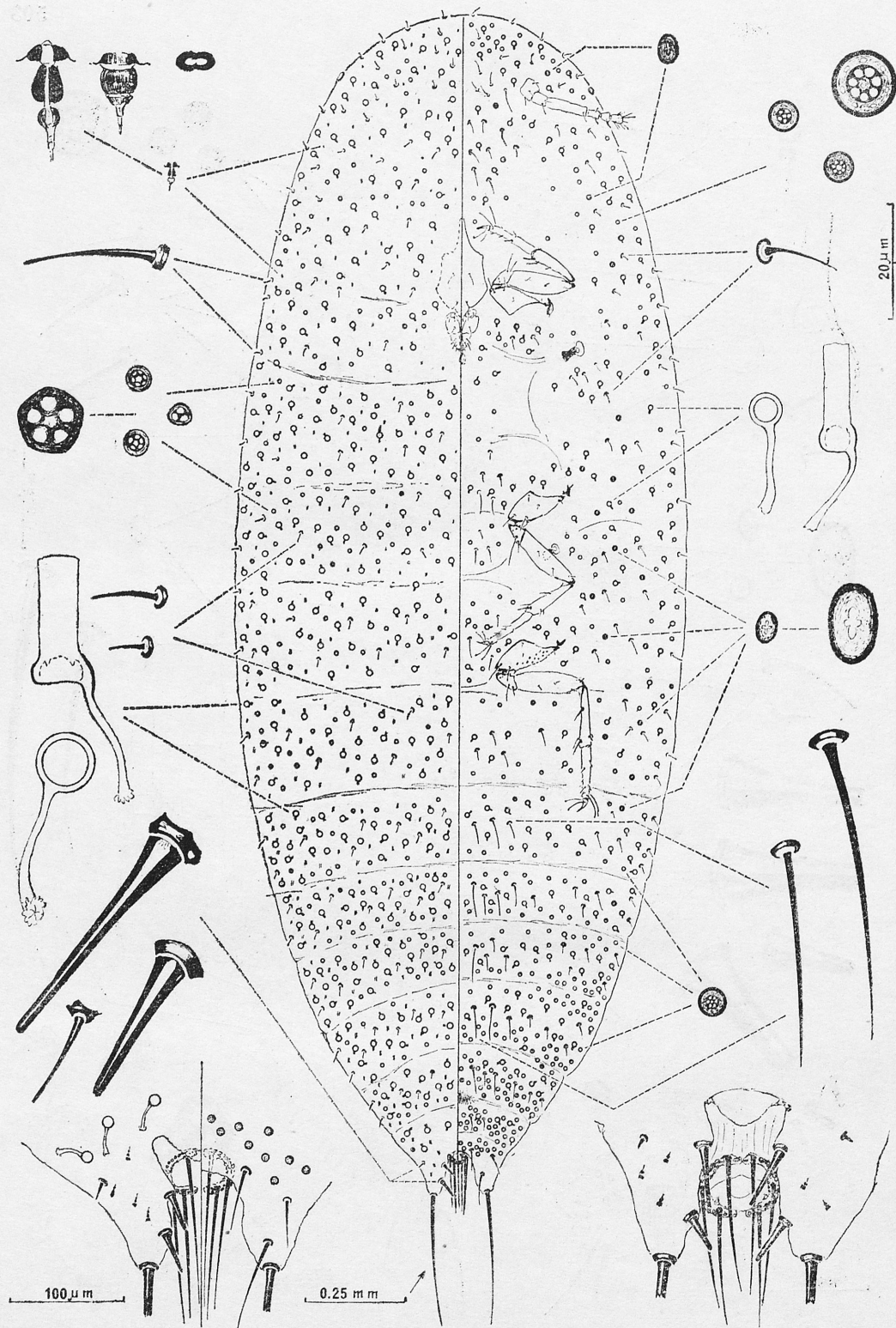


Fig. 2. *Greenisca gouxi*; *G. brachypodii* (right corner at bottom)

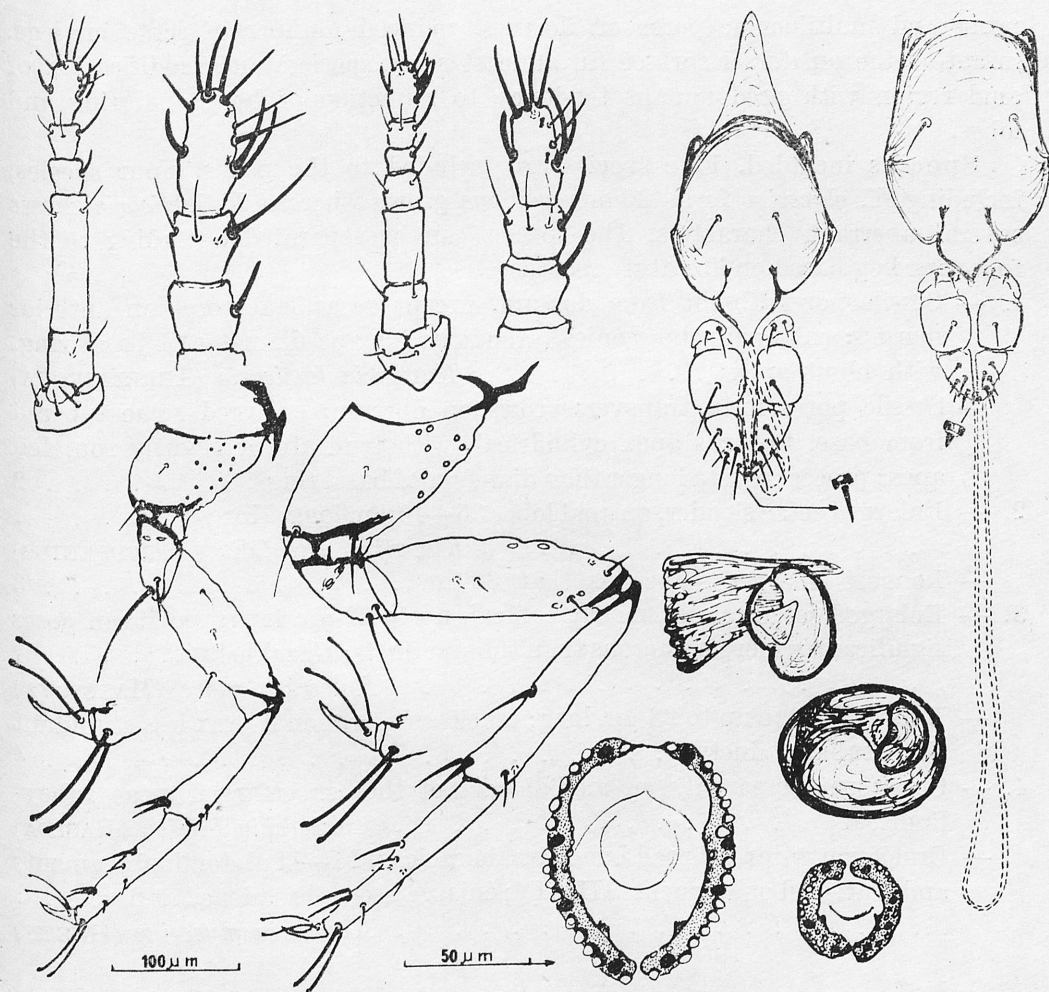


Fig. 3. Antenna, mouth parts, posterior leg, posterior spiracle and anal ring; left figures: *Greenisca gouxi*; right figures: *Kaweckia glyceriae* (opposite condition in posterior legs)

leaf sheaths and on stems, often below the soil surface. Ovisac usual in *Eriococcidae*, felted, flattened if produced within leaf sheaths. Winter diapause in egg stage. Males unknown.

Distribution. Palearctic region: Europe, Central Asia and the Far East.

Affinities. The association of species now considered to be *Kaweckia* together with *Greenisca gouxi* in one genus was based on two characters only — the presence of sessile (multilocular) pores on dorsum and absence of enlarged setae from that body region. All the remaining characters, except for common in the *Eriococcidae*, are different in the two groups (Tab. I). *Kaweckia* is, the more so, distant from *Eriococcus* s. 1. Among the eriococcids described up to now, this genus seems to be closest to the New World *Ovaticoccus* group as understood by MILLER and MCKENZIE (1967). *Kaweckia* shares with this group the cruciform

pores and multilocular pores on dorsum, reduced number of setae on legs, minute setae on dorsal surface (in at least some species) and modification of anal region with predominant tendency to reduction of both anal ring and lobes.

Species included. Five species are included to the genus. Four species, including *K. glyceriae* form a homogeneous group whereas *K. laeticoris* shows several aberrant characters. The species can be separated according to the following key based on literature records:

1. — Sessile pores absent from dorsum, except occasional pores on anterior margin; enlarged setae conical, about as long as diameter of basal ring, with blunt apex *Kaweckia laeticoris* (TEREZNIKOVA)
 — Sessile pores form transverse rows on dorsum; enlarged setae tapered from base, towards apex cylindrical, with truncate or slightly rounded apex; process of seta longer than diameter of basal ring 2
2. — Enlarged setae slender, on anal lobes 35—40 μm long; Korea
 *Kaweckia orientalis* (BORCHSENIUS)
 — Longest enlarged setae less than 30 μm 3
3. — Enlarged setae robust, nearly conical, up to 22 μm long; cruciform pores significantly more numerous than tubular ducts; Kazakhstan
 *Kaweckia rubra* (MATESOVA)
 — Enlarged setae up to 28 μm long; cruciform pores on thorax less abundant than tubular ducts 4
4. — Cruciform pores only on medial part of thorax; enlarged setae subcylindrical *Kaweckia baltica* (RASINA)
 — Cruciform pores in broad bands on thoracic and I—II abdominal segments and scattered on segments III—IV; enlarged setae broadened at base . . .
 *Kaweckia glyceriae* (GREEN)

Review of species

Kaweckia baltica (RASINA) comb. n.

Greenisca baltica RASINA, 1966: 21, Fig. 31—36; — *glyceriae* (GREEN); RASINA, 1955: 69 (misidentif.).

Host and habitat. *Festuca rubra*, *Elymus arenarius*.

Distribution. Latvia.

Kaweckia glyceriae (GREEN) comb. n.

Eriococcus glyceriae GREEN, 1921: 146, Fig. 1;

Greenisca glyceriae (GREEN); TEREZNIKOVA, 1959: 179; 1959a: 796; 1960a: 537; 1961: 3; 1963a: 48; ZAHRADNIK, 1959a: 539; DANZIG, 1960: 4, 13; 1962b: 27; 1964: 634; MATESOVA, 1960a: 212; HOY, 1963: 133; ŽAK-OGAZA and KOTEJA, 1964: 426; TEREZNIKOVA, 1965: 958; 1966: 27; 1966b: 680; 1966c: 964; BORCHSENIUS and DANZIG, 1966: 43; RASINA, 1966: 23; ŽAK-OGAZA, 1966: 81; DANZIG, 1968: 501; MATESOVA, 1968: 117; TEREZNIKOVA, 1968c: 52;

1970: 44 and others; KOTEJA and ŽAK-OGAZA, 1966: 320; 1969: 363; KOTEJA, 1971: 332; 1972: 569, 1974: 77 and others; TEREZNIKOVA, 1975: 19 and others; DANZIG, 1977: 39 and others; KOZAR, ÜRDOGH and KOSZTARAB, 1977: 71; KOSZTARAB and KOZAR, 1978: 79; for further records see HOY, 1963: 133.

Material studied. Several females from various localities in Poland; from authors' collection.

Host and habitat. In leaf sheaths and on stems, mostly below soil surface, of following grasses (*Poaceae*): *Anthoxanthum odoratum*, *Agropyron repens*, *Agrostis alba*, *A. canina*, *A. vulgaris*, *A. sp.*, *Arrhenatherum elatius*, *Calamagrostis sp.*, *Corynephorus canescens*, *Elymus arenarius*, *Elytrigia repens*, *Festuca ovina*, *F. rubra*, *F. sulcata*, *F. sp.*, *Glyceria maritima*, *G. sp.*, *Hierochloe odorata*, *Phleum pratense*, *Piptatherum songoricum*, *Poa angustifolia*, *P. compressa*, *P. pratensis*, *Secale cereale*, *Triticum aestivum*.

Winter diapause in egg stage; first instars hatch in spring, females become adult in July; oviposition in July and August. According to TEREZNIKOVA (1975) the larvae hatch in summer which does not agree with data of all other workers.

Distribution. Europe: British Isles, France, West Germany, Poland, Czechoslovakia, Hungary, Karelia, Leningrad Region, Ukraine, Crimea; Central Asia: Kazakhstan; Eastern Siberia: Primorye.

Kaweckia laeticoris (TEREZNIKOVA) **comb. n.**

Greenisca laeticoris TEREZNIKOVA, 1965: 957, Fig. 1; 1966: 27; 1970: 46 and others; — *inermis* (GREEN); TEREZNIKOVA, 1959b: 684; 1961: 3 (misidentif.); — *rubra* MATEŠOVA; KOTEJA 1974: 77; TEREZNIKOVA, 1975: 8 and others (misidentif.?).

Material examined. Several females collected supposedly in Czechoslovakia (other data lacking); from ŠULC's collection in the Moravian Museum, Brno.

Host and habitat. In leaf sheaths of *Festuca sulcata* and *Agrostis vulgaris*, adult females occur in July.

Distribution. Ukraine and supposedly Czechoslovakia.

Note. The records on *Kaweckia laeticoris* constitute a dilemma. TEREZNIKOVA established this species in 1965. In a paper of 1966 she mentions that the data under "*Greenisca inermis*" in the papers of 1959b and 1961 refer to *Greenisca laeticoris*. In 1970 *Greenisca glyceriae*, *G. laeticoris* and *G. inermis* are discussed as occurring in Ukraine. What does the latter name mean? If determined according to the key by BORCHSENIUS, 1949, it may represent *Greenisca gouxii* (BALACHOWSKY), but it may be also *Rhizococcus inermis* (GREEN) sensu DANZIG, 1962. We believe both the species occur in Ukraine.

In a paper of 1975 *Greenisca laeticoris* is not mentioned at all, but figures and other data identical with those of the paper of 1970 are here referred to *Greenisca rubra* MATEŠOVA which indicates that TEREZNIKOVA considers *G. laeticoris* as a synonym of *G. rubra*. We do not accept this decision. *Greenisca laeticoris* represents in our opinion a valid species, distinct from all others in the genus.

***Kaweckia orientalis* (BORCHSENIUS) comb. n.**

Greenisca orientalis BORCHSENIUS, 1956b: 676, Fig. 8; HOY, 1963: 134; BORCHSENIUS and DANZIG, 1966: 42.

Host and habitat. At base of stem of an unidentified grass.

Distribution. Northern Korea.

***Kaweckia rubra* (MATESOVA) comb. n.**

Greenisca rubra MATESOVA, 1960a: 209, Fig. 4—5; HOY, 1963: 134; TEREZNIKOVA, 1965: 958; BORCHSENIUS and DANZIG, 1966: 42; RASINA, 1966: 23; MATESOVA, 1971: 26; DANZIG, 1974: 70; 1977: 44, 57; KOSZTARAB and KOZAR, 1978: 79.

Host and habitat. In leaf sheaths of *Elymus*, *Stipa* and other grasses.

Distribution. Central Asia (Kazakhstan, Mongolia), Eastern Siberia (Primorye).

Note. TEREZNIKOVA (1975) reports this species from Ukraine. We believe these records should be referred to *Kaweckia laeticoris*; see Note under this species.

***Greenisca* BORCHSENIUS**

Greenisca BORCHSENIUS, 1948: 502; 1949: 367; HOY, 1963: 132; BORCHSENIUS and DANZIG, 1966: 41; KOTEJA, 1974a: 296;

Anophococcus BALACHOWSKY, 1954a: 61, partim; BORCHSENIUS and DANZIG, 1966: 41; further records on both genera in HOY, 1963: 132, 133.

Type species *Greenisca inermis* BORCHSENIUS, 1948, nec GREEN 1915a = *Anophococcus gouxi* BALACHOWSKY, 1954a.

Diagnosis. Body elongate; preantennal tubercles absent; antennae and legs well developed; the former attached in some distance from anterior margin of body; loop of piercing stylets slightly longer than labium; hindtibia with 5 setae (3 large on inner edge); anal lobes prominent, with enlarged setae only on mesal margin; anal ring oval, narrow, with 6—8 setae and pores; sessile pores of two types — usual pores with 5—9 loculi on ventral surface, thick-rimmed, semipolygonal with 3—6 loculi on dorsal surface and ventral margin; macrotubular ducts on dorsum and venter; microtubular ducts on dorsum; cruciform pores restricted to ventro-lateral region; enlarged setae on mesal margin of anal lobes; dorsal setae represented by minute spinules or needles; on leaf blades of *Poaceae*.

Greenisca is similar to *Tolypecoccus* HOY, 1962 from New Zealand which also has sessile pores differentiated into two types, but in this genus all pores are quinquelocular, enlarged setae occur on several abdominal segments, the body is oval and the spiracles are situated on sclerotized plates. For differences between *Greenisca* and *Kaweckia* see Table I.

Host and habitat. Larvae and females yellowish; live on leaf blades of *Poaceae*. Ovisac elongate, felted (*G. gouxi*) or ball-like, with woolly outer covering. Winter diapause in egg stage. Males unknown.

Table I

Characters separating *Greenisca* and *Kaweckia*

Characters	<i>Greenisca</i>	<i>Kaweckia</i>
Position of antennae	in some distance from anterior body margin	at very margin of body
Length of piercing stylets	loop slightly longer than labium	loop about 5 times the labium length
Posterior tibia with	5 setae, 3 on inner edge	4 setae, 2 on inner edge
Posterior tarsus with	7 setae	6 setae
Additional sclerotization of spiracles	absent	present
Anal ring	oval, narrow	circular, broad, 2 times smaller than in <i>Greenisca</i>
Enlarged setae	on anal lobes, sometimes on frons	on 3—5 posterior abdominal segments
Cruciform pores on dorsum	absent	present
on venter	scattered on sublateral area	single on margin of thorax
Multilocular pores on dorsum	thick-rimmed, subpolygonal with 3—6 loculi	same as on venter, with 5—9 loculi, sometimes absent
Microtubular ducts	on dorsum only	on dorsum and venter
Living specimens	yellowish	red
Habitat	on leaf blades	on stem, root collar and in leaf sheath

Distribution. Palearctic region: Europe, Transeaucasia, Central Asia, the Far East.

Affinities. *Greenisca* seems to be closely related with some *Eriococcus* s. l., particularly with species allied to *Eriococcus* (*Rhizococcus* sensu DANZIG, 1962, = *Anophococcus* BALACHOWSKY, 1954) *inermis* GREEN, with which it shares all characters examined by the authors, except that *Greenisca* has two types of sessile pores of which one is distributed on dorsum. For further discussion see Notes on *Anophococcus*.

Species included. Three species are included to the genus: *Greenisca gouxi*, *G. placida* and *G. brachypodii*. A reexamination of species described in *Eriococcus* s. l. may reveal that some of them should also be placed in this genus.

1. — Enlarged setae present on frontal margin of body and on anal lobes
. *Greenisca placida* (GREEN)
- Enlarged setae confined to mesal margin of anal lobes 2
2. — Sessile pores on dorsal surface much more numerous than tubular ducts
and forming distinct groups
. *Greenisca brachypodii* BORCHSENIUS and DANZIG
- Sessile pores on dorsal surface less numerous than tubular ducts, scattered
. *Greenisca gouxi* (BALACHOWSKY)

Review of species

Greenisca brachypodii BORCHSENIUS and DANZIG

Greenisca brachypodii BORCHSENIUS and DANZIG, in: DANZIG, 1964: 634; BORCHSENIUS and DANZIG, 1966: 43, Fig. 1; KOTEJA and ŽAK-OGAZA, 1966: 309; KOMOSIŃSKA and PODSIADŁO, 1967: 684; MATEŠOVA, 1968: 117; KOTEJA and ŽAK-OGAZA, 1969: 362, PODSIADŁO and KOMOSIŃSKA, 1976: 89; KOSZTARAB and KOZAR, 1978: 80; — *placida* (GREEN); RASINA, 1955: 69 (misidentif.); ZAHRAĐNIK, 1959a: 539 (misidentif.); DANZIG, 1959: 446; 1960: 3, 13; 1962: 27 (misidentif.); — *inermis* (GREEN); ŽAK-OGAZA and KOTEJA, 1964: 426 (misidentif.).

Material studied. Several females from various localities in Poland from authors' collection.

Host and habitat. On leaf blades of *Brachypodium pinnatum*, *Bromus erectus*, *B. sterilis*, *Lolium perenne*, *Stipa capillata*. Winter diapause in egg stage.

Distribution. Czechoslovakia, Poland, Latvia, Leningrad Region, Kazakhstan.

Note. We consider the data of ZAHRAĐNIK, 1959a, given under "*Greenisca placida*" as referring to *G. brachypodii* because the author emphasized the limitation of enlarged setae to anal lobes in materials which he had at hand. This feature is characteristic of *G. brachypodii* and *G. gouxii*, but the ovisac in the latter species is distinct from both *brachypodii* and *placida*.

Greenisca gouxii (BALACHOWSKY)

Anophococcus gouxii BALACHOWSKY, 1954a: 61, Fig. 1—14;

Greenisca gouxii (BALACHOWSKY); HOY, 1963: 133; BORCHSENIUS and DANZIG, 1966: 41; KOTEJA and ŽAK-OGAZA, 1969: 363; DANZIG, 1977: 39, 57; KOZAR, ÖRDOGH and KOSZTARAB, 1977: 71; KOSZTARAB and KOZAR, 1978: 80; *inermis* (GREEN); BORCHSENIUS, 1948: 502; 1949: 367, Fig. 376 (misidentif.).

Material studied. Several females from two localities in Poland; material from authors' collection.

Host and habitat. On leaf blades of *Brachypodium pinnatum* and *Molinia coerulea*.

Distribution. France, Poland, Hungary and the USSR (Georgia and Primorye).

Note. See *Kaweckia laeticoris*.

Greenisca placida (GREEN)

Eriococcus placidus GREEN, 1921: 148, Fig. 2;

Greenisca placida (GREEN); HOY, 1963: 134; BORATYNSKI and WILLIAMS, 1964: 108; DANZIG, 1964: 634; BORCHSENIUS and DANZIG, 1966: 43; KOSZTARAB and KOZAR, 1978; for further records see HOY, 1963.

Host and habitat. On leaf blades of *Brachypodium silvaticum*.

Distribution. British Isles.

Note. See *Greenisca brachypodii*.

Notes on *Anophococcus* BALACHOWSKY

The genus *Greenisca* has been established (BORCHSENIUS, 1948) to contain *Eriococcus glyceriae* GREEN and another species from Georgia, USSR, indentified as *Eriococcus inermis* GREEN. The latter has been designated as type species of the genus.

In 1954a BALACHOWSKY described *Anophococcus* with type species *Eriococcus inermis* GREEN, to which five species have been included, among others a new species *Anophococcus gouxi* (Tabl. II). Having a common type with *Greenisca*, *Anophococcus* became a junior synonym of the former, and so it is listed in the catalogue of the *Eriococcidae* by HOY, 1963. But placing *Anophococcus* among the synonyms of *Greenisca*, HOY modified its original diagnosis and limits — only *inermis* and *gouxi* had remained in *Greenisca*, while the other BALACHOWSKY's species were placed in *Eriococcus*.

In 1962a DANZIG discovered a misidentification of specimens determined as *Eriococcus inermis* GREEN which had been designated as type species of *Greenisca*, and discussed *inermis* within the genus *Rhizococcus* SIGNORET sensu BORCHSENIUS, 1948. But she did not mention what the material in question actually represented, and what about the type species of *Greenisca*.

In 1966 BORCHSENIUS and DANZIG redescribed the genus *Greenisca* and stated that the material on which the genus had been based was not *Eriococcus inermis* GREEN, 1915a, but *Anophococcus gouxi* BALACHOWSKY, 1954a, and designated the latter as the type of *Greenisca*. This decision, although not quite formal (see International Code of Zoological Nomenclature, Art. 70). seems to be right and should be adopted in the future. It did not solve, however, the problem of *Anophococcus* because, having now its own type species which, moreover, has not been included in *Greenisca*, *Anophococcus* became valid.

The question is, whether there are sufficient biological reasons to consider the species assemblage presented by BALACHOWSKY as a distinct genus, taking into account that the author established it for eriococcids with enlarged setae limited to anal lobes.

This group (*Anophococcus gouxi*, being type species of *Greenisca*, is not under discussion) cannot be included to *Eriococcus* as currently understood as it has no large tubular ducts of special type in *E. buxi*. It fits very well to *Rhizococcus* sensu BORCHSENIUS, 1948 and DANZIG, 1962a, but this conception has not been generally accepted and recently even rejected by DANZIG (1975): the species of BORCHSENIUS' *Rhizococcus* have been transferred to *Acanthococcus*, while *Rhizococcus* SIGNORET is considered to be nomen dubium owing to the insufficient original description.

Studies on numerous Palearctic eriococcids carried out in connection with the present investigations inclined us to following conclusions:

1. *Eriococcus* sensu FERRIS 1957c and HOY, 1963, as well as *Acanthococcus* sensu DANZIG, 1975, and KOSZTARAB and KOZAR, 1978, represent, each, heterogeneous assemblages.

2. The conception of BORCHSENIUS (1948, 1949) — *Acanthococcus* with enlarged setae on entire dorsum, *Rhizococcus* with these setae only on body margin — cannot be accepted, because several species exhibit intermediate conditions (see also DANZIG, 1975). The size, shape and distribution of enlarged setae are variable and may be used, although with reservation in some cases, on species level. But first of all, the specimen of *Rhizococcus gnidii* from the type collection examined by the authors has large, conical setae on entire dorsum (see discussion under *Rhizococcus*).

3. The same concerns the conception of BALACHOWSKY (1954a) — *Anophococcus*, with enlarged setae limited to anal lobes, contains species which join the genera *Greenisca* and *Rhizococcus* sensu BORCHSENIUS.

4. As an alternative solution we propose the following (see also Table II)

Table II

The conception of *Greenisca* and *Anophococcus* according to various authors

FERRIS, 1957c	BORCHSENIUS, 1948, 1966	BALACHOWSKY, 1954a	HOY, 1963	present conception
<i>Eriococcus</i> = <i>Acanthococcus</i> = <i>Rhizococcus</i> = <i>Gossyparia</i> = <i>Anophococcus</i> = Others <i>buxi</i> <i>aceris</i> <i>gnidii</i> <i>spuria</i> and others <i>Greenisca</i> <i>inermis</i> and others	<i>Eriococcus</i> <i>buxi</i> , monotypic <i>Acanthococcus</i> <i>aceris</i> and others <i>Gossyparia</i> <i>spuria</i> and others <i>Rhizococcus</i> <i>gnidii</i> <i>inermis</i> <i>salsolae</i> and others <i>Greneisca</i> <i>gouxii</i> <i>brachypodii</i> <i>placida</i> <i>glyceriae</i> <i>rubra</i> <i>orientalis</i> <i>Anophococcus</i> ?	<i>Eriococcus</i> <i>buxi</i> monotypic? <i>Gossyparia</i> <i>spuria</i> <i>Acanthococcus</i> = <i>Rhizococcus</i> <i>aceris</i> <i>gnidii</i> <i>placida</i> <i>glyceriae</i> and others <i>Anophococcus</i> <i>inermis</i> <i>gouxii</i> <i>salsolae</i> <i>paucispinus</i> <i>parvisetus</i>	<i>Eriococcus</i> = <i>Acanthococcus</i> = <i>Rhizococcus</i> <i>buxi</i> <i>aceris</i> <i>gnidii</i> <i>paucispinus</i> <i>parvisetus</i> <i>salsolae</i> and others <i>Gossyparia</i> <i>spuria</i> and others <i>Greenisca</i> = <i>Anophococcus</i> <i>inermis</i> <i>gouxii</i> <i>placida</i> <i>glyceriae</i> <i>orientalis</i> <i>rubra</i>	<i>Eriococcus</i> <i>buxi</i> , monotypic <i>Acanthococcus</i> <i>aceris</i> and others <i>Gossyparia</i> <i>spuria</i> and others <i>Rhizococcus</i> <i>gnidii</i> and others <i>Anophococcus</i> <i>inermis</i> and others <i>Greenisca</i> <i>gouxii</i> <i>brachypodii</i> <i>Kaweckia</i> <i>glyceriae</i> <i>baltica</i> <i>rubra</i> <i>orientalis</i> <i>laeticoris</i>

A. *Eriococcus* TARGIONI-TOZZETTI, as redefined by BORCHSENIUS (1948) and MILLER and WILLIAMS (1976); currently monotypic (*E. buxi*);

B. *Acanthococcus* SIGNORET, 1875b, with *A. aceris* SIGNORET, 1875b, as type species, by monotypy, and other species with following combination of cha-

racters — thick fleshy setae (antennal bristles) on two penultimate antennal segments subequal in length, apical labial segment with 5 pairs of setae; piercing stylets very long, forming a double loop; inner edge of hindtibia with only 2 setae; mesal face of anal lobes nodulate; cruciform and sessile pores absent from

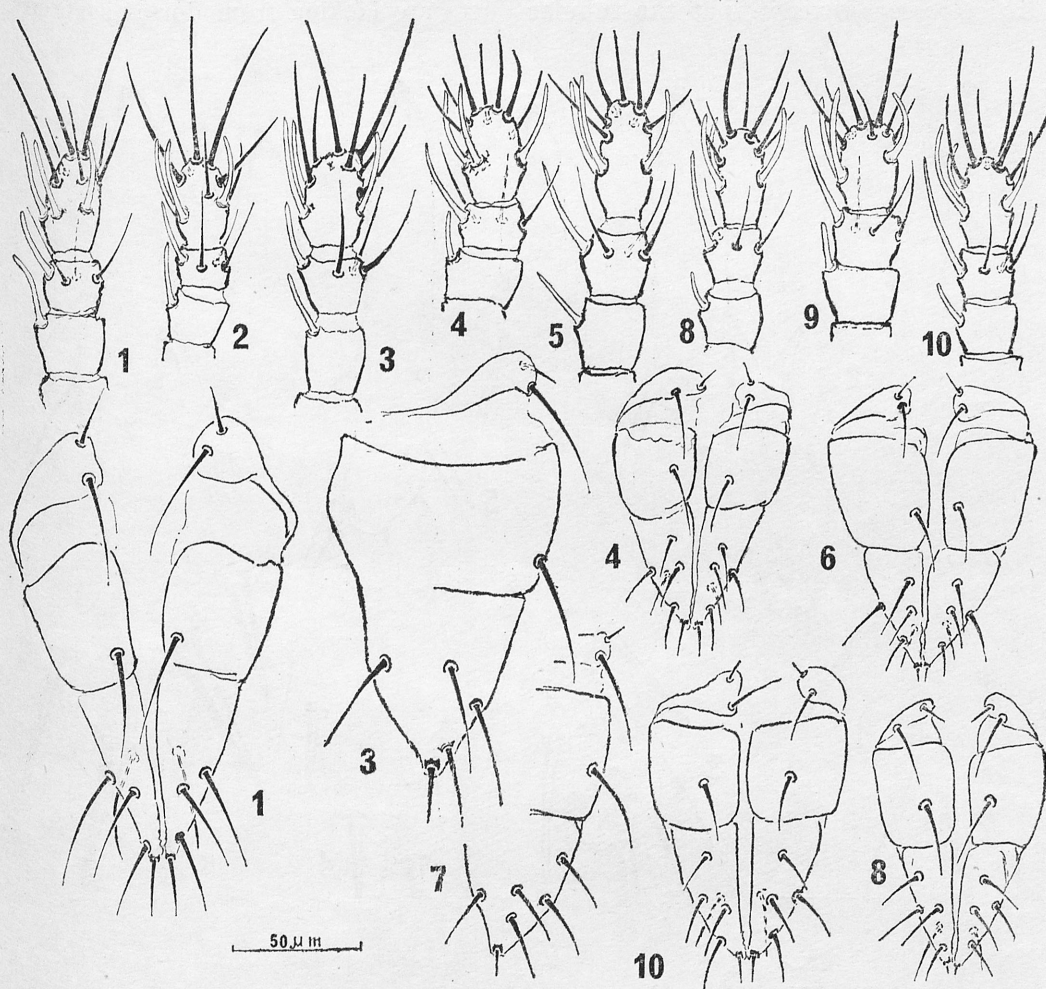


Fig. 4. Three apical antennal segments and labium (face and lateral views); 1 — *Acanthococcus aceris*, 2 — *A. azalae*, 3 — *Gossyparia spuria*, 4 — *Anophococcus inermis*, 5 — *Rhizococcus nsignis*, 6 — *Rh. agropyri*, 7 — *Rh. herbaceus*, 8 — *Rh. munroi*, 9 — *Rh. gnidii*, 10 — *Rh. devoniensis*

dorsum, microtubular ducts long and narrow, with ampoule wider than tube (Figs 4, 5).

At least following species should be included here: *Acanthococcus abeliceae* (KUWANA, 1927), *A. altaicus* MATESOVA, 1967, *A. azaleae* (COMSTOCK, 1881), *A. costatus* DANZIG, 1975, *A. isacanthus* DANZIG, 1975, *A. populi* MATESOVA, 1967,

A. quercus (COMSTOCK, 1881), *A. ribesiae* BORCHSENIUS, 1960, *A. roboris* (GOUX, 1931), *A. salicis* BORCHSENIUS, 1938, *A. spiraeae* BORCHSENIUS, 1949, *A. turanicus* MATESOVA, 1957, *A. ulmarius* DANZIG, 1975.

C. Gossyparia SIGNORET, 1875b, type species *Coccus spurius* MODEER, 1778, by original designation, with the same combination of characters as given for *Acanthococcus*, except that the tubular ducts are lacking from dorsal surface

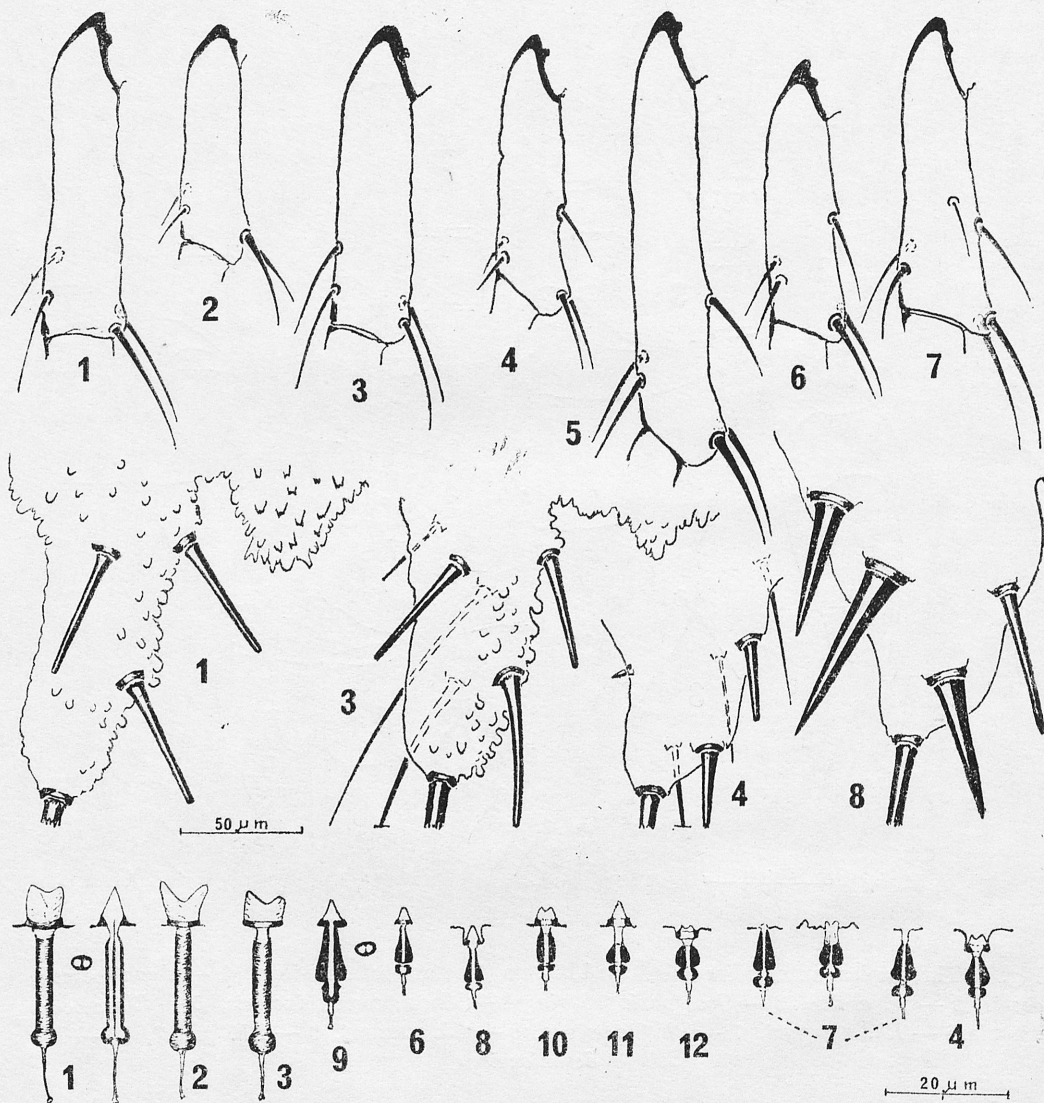


Fig. 5. Posterior tibia, left anal lobe (dorsal) and microtubular ducts (surface view and various crosssections drawn from usual light microscope); 1 — *Acanthococcus aceris*, 2 — *A. azaleae*, 3 — *Gossyparia spuria*, 4 — *Anophococcus inermis*, 5 — *Rhizococcus insignis*, 6 — *Rh. munroi*, 7 — *Rh. devoniensis*, 8 — *Rh. greeni*, 9 — *Rh. gnidii*, 10 — *Rh. palustris*, 11 — *Rh. herbaceus*, 12 — *Rh. confusus*

in *Gossyparia*. Although generally accepted, this genus seems to be synonymous with *Acanthococcus*.

D. *Rhizococcus* SIGNORET, 1875b, type species *Rhizococcus gnidii* SIGNORET, 1875b, by monotypy.

We have examined a specimen (unfortunately in poor condition) from SIGNORET'S type collection, preserved in the Naturhistorisches Museum, Vienna, and stated that:

— the examined specimen as well as those defined in the original description are adult females; therefore the suggestion of FERRIS (1957b), DANZIG (1975) and others that the diagnosis of *Rh. gnidii* is based on a larval instar is not correct;

— usual eriococcid tubular ducts are distributed all over the dorsum; there is no doubt that this insect forms an ovisac during oviposition; the same had been suggested by SIGNORET; the opinion of some authors (DANZIG, 1975; GREEN, 1921) that *Rhizococcus* is characterized primarily by the lack of the ovisac has not been confirmed by the present findings;

— *Rhizococcus gnidii* has large, conical setae on entire dorsal surface, thus the conception of BORCHSENIUS (1948, 1949) — *Rhizococcus* with enlarged setae limited to body margin — must be rejected;

— *Rhizococcus gnidii* is not congeneric with *Acanthococcus aceris* because — antennal bristle on VI th (preapical) segment it distinctly (about 2 times) longer than that on V th segment (in 6-segmented antennae respectively on IV th and V th); apical labial segment bears 6 pairs of setae; inner edge of anal lobes not nodulate; hindtibia with 3 large setae on inner edge, microtubular ducts broad and short, with tube wider than ampoule (for compariron see diagnosis of *Acanthococcus* and Figs 4, 5).

E. *Anophococcus* BALACHOWSKY, 1954a, with type species *Eriococcus inermis* GREEN, 1915a, by original designation, and other species with similar combination of characters as given for *Rhizococcus*, except that enlarged setae are confined to anal lobes.

We believe that *Rhizococcus gnidii* and *Anophococcus inermis* are not congeneric, but *Anophococcus*, as understood by BALACHOWSKY, seems to be too narrowly defined, while *Rhizococcus*, currently with all species which are not definite *Acanthococcus* or *Anophococcus*, seems to be too broad. Comparative studies on all species are needed to find out natural groups. Such investigations had been initiated by GOUX (1948a and others) and BORCHSENIUS (1948, 1949), but these attempts have been neglected by the followers.

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STRESZCZENIE

Wyodrębniono nowy rodzaj — *Kaweckia* gen. n. — z gatunkiem typowym *Eriococcus glyceriae* GREEN i czterema dalszymi gatunkami — *K. baltica* (RASINA), *K. laeticoris* (TEREZHNIKOVA), *K. orientalis* (BORCHSENIUS) i *K. rubra* (MATESOVA).

Zmodyfikowano diagnozę rodzaju *Greenisca* BORCHSENIUS. Włączono do niego następujące gatunki — *G. gouxii* (BALACHOWSKY), *G. placida* (GREEN) i *G. brachypodii* BORCHSENIUS & DANZIG.

Krytycznie rozpatrzono aktualny status rodzajów *Anophococcus* BALACHOWSKY, *Eriococcus* TARGIONI-TOZZETTI, *Acanthococcus* SIGNORET, *Gossyparia* SIGNORET i *Rhizococcus* SIGNORET.

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