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North American Spiders of the Genus *Bathypantes* (Araneae, Linyphiidae)

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INTRODUCTION

The present paper treats the sheet-web weavers of the genus *Bathypantes* (family Linyphiidae, subfamily Linyphiinae) of North America. *Bathypantes* comprises a large and varied group of spiders in northern regions around the world. Although the primary concern here is the fauna of North America, some reference is also made to the faunas of Europe and Siberia.

The nomenclature of this group of spiders has been much confused in the past. Many species have been referred to *Bathypantes* which belong in other genera, and various attempts have been made to assign certain species of this genus to other generic names. Whereas the great majority of the species of this genus readily fall into *Bathypantes sensu stricto*, several of the species are sufficiently aberrant to justify subgeneric distinction; and such assignments have been indicated for those species that have come under this study.

North America contains more than half (about 30) of the known species of *Bathypantes*. Ten common species inhabit Europe, five of which also occur in North America. A considerable number of species occur in eastern Siberia, and, no doubt, several of these extend into Alaska and Canada.

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Members of this genus, although often numerous in the localities where they live, are not conspicuous. They live secluded, usually on the ground in non-arid situations, in grass, moss, and other low plants, loose ground litter, and under rocks and other objects. A few live in caves. They build small, delicate webs which are not obvious to the casual observer.

Bathyphantes in general resembles *Lepthyphantes*, a genus with which it has been somewhat confused. It is very closely related to *Linyphantes* Chamberlin and Ivie, a genus of small spiders mainly of the Pacific coast area of North America. Many of the species were first described in *Linyphia* which, in the present restricted sense, is a quite different group. Emerton, Banks, and some other authors placed in *Bathyphantes* species that now belong in *Lepthyphantes* and *Meioneta*, and they used the name *Diplostyla* for the species now placed in *Bathyphantes*. Even Menge, who proposed the genera *Bathyphantes* and *Lepthyphantes* in 1866, was not clear as to their distinction, and he also proposed the generic name *Stylophora* for *Bathyphantes concolor*. Later, Emerton in 1882 proposed *Diplostyla* to replace *Stylophora*, which was preoccupied.

Diplostyla is here used as a subgeneric name under *Bathyphantes*, with *concolor* as type species and sole representative. In 1956, Wiehle proposed the generic name *Kaestneria* for *dorsalis*, a name that is here retained as a subgenus, with *dorsalis* as the type species. In addition, three new subgeneric names are here proposed for other distinctive species or groups: *Weyerphantes* for *Bathyphantes weyeri*; *Coniphantes* for the *pullatus* group; and *Magniphantes* for *approximatus* and *magnificus*.

Although the genitalia of the six subgenera are quite different in pattern, the other structures are remarkably similar; hence, it is considered preferable to keep them in one genus for simplicity of general reference and to use subgenera for more particular differentiation.

On this continent, *Bathyphantes* is essentially northern in distribution, occurring from the Arctic southward through Canada and part of the United States: it is not known from the extreme south of the United States or from Mexico or the West Indies.

The present study is based principally on the collection of the American Museum of Natural History, where the types of new species and other specimens not indicated as belonging elsewhere are now deposited. I am much indebted to Dr. Willis J. Gertsch, under whose supervision the work was done. I am also grateful to the following for the loan of specimens and other cooperation in this study: Dr. Herbert Levi, Museum of Comparative Zoology, Harvard University; Dr. Henry Dietrich, Cornell University; the late Dr. Harriet Exline Frizzell, Rolla,

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GENUS *BATHYPHANTES* MENGE, 1866

Bathyphantes MENGE, 1866, pp. 111-124 (type *longipes*, new species). SIMON, 1884, pp. 330-351 (part). PETRUNKEVITCH, 1911, pp. 216-220 (part). ROEWER, 1942, pp. 569-575. LOCKET AND MILLIDGE, 1953, pp. 363-369. BONNET, 1955, pp. 856-870. WIEHLE, 1956, pp. 250-272.

Stylophora MENGE, 1866, p. 128 [type *concolor* (Wider)]. SIMON, 1929, pp. 639-641, 746. ROEWER, 1942, pp. 596-598. WIEHLE, 1956, pp. 263-266.

