

Notes on Aphids from Alaska

by

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I. *Börnerina* (*Börnerinella* nov. subgen.) *occidentalis* nov. spec.

Börnerinella nov. subgen.

Typus subgeneris: *Börnerinella occidentalis* nov. spec. Apteræ viviparæ with nearly all the characters of those of *Börnerina* Bramstedt, but frontal processi not more developed than in *Betulaphis* Glendenning, and dorsum of abdomen with distinct, usually pigmented, sclerotic bars. Alatae on abdomen with a more or less developed pattern of dark sclerotic bars both dorsally and ventrally, with dorsally numerous wax-glands of the same type as in *Euceraphis* Wlk., with oval, bare, secondary rhinaria and with the primary rhinaria indistinctly fringed as in *Börnerina* alatae; in pale specimens the wax-glands almost invisible. Oviparæ with thick sclerotic bars on thorax and abdomen, few partly extremely small pseudosensoria on the hind tibiae, and with large wax-glands below the siphunculi. First instar larvae with 4-jointed antennae and with the setal pattern of *Börnerina*. The prevailing viviparous morph is alate, apteræ viviparæ apparently being rare.

Discussion: All larvae and adults can easily be recognized as *Börnerina* Bramstedt by the dorsal position of the first abdominal stigmal pori, which in alatae are placed on a large tubercle. Also the chaetotaxy, minute dorsal hairs and long, thick marginal hairs, serrated sides of the abdomen, structure of the VIIIth abd. tergite, antennae and their rhinaria, siphunculi, cauda, scarcity of spinules on the tibiae in apteræ, are quite typical for *Börnerina* Bramstedt. But the absence of frontal processi in apteræ and alatae, combined with the strong development of wax-glands in alatae amply justify a new subgenus.

It should be mentioned here that *Betulaphis* Glendenning differs not only in the ventral position of the first abdominal stigmata from *Börnerina* and *Börnerinella*, but also by the absence of wax-glands in oviparæ. In both *Börnerina* sensu stricto and *Betulaphis* the prevailing viviparous morph is apterous.

Börnerina (*Börnerinella*) *occidentalis* nov. spec.

Apterous viviparous female (from 2 specimens).

Body flattened, oval, about 1.70—2.40 mm long, just more than twice as long as wide, with the maximum width just caudad the middle. Tergites with broad sclerotic bars which are often broken in the middle on the anterior abd. segments, where they also may be brownish pigmented. Dorsal integumentum not distinctly variolose, locally slightly wrinkled. On dorsum 2 spinal and 2 pleural hairs per segment present; these hairs extremely short, about 0.002—0.003 mm long, but frontal hairs and marginal hairs stout, thick, and on strong sockets, not really knobbed but club-shaped or with hardly enlarged funnel-shaped apex; frontal

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hairs 6 in number, of which 4 are placed in pairs on two little hills, and 2 more each on a low hill; longest frontal hair about 0.025—0.030 mm long; marginal hairs on abdomen placed singly on or near the protruding, often angular, posterior corner of each abd. tergite; marginal hairs about 0.013—0.030 mm long; VIIIth abd. tergite more or less semicircular, along posterior edge with 8 (or rarely 10?) long hairs of up to 0.050 mm long, of which the middle pair stands on a low elevation. Dorsal "wax-glands", looking like bases of hairs, very irregularly present as single pori on the front, and pleurally and marginally on abdomen, especially on VIIth abd. tergite. Front sometimes a little concave. Antennae about half as long as body, in pigmented specimens brownish from distal part of IIIrd segment onwards; division between IIIrd and IVth segment indistinct or obsolete; flagellum dispersely imbricate with indistinct spinules on the imbrications; IIIrd segment on basal two-thirds dorsally rather smooth; secondary rhinaria absent; primary rhinaria without hairy fringe; processus terminalis shorter than base of VIth segment. Hairs on flagellum up to $\frac{5}{9}$ — $\frac{9}{10}$ of basal diameter of IIIrd segment, stout and stiff, blunt to acute, but on innerside of IIIrd segment (at least near base and often much more distad), hairs much shorter, blunt, only $\frac{1}{6}$ — $\frac{1}{4}$ of basal diameter of that segment. Rostrum reaching just past the middle coxae; last segment dorsally shorter than ventrally which is exceptional, dorsally (on the grooved side) $\frac{6}{7}$ of second joint of hind tarsi, with 2—5 hairs besides the 3 subapical pairs; base of rostrum with a strengthened "clasp" ("Chitinspange" of Börner, 1952). Siphunculi on VIth abd. tergite, coloured like the paler parts of dorsum, very low, smooth, with rather wide flange of about 0.052 mm diameter. Cauda pale, very thick, broadly sessile, with a thick knob of about 0.10 mm wide and 0.065 mm long, with 4—5 long hairs and ventrally 7—9 thinner and shorter hairs. Subanal plate slightly incised. Rudimentary gonapophyses fused to one transverse, multihaired structure, its hairs about 0.035 mm long. Legs stout and rather short, normal; hind tibiae about $6\frac{1}{2}$ times the hind tarsi, with very few spinules near apex; first tarsal joints ventrally with 5 hairs along posterior margin and 1—2 (rarely 0) hairs more basad; second tarsal joints with conspicuous spinules on the imbrications; "empodial" hairs very broad, triangular, long. Stigmal pori on Ist abd. tergite completely dorsally, larger than the other, ventral, ones.

Measurements in mm:

No.	Length body	Ant.	Siph.	Cau.	Ant. segments			
					III	IV	V	VI
1	1.74	0.89	0.02	0.09	0.26	0.18	0.16	0.10 + 0.09
2	2.34	1.14	0.02	0.12	0.32	0.23	0.20	0.13 + 0.10

Alate viviparous female (from 35 specimens).

Pigmentation highly variable, perhaps because of differences in age of specimens. Pale specimens with brownish head and thorax, no ornamentation on abdomen, rather dark brown antennae and tibiae, and paler brown distal parts of femora. Dark specimens (to which the following relates) with blackish brown head and mesonotum, paler brown pronotum and mesonotum; dorsally across each of abd. segments I—VIII blackish brown, broad spino-pleural sclerotic bars,

and blackish tuberculoid marginal sclerites that ventral are much paler, the latter often linked with the spino-pleural bars; ventrally pairs of large sublateral blackish brown sclerites present, which tend to coalesce medially into bars; in intermediate dark specimens the abdominal bars with a pallid center. Dorsal hairs on abdomen arranged as in apterae, thin, acute and about 0.016 mm long, the marginal hairs similar, and also the hairs on VIIIth tergite thorny and about 0.035 mm long. Wax-glands in dark specimens very conspicuous, in very pale ones invisible; head with groups of glands around the dorsal hairs; pronotum almost covered with glandpori; on the spino-pleural bars on abdomen large transverse glands around each of the hairs and these glands sometimes coalescing; VIIIth tergite with a median, roundish gland on a sort of processus with 2 hairs, and with two lateral glands; the glands consist of transversely oval or spindle-shaped paler areas with numerous transversely oval pori which are more transparent, but the surface of which has fine dark stipples. Front concave with two low tubercles each bearing a thin, pointed hair. Antennae blackish brown, long, nearly $\frac{3}{4}$ length of body, with basal half of IIIrd segment rather smooth, the rest apicad gradually more densely imbricated, but not spinulose; IIIrd segment on basal $\frac{1}{5}$ — $\frac{1}{2}$ part with 2—10 (average 6.4) large, darkish, bare, transversely oval, unevenly spaced rhinaria in a row, with sometimes 1—2 small circular rhinaria besides; primary rhinaria without distinct hairy fringe; interrelation of segmental lengths very variable. Hairs on antennae like those on abdominal dorsum. Siphunculi dark, on a slightly bulging sclerite which on its posterior margin bears a mammiform process. VIIIth abd. tergite on anterior half membranous, with paired, irregular, dark sclerites looking like short lengths of filled mammal intestine. Cauda with the knob dark and more globular than in apterae; the basal part pale. Legs rather long, dark, with the bases of the femora and a stretch on distal half of the tibiae paler; tibiae on distal half quite spinulose, with thorny hairs and with 4 slightly blunt apical thorns on the ventral side; first tarsal joints with 6—7 very stout hairs ventrally, but also dorsally with 2 stout hairs with between the latter something that looks like a hairsocket so that perhaps dorsally 3 hairs might be present; empodial hairs at apex about 0.013 mm wide, curved. Wings with the long pointed stigma conspicuously blackish like the subcostal vein complex, but in pale specimens the stigma only faintly pigmented.

Measurements in mm:

No.	Length body	Ant.	Siph.	Cau.	Ant. segments				Rhin. on III
					III	IV	V	VI	
1	2.81	2.20	0.02	0.13	0.72	0.56	0.45	0.17 + 0.13	3 & 4
2	3.23	2.91	0.02	0.14	0.98	0.80	0.63	0.19 + 0.16	7 & 8
3	2.40	1.90	0.02	0.14	0.60	0.47	0.34	0.13 + 0.10	2 & 3
4	3.21	2.35	0.02	0.16	0.81	0.62	0.47	0.17 + 0.12	8 & 9
5	3.26	2.40	0.02	0.15	0.81	0.61	0.51	0.17 + 0.12	8 & 8
6	2.68	2.29	0.02	0.18	0.76	0.57	0.47	0.17 + 0.13	5 & 6

Oviparous female (from 60 specimens).

Very much like apterous viviparous female, but (the smooth) head and thorax brown to blackish brown sclerotic; abdomen with on each segment a broad spino-

Measurements in mm:

No.	Length body	Ant.	Siph.	Cau.	Ant. segments			
					III	IV	V	VI
1	2.00	0.99	0.02	0.12	0.26	0.19	0.18	0.11 + 0.09
2	2.30	1.01	0.02	0.13	0.26	0.19	0.19	0.12 + 0.09
3	1.98	0.96	0.02	0.13	0.27	0.19	0.16	0.10 + 0.09
4	2.36	1.06	0.02	0.14	0.27	0.23	0.20	0.12 + 0.09
5	1.51	0.76	0.02	0.10	0.19	0.13	0.14	0.09 + 0.07
6	1.43	0.69	0.02	0.07	0.18	0.13	0.12	0.07 + 0.06

pleural transverse bar; these sclerotic parts marbled or wrinkled; through the pronotum unto IIIrd abd. tergite a fine median membranous line; between the bars on abdomen granulated, sharply bordered intersegmental sclerites. Below each siphunculus a very large, darkened, finely chagreened wax-gland. On the hind tibiae 2—8 pseudosensoria with irregular margins, not larger than the papilla of a tibial hair, besides 0—6 rather large, normal, bulging pseudosensoria. All appendages dark. The area around the genital porus with conspicuous longitudinal striae.

Apterous male (from 2 specimens).

Much smaller and more slender than oviparae, but otherwise, e.g., in sclerotisation and pigmentation, very similar. Antennae with no rhinaria on IIIrd ant. segment, but with 0—1 on IVth, 2—4 on Vth and 1—3 secondary rhinaria on basal part of VIth segment; all the secondary rhinaria quite circular, small, much smaller than the primary rhinaria but similar in structure of their margins. VIIIth abd. tergite with 6 long hairs and sometimes 2 thinner and shorter ones. Cauda hardly knobbed, with pale basal part. Genitalia normal.

Measurements in mm:

No.	Length body	Ant.	Siph.	Cau.	Ant. segments				Rhin. on			
					III	IV	V	VI	III	IV	V	VI
1	1.33	0.81	0.02	0.06	0.17	0.16	0.17	0.10 + 0.07	0 & 0	1 & 1	3 & 4	2 & 1
2	1.23	0.65	0.02	0.06	0.14	0.11	0.15	0.09 + 0.06	0 & 0	0 & 0	3 & 2	3 & 1

Larvae.

First instar larvae with a pattern of brown sclerotic plates and with a chaetotaxy as figured by QUEDNAU for *Börnerina*. First tarsal joints with 2 long hairs. Antennae of 4 segments. Longest frontal hair about 0.039 mm long, hairs on VIIIth abd. tergite about 0.058, marginal hairs of VIIth 0.030, on VIth and more anterior segments 0.010—0.013 mm. Spinal and pleural hairs about 0.002 mm long.

Second instar larvae with the same sclerotic pattern, their IIIrd ant. segment with a tendency to subdivide, the first tarsal joints with 5 hairs, rarely more.

All later larval instars with similar sclerotic pattern. Alatoid nymphs with nearly pale wing-pads.

Collecting data. Many specimens, with a number of nymphs of various instars, were taken on *Alnus crispa* (Ait.) Pursh. subsp. *sinuata* (Reg.) Hult., a member of the subgenus *Alnobetula* Endl. Stray alatae were collected from

Betula papyrifera Marsh, and some oviparae and alatae from *Lupinus* sp. Most specimens are from Anchorage, Alaska, U.S.A., 24.VII.1961, some from Gakona, Alaska, 21.VII.1961, leg. F. C. HOTTES.

Discussion: Of *Börnerina* Bramstedt three species have been described. The *typus generis*, *B. depressa* Bramstedt, was studied by the first author in all its morphs. Of that species, and of *B. alni* Tak., paratypes are available, of *B. variabilis* Richards an apterous specimen identified by Dr. W. R. RICHARDS. The latter species at Anchorage inhabited the same host plant as our new species.

The larvae of *Börnerina depressa*, the sexuales and also the alatae appear to have distinct frontal processi very similar to those in apterous viviparous females of *B. variabilis* and *B. alni*. However, alatae of *B. depressa* seem to be very uncommon. Although tens of thousands of apterae were found by the first author in Switzerland, Austria and Czechoslovakia, no nymph with wing pads or alatae were seen between the end of May and the beginning of September. Some alatae were reared by the late Dr. C. BÖRNER in May and one of these was available.

B. alni is only known as apterous female.

At Anchorage the second author found only apterae of *B. variabilis*. But the material mentioned by RICHARDS with his description of *B. variabilis* consists of 85 alatae and 8 apterae, while he also mentions a sample of 44 alatae and 4 apterae from Alaska and 4 other samples of alatae of 38 (from Alaska), 23, 2 and 6 specimens, respectively. This is very surprising in a *Börnerina*. RICHARDS' description and figures of the alate female of *B. variabilis* agree in all respects but one with our alate material of *B. (Börnerinella) occidentalis* nov. spec., the difference being that RICHARDS mentions secondary rhinaria with strongly ciliate margins. However, in a letter Dr. RICHARDS confirmed our suspicion that these rhinaria are actually hairless.

It seems possible that the alatae described by RICHARDS as *Börnerina variabilis* are partly, or all, *B. (Börnerinella) occidentalis* nov. spec. In alate *Börnerina* sensu stricto one would expect the same hair pattern as in apterae, i.e., more than 6 hairs on abd. segments V, VI and VII.

It could be shown that our alatae, though very different from the apterae, and looking like *Euceraphis*, yet belong to the same species. This was done by examining larvae. The pale alatae were full of embryones, the quite dark ones held few or none. The embryones are morphologically identical with a first instar larva taken from Alder leaves. Older larvae could then easily be identified. One mature alatoid nymph with the short antennae of apterae permitted of examining the alate-to-be inside.

H o l o t y p e. Oviparous female, Anchorage, Alaska, 24.VII.1961 (leg. F. C. HOTTES), on *Alnus crispa* (Ait.) Pursh. subspec. *sinuata* (Reg.) Hult. in the collection of D. HILLE RIS LAMBERS. Paratypes (2 apterous viviparous females, 35 alate viviparous females, 60 oviparous females, 2 males) from the same locality and date or from Gakona, Alaska, 21.VII.1961, leg. F. C. HOTTES in the collections of the authors.

II. NOTES ON *Börnerina* Bramstedt, 1940.a. *Börnerina depressa* Bramstedt, 1940.

The undescribed alate female, fundatrix and sexuales of *Börnerina depressa* Bramstedt are described hereafter.

Alate viviparous female (from 1 specimen).

Head and thorax pale brownish, abdomen not pigmented. Spinal and pleural hairs on abdomen short, bluntish, about 0.007 mm long; marginal hairs acute, about 0.026 mm long on the anterior segments. No wax-glands visible. Front with two slender horns with rounded tips and much widened base, each about 0.028 mm thick in the middle and 0.043 mm long, with on top of each two acute hairs. Antennae $9/_{11}$ body length, imbricated from apex of IIIrd segment apicad; IIIrd segment on basal half with much protruding, transversely oval, large rhinaria with bare rims; primary rhinaria with striate or somewhat ciliate rims. Siphunculi and cauda as in apterae. Marginal processi on abdomen rather slender, particularly those just caudad the siphunculi. Legs long, with the tibiae distally spinulose and with 4 bluntish, lanceolate thorns at apex; first tarsal joints dorsally with 2 hairs, ventrally (as in apterae) with 5 hairs. Wing venation normal.

Measurements: Length of body: 2.38 mm; ant.: 1.97 mm; siph.: 0.013 mm; cau.? Ant. segments: $\frac{0.63}{III}$; $\frac{0.52}{IV}$; $\frac{0.39}{V}$; $\frac{(0.17 + 0.10)}{VI}$ mm. Rhin. on IIIrd ant. segment: 6 & 7.

(*Alnus viridis* D.C., Graz-Plabutsch, 7.V.1943, reared by C. BÖRNER at Naumburg).

Fundatrix.

Like apterous viviparous female, but larger than most. Antennae usually of 5 segments. Integumentum on abdomen about 0.009 mm thick, faintly yellowish.

Oviparous female.

Like apterous viviparous female, but, except the head, very little variolose. Below each siphunculus a large, darkened, reticulated and stippled wax-gland. Hind tibiae not swollen, with some 8—14 pseudosensoria, which are much larger than sockets of tibial hairs and partly bean-shaped. In life yellowish with tufts of white wool below the siphunculi.

Apterous male.

Much smaller than other morphs, only 1 mm long, quite pale with the last two ant. segments, the tarsi and the claspers dark. Antennae $3/5$ length of body, of 5 segments; IIIrd (= IIIrd + IVth) at the tip with one rhinarium, IVth with 1—4, last with 1—3 on basal part; all secondary rhinaria round, much smaller than primary rhinaria. Cauda hardly constricted. In life yellowish white, very active.

Discussion: This species, which is quite common where its host plant *Alnus viridis* D.C. grows in the mountains of Central Europe, produces its sexuales from the end of July. Both sexes were taken in the first week of August, but even in the end of August one still finds larvae producing apterous viviparae. The first instar larvae that we have mounted have, unlike QUEDNAU's figure 14, well

developed frontal processi, half as long as first ant. segment, the second tarsal joints have dorsoapically 2 hairs with swollen apices, and ribbon-shaped empodial hairs.

The frontal horns are generally thinnest near base in apterous females of this species, more cylindrical in males and alatae.

b. *Börnerina variabilis* Richards, 1961.

A mounted apterous viviparous female from "Jackpine", Ottawa, Ont., Canada, 18.X.1960, leg. E. C. BECKER, identified by and received from Dr. W. R. RICHARDS was remounted. Dorsally it shows sclerotic, faintly yellowish bars with both variolae and very fine stipples; these bars on the first 3 abd. tergites cut in the middle so that a suture is present from the head to the IVth abd. tergite. Hairs on the frontal processi, the marginal hairs and those around VIIIth tergite not capitate, but widening from the very base till the rounded apex so that they are pear-shaped, and (on VIIIth tergite up to 0.024 mm long) about $1\frac{1}{2}$ —2 times as long as the socket on which they are placed. They are accurately figured by RICHARDS. As to the antennal hairs, however, RICHARDS described hairs that are half the basal diameter of IIIrd ant. segment, but figures hairs that are much shorter; his figure agrees with the specimen that he sent us. It has on IVth segment on outer side hairs that are nearly $\frac{1}{4}$ of the basal diameter of IIIrd segment. The tibiae are distinctly spinulose on distal half.

However, the specimens that the second author collected near Anchorage, Alaska, on 24.VII.1961 are much less variolose. They have much slenderer frontal and marginal hairs, with more or less cylindrical shaft; on the VIIIth tergite the hairs measure about 0.043 mm, more than twice as long as their sockets. The longest hair on IVth ant. segment is about $\frac{3}{8}$ of the basal diameter of IIIrd segment. Their tibiae have very few and widely scattered spinules. They have 6—7 hairs ventrally on the first tarsal joints, and 8 or more hairs on VIIIth abd. tergite, like typical *B. variabilis* Richards. The host plant was *Alnus*, but the species was not identified. We consider these Alaska specimens to belong to a subspecies of *B. variabilis* Richards for which we propose the name *Börnerina variabilis* subsp. *alaskensis* nov. subsp. As to hairs they resemble the following species. Vide also key on p. 119.

Holotype. Apterous viviparous female, Anchorage, Alaska, 24.VII.1961 (leg. F. C. HOTTES), on *Alnus* sp., in the collection of D. HILLE RIS LAMBERS. Paratypes (4 apterous viviparous females), same data as for holotype, in the collections of the authors.

c. *Börnerina alni* Tak., 1961.

Three apterous cotypes from Hiraya, Mt. Norikura, Hida, Japan, 12.VIII.1959, leg. R. TAKAHASHI, on *Alnus matsumurae* Callier, were received from Dr. R. TAKAHASHI and remounted. The species strongly resembles our Alaska specimens of *B. variabilis* but the frontal processi are much thinner at base than they are at apex. And though the antennal hairs are short like those of typical *variabilis* Richards, the hairs on VIIIth tergite are like those of the Alaska specimens of *variabilis*. The first tarsal joints have 6—7 ventral hairs, but sometimes on one or two legs 5 hairs. The shape of the head, with the sides between the compound

eyes and the antennal bases only very little converging, differs much from *variabilis* where the sides markedly converge. The last rostral segment is only about $\frac{2}{3}$ of penultimate ant. segment, but in RICHARDS' species $\frac{3}{4}$ —1 times Vth segment. The chaetotaxy of the first tarsal joints serves to separate *B. alni* from the similar *B. depressa*.

d. KEY TO *Börnerina* APTERAЕ.

- 1 (2) Frontal processi merely indicated as flat tubercles. Head and abdomen not variolose. Dorsal hairs sparse, each of abd. tergites I—VII with normally only 2 spinal, 2 pleural and 2 marginal hairs. Hairs on IVth ant. segment on outer side spiny and more than half basal diameter of IIIrd ant. segment. Alaska, (Northern Canada?).

B. (Börnerinella) occidentalis nov. spec.

- 2 (1) Frontal processi very prominent, at least $\frac{3}{4}$ times as long as their width in the middle. Head and abdomen more or less variolose. Dorsal hairs spinally and pleurally more numerous. Hairs on IVth ant. segment all much less than half basal diameter of IIIrd ant. segment.

- 3 (4) VIIIth abd. tergite normally with 6 stout hairs, rarely with 4, 5 or 7 hairs. First tarsal joints normally with 5 ventral hairs. Central Europe.

B. depressa Bramstedt, 1940.

- 4 (3) VIIIth abd. tergite with 8—10 hairs along margin. First tarsal joints ventrally usually with 6—7, rarely on one or two legs with 5 hairs.

- 5 (6) Frontal processi more than $1\frac{1}{2}$ times as long as their smallest width basad the middle. Last rostral segment measured from the basal transverse rim only $\frac{2}{3}$ of penultimate ant. segment. Japan.

B. alni Tak., 1961.

- 6 (5) Frontal processi rarely just longer than their smallest width basad the middle, usually shorter. Last rostral segment $\frac{3}{4}$ —1 time penultimate ant. segment. North America.

B. variabilis Richards, 1961.

- a. Median hairs on VIIIth abd. tergite about 0.043 long (without socket), up to 0.006 mm thick. Disc of subgenital plate with 6—10 acute, thin hairs hardly different from those along posterior margin.

B. variabilis subsp. *alaskensis* nov. subspec.

- b. Median hairs on VIIIth abd. tergite about 0.024 mm long (without socket), up to 0.013 mm thick. Disc of subgenital plate with some stout, acuminate hairs that are conspicuously stouter than the hairs along posterior margin.

B. variabilis Richards sensu stricto.

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Beier, M., Tettigoniidae, Pseudophyllinae I. Das Tierreich, Lieferung 73, 468 pp., 245 figs. Verlag de Gruyter Co., Berlin, Jan. 1962. Prijs D.M. 210. Het eerste deel van bovengenoemd werk verscheen reeds als in statu nascendi in 1954 in Madrid en werd uitgegeven als een der Trabajos del Instituto Español de Entomologia. Het werk omvatte 479 pp. en 236 figs. en behandelde alleen de eerste 5 triben, terwijl deze nieuwe uitgave 6 triben behandelt en de overige 12 triben in het reeds in 1960 verschenen tweede deel van dit werk zijn te vinden. Hiermee is derhalve een complete monografie van deze subfamilie tot stand gekomen.

De tekst is op dezelfde uitmuntende manier behandeld en geïllustreerd, met tabellen tot op de genera en soorten, terwijl de goede beschrijvingen niet alleen aan de ervaren kenner, maar ook aan de beginner voldoende steun bieden bij het op naam brengen van de collectie. Het is jammer, dat men van deze insecten maar hoogst zelden series kan onderzoeken, hetgeen BEIER in de inleiding dan ook opmerkt.

In ieder geval, als wij het geheel beschouwen kan men zeggen, dat de heer M. BEIER de wetenschap een zeer grote dienst heeft bewezen door deze monografie te bewerken en volkomen up to date te doen zijn.

Een uitvoerige literatuurlijst maakt het werk nog meer verdienstelijk, want voor de beginner is het haast onbegonnen werk deze zelf samen te stellen. De bij ieder genus en iedere species opgegeven literatuur is over het algemeen wel als compleet te beschouwen. Jammer dat de hoge prijs voor deze delen menigeen zal doen terugdeinzen voor de aanschaffing. Hier kan elleen maar een verjaardag of ander familiefeest ingeschakeld worden. — C. WILLEMSE.

Wiebes, J. T., Spinachtigen - Arachnoidea, II, Nederlandse Wolfspinnen. Wetenschappelijke Mededeling no. 41 van de Kon. Ned. Natuurhist. Ver., februari 1962.

Deze 12 pagina's tellende W. M. bevat een behandeling van de twee families die samen de Wolfspinnen vormen, de Lycosidae en de Pisauridae. Na een korte inleiding bespreekt de auteur de levensverrichtingen: balts, broedzorg en levenscyclus. Daarna volgen wenken voor het verzamelen en vervolgens komen de tabellen voor het bepalen van de geslachten en soorten die uit Nederland bekend zijn, met korte gegevens over het voorkomen. 22 voortreffelijke lijntekeningen verduidelijken de tekst.

Als altijd weer een keurig verzorgde bijdrage tot de kennis van onze fauna. Te bestellen bij het bureau van de K. N. N. V., Hoogwoud-N.H. Prijs voor leden van K. N. N. V. en Ned. E. V. f 1,25 (voor niet-leden f 1,75), te storten op postrekening 13028, waarna toezending volgt. — LPK.

Te koop. REITTER, Fauna Germanica, Die Käfer des Deutschen Reiches, deel I tot en met V, gebonden en in prima staat, plus SCHENKLING, Erklärung der wissenschaftlichen Käfernamen aus Reiters Fauna Germanica. Totale prijs f. 50.

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