Diplostyla EMERTON, 1882, pp. 65-66 (new name for *Stylophora* Menge, pre-occupied). BONNET, 1956, pp. 272-275.

Bathyphantoides KASTON, 1948, p. 132 [type *brevis* (Emerton)]. New synonym.

Kaestneria WIEHLE, 1956, pp. 272-275 [type *dorsalis* (Wider)]. MERRETT, 1963, pp. 367, 368, 447-457 (part).

GENEROTYPE: *Bathyphantes gracilis* (Blackwall).

GENERIC CHARACTERS, NORMAL STRUCTURE: Carapace longer than wide in ratio of 5:4; narrowly emarginate behind; sides evenly convex, narrowing at head; width of head at posterior eyes about 0.6 of greatest width of thorax; cervical indentations shallow; corners of head rounded, front margin nearly straight to moderately curved (see fig. 56). Head low, only a little more elevated than thorax; highest behind eyes; height of clypeus about twice diameter of anterior lateral eye, sloping down from eyes at a steep angle. Eyes of moderate size; eight in two rows; eye area occupying about 0.7 width of head at posterior eye row; anterior median eyes much smaller than others which are nearly equal. Posterior eye row straight or faintly procurved, median eyes about two-thirds of a diameter apart, about one diameter from lateral eyes; anterior row straight, median eyes about 0.6 of a diameter apart, about 1.5 diameters from lateral eyes; median ocular quadrangle about as wide as long, much wider behind than in front; lateral eyes of each side raised on a low tubercle. *Chelicerae* stout, exposed part about as long as width of both of them at base, slightly retracted and spreading apart distally. Fang simple, curved, stout at base, sharp at point. Fang groove with three to five prominent teeth on front margin, two to six denticles on hind margin. *Sternum* large, shield-shaped, nearly as wide as long, blunt posterior tip separating hind coxae by about a diameter of one of them. *Labium* fused to sternum, about twice as wide as long. *Endites* a little longer than wide, parallel, separated at tips, scopulate on inside at tips. *Legs* simple, moderately long, with tibia-patella I longer than

carapace; stout at base, tapering distally, tarsus very slender; metatarsus much longer than tarsus. Legs of male usually longer than legs of female; order of size I, II, IV, III. Spines small; each femur with dorsal spine near middle of length, and femur I also with one to three spines on distal part of prolateral face. Patellae each with a slender spine distally above. Tibiae each with two dorsal spines, also usually with a lateral spine on each side near distal end of tibiae I and II and in some individuals on III and IV. Metatarsus without spines (except one in *crosbyi*). *Palpus* of female slender, not reaching to end of femur I; tarsus bearing several spines; terminal claw very small.

Palpus of male with femur and patella unmodified; tibia simple, about as thick as long, somewhat flared distally; tarsus large and complex. Cymbium usually without special modifications; paracymbium large, more or less lunate, normally wide at base and extending distally as a slender hook. Palpal organ comprised of following parts: *subtegulum*, a small concave disc, characteristic of the Linphiidae in general; *tegulum*, a large concave disc nestled in subtegulum, carrying sperm duct in spirals and loops from bulb to terminal division of palpus, usually with a large lobe extending distad and containing a loop of duct; *median apophysis*, terminal extension of tegulum, bearing duct through basal portion, extending distad as strongly chitinized sclerite lying against inner side of cymbium, variable in size and shape among different species; *radix*, basal sclerite of terminal division, bearing lamella, embolus, and terminal apophysis; *lamella*, a large, shieldlike sclerite of terminal division, often dominating ventral aspect of palpal organ, usually extended distally as a slender "arm"; *embolus*, ordinarily stout and coiled at base and becoming slender toward tip, variable among different subgenera and species; *conductor*, a soft membrane arising from inner surface of lamella, typically in form of long slender stem with plumed tuft on distal end, usually not functional as conductor although tip of embolus may rest on or in plumed tuft; *terminal apophysis*, a soft membranous process attached to radix, in some cases slender and resembling conductor in structure.

Abdomen a little longer than carapace, moderately narrow, widest near middle of length; moderately high, considerably higher than cephalothorax, highest near base; descending steeply to spinnerets, obtusely pointed behind; tracheal opening near spinnerets, inconspicuous. *Spinnerets* short, basal segment of outer four thick, apical segment very short. *Colulus* distinct, usually more than half of length of basal segment of anterior spinnerets. *Epigynum* highly variable among species, typically consisting of: *atrium*, a large cavity opening posteriorly, with

ventral covering below and dorsal wall above; *bursae*, a pair of chambers leading from atrium; *duct*, a tube leading from bursa to seminal receptacle; *seminal receptacles*, one on each side in anterior part of internal epigynum; *fertilization canal*, a long slender tube on each side, leading from seminal receptacle to oviduct; *scape*, posterior extension of ventral rim of atrium often long and slender, in some cases short and blunt, in others absent, usually with a small pit near distal end; *atrial plate*, modified and more or less sclerotized posterior part of dorsal wall of atrium; *parmula*, posterior extension of atrial plate, usually slender, with small pit near distal end; may be rudimentary, short and wide, or absent.

DISPOSITION OF SPECIES NAMES THAT HAVE BEEN PLACED IN *Bathyphantes*
(PRINCIPALLY LIMITED TO NORTH AMERICAN REFERENCES)

- albiventris*: Bonnet, 1955 (amended) = *Bathyphantes albiventris* (Banks)
albomaculatus: Everly, 1938 (*lapsus*) = *Bathyphantes albiventris* (Banks)
alboventris (Banks), 1892 (*Diplostyla*) = *Bathyphantes albiventris* (Banks)
alpina Emerton, 1882 = *Lepthyphantes alpinus* (Emerton)
anceps Kulczynski, 1885 = *Bathyphantes anceps* Kulczynski
anglicanus (Hentz), 1950 (*Theridion*) = *Ceratinopsis anglicana* (Hentz)
angulata Emerton, 1882 = *Meioneta angulata* (Emerton)
arborea Emerton, 1915 = *Lepthyphantes arboreus* (Emerton)
approximatus (O. Pickard-Cambridge), 1871 (*Linyphia*) = *Bathyphantes approximatus* (O. Pickard-Cambridge)
arcticus (Keyserling), 1886 (*Linyphia*) = *Lepthyphantes arcticus* (Keyserling)
arcticus Strand, 1901 *B. (Hemiphantes)* = *Lepthyphantes strandi* (Charitonow)
argenteomaculata Banks, 1892 = *Lepthyphantes zebra* (Emerton)
banksi Petrunkevitch, 1911 (new name) = *Bathyphantes pallidus* (Banks)
bermudensis Strand, 1906 = *Meioneta bermudensis* (Strand), new combination
bihamata Emerton, 1882 = *Lepthyphantes bihamatus* (Emerton)
biscapus Kulczynski, 1926 = *Bathyphantes keeni* (Emerton, new synonym)
brevipes (Emerton), 1917 (*Diplostyla*) = *Bathyphantes brevipes* (Emerton)
brevis (Emerton), 1911 (*Diplostyla*) = *Bathyphantes brevis* (Emerton)
calcaratus Emerton, 1909 = *Lepthyphantes calcaratus* (Emerton)
canadensis (Emerton), 1882 (*Diplostyla*) = *Bathyphantes canadensis* (Emerton)
castor Chamberlin, 1925 = *Bathyphantes castor* Chamberlin
cincta (Banks), 1909 (*Eilica*) = *Eilica cincta* Banks (Gnaphosidae)
circumspecta (Blackwall), 1854 (*Linyphia*) = *Bathyphantes gracilis* (Blackwall)
complicata Emerton, 1882 = *Lepthyphantes complicatus* (Emerton)
concolor (Wider), 1834 (*Linyphia*) = *Bathyphantes concolor* (Wider)
conicus (Emerton), 1914 (*Tmetiscus*) = *Bathyphantes pullatus* (O. Pickard-Cambridge)
crosbyi (Emerton), 1919 (*Diplostyla*) = *Bathyphantes crosbyi* (Emerton)
decoratus Banks, 1892 = *Lepthyphantes zebra* (Emerton)
denticulis Chamberlin, 1925 = *Anibontes mimus* Chamberlin, new synonym
diasosnemis Fage, 1929 = *Bathyphantes diasosnemis* Fage
dorsalis (Wider), 1834 (*Linyphia*) = *Bathyphantes dorsalis* (Wider)

- duplicatus* Emerton, 1913 = *Lepthyphantes duplicatus* (Emerton)
emertoni Roewer, 1942 (new name) = *Bathyphantes simillimus* (L. Koch)
erythroides Chamberlin, 1924 = *Ceratinopsis anglicana* (Hentz), new synonym
fillmoranus Chamberlin, 1919 = *Meioneta fillmorana* (Chamberlin), new combination
floridana Banks, 1896 = *Meioneta floridana* (Banks) male, new combination;
Eperigone bryantae Ivie and Barrows, female
formica Emerton, 1882 = *Tennesseellum formica* (Emerton)
fucatus Kulczynski, 1885 = *Bathyphantes fucatus* Kulczynski
furcatus Emerton, 1913 = *Lepthyphantes furcatus* (Emerton)
galbea (Keyserling), 1886 (*Linyphia*) = *Lepthyphantes leprosus* (Ohlert)
gracilis (Blackwall), 1841 (*Linyphia*) = *Bathyphantes gracilis* (Blackwall)
holnacus Miller, 1937 = *Bathyphantes canadensis* (Emerton)
hubbsi Chamberlin and Ivie, 1943 = *Bathyphantes diasosnemis* Fage
humilis (L. Koch), 1879 (*Linyphia*) = *Bathyphantes humilis* (L. Koch)
hyperboreus Holm, 1945 = *Bathyphantes canadensis* (Emerton)
inornata Banks, 1892 = *Meioneta angulata* (Emerton) (part)
inornata (Emerton), 1917 (*Diplostyla*) = *Bathyphantes simillimus* (L. Koch)
insulanus Holm, 1960 = *Bathyphantes insulanus* Holm
intricatus Emerton, 1911 = *Lepthyphantes intricatus* (Emerton)
josephus Chamberlin and Ivie, 1947 = *Bathyphantes canadensis* (Emerton)
keenii (Emerton), 1917 (*Diplostyla*) = *Bathyphantes keeni* (Emerton)
kuratai Chamberlin and Ivie, 1947 = *Bathyphantes anceps* Kulczynski, new synonym
latescens (Chamberlin), 1919 (*Linyphia*) = *Bathyphantes latescens* (Chamberlin)
leprosus (Ohlert), 1865 (*Linyphia*) = *Lepthyphantes leprosus* (Ohlert)
leucophthalmus Fage, 1946 = *B. (kaestneria) leucophthalmus* Fage
longipes Menge, 1866 = *Bathyphantes gracilis* (Blackwall)
luteolus (Banks), 1892 (*Microneta*) = *Meioneta luteola* (Banks), new combination
luxuosus (Banks), 1892 (*Tmeticus*) = *Ceratinopsidis formosa* (Banks)
maculata Banks, 1900 = *Lepthyphantes maculatus* (Banks), new combination
magnificus Chamberlin and Ivie, 1943 = *Bathyphantes magnificus* Chamberlin and Ivie
maior Kulczynski, 1885; (*major*) = *Bathyphantes maior* Kulczynski
micaria Emerton, 1882 = *Meioneta micaria* (Emerton)
minutus : Emerton, 1882 = *Lepthyphantes leprosus* (Ohlert)
nana : Bonnet, 1955 (*lapsus* for *wana*) = *Meioneta fabra* (Keyserling)
nebulosus (Sundevall), 1830 (*Linyphia*) = *Lepthyphantes nebulosus* (Sundevall)
nigrinus (Westring), 1861 (*Linyphia*) = *Bathyphantes nigrinus* (Westring)
occidentalis Emerton, 1915 = *Lepthyphantes fructuosus* (Keyserling)
officiosus Barrows, 1940 = *Meioneta officiosa* (Barrows), new combination
ovigerus Petrunkevitch, 1926 = *Centromerus oviger* Petrunkevitch
pacifica Banks, 1906 = *Linyphantes pacificus* (Banks)
pallescens Banks, 1910 = *Meioneta angulata* (Emerton)
pallidula Banks, 1904 = *Oaphantes pallidulus* (Banks)
pallidus (Banks), 1892 (*Diplostyla*) = *Bathyphantes pallidus* (Banks)
pallidus Banks, 1892 (*Bathyphantes*) = *Meioneta angulata* (Emerton)
parva Banks, 1892 = *Meioneta parva* (Banks), new combination
parvulus (Westring), 1851 (*Linyphia*) = *Bathyphantes parvulus* (Westring)
phylax Chamberlin, 1920 = *Helophora orinoma* (Chamberlin), new synonym
plagiata Banks, 1929 = *Meioneta plagiata* (Banks), new combination

pogonias Kulczynski, 1885 = *Bathyphantes pogonias* Kulczynski
pullatus (O. Pickard-Cambridge), 1863 (*Linyphia*) = *Bathyphantes pullatus* (O. Pickard-Cambridge)
pusio Kulczynski, 1926 = *Bathyphantes pusio* Kulczynski
recurvatus Emerton, 1913 = *Oreonetides recurvatus* (Emerton)
rupestris Holm, 1945 = *Bathyphantes crosbyi* (Emerton)
sabulosus (Keyserling), 1886 (*Linyphia*) = *Lepthyphantes sabulosus* (Keyserling)
semicincta Banks, 1914 = *Coleosoma semicinctum* (Banks), Theridiidae
setiger F. Pickard-Cambridge, 1894 = *Bathyphantes canadensis* (Emerton), new synonym
simillimus (L. Koch), 1879 (*Linyphia*) = *Bathyphantes simillimus* (L. Koch)
spatulifer Chamberlin, 1928; *spath-* = *Lepthyphantes lamprus* Chamberlin, new synonym
spretus O. Pickard-Cambridge, 1906 = *Bathyphantes canadensis* (Emerton)
strandii Charitonow, 1925 = *Lepthyphantes strandii* (Charitonow)
subalpina Emerton, 1882 = *Lepthyphantes subalpinus* (Emerton)
theridiformis Emerton, 1911 = *Lepthyphantes theridiformis* (Emerton)
tragicus Banks, 1898 = *Linyphantes tragicus* (Banks)
transversus Banks, 1898 = *Meioneta transversa* (Banks), new combination
tristis Banks, 1892 = *Eperigone trilobata* (Emerton)
umbratilis (Keyserling), 1886 (*Linyphia*) = *Lepthyphantes umbratilis* (Keyserling), new combination
unimaculatus Banks, 1892 = *Meioneta unimaculatus* (Banks)
wana Chamberlin, 1925 = *Meioneta fabra* (Keyserling)
weyeri (Emerton), 1875 (*Linyphia*) = *Bathyphantes weyeri* (Emerton)
zebra Emerton, 1882 = *Lepthyphantes zebra* (Emerton)
zonarius (Keyserling), 1886 (*Erigone*) = *Meioneta micaria* (Emerton)
zygia (Keyserling), 1886 (*Erigone*) = *Meioneta zygia* (Keyserling)
zygios : Petrunkevitch, 1911 = *Meioneta zygia* (Keyserling)

KEY TO SPECIES

FEMALES¹

1. Epigynum with scape present	2
Scape absent or virtually so	22
2. Scape elongate, longer than wide	3
Scape short, length not greater than width at base	17
3. Parmula very short	4
Parmula elongate, slender	5
4. Scape thick; length more than 2.5 mm. (fig. 23)	<i>gulkana</i>
Scape more slender; length about 2.0 mm. (fig. 27)	<i>canadensis</i>
5. Length 3.0 mm. or more	6
Length less than 3.0 mm.	9
6. Base of parmula broad and heavy (see fig. 63)	7
Base of parmula narrow (fig. 96); metatarsus with a small spine near base	<i>crosbyi</i>
7. Dorsum of abdomen with distinct cross bands	8

¹ The female of *castor* is not included.

- Dorsum of abdomen with dark median stripe and lateral spots on pale background *brevipes*
8. Epigynum as shown in figure 65 *latescens*
Epigynum as shown in figure 68 *waneta*
9. Length 2.5 mm. or longer 10
Length less than 2.5 mm. 14
10. Dorsum with color pattern of cross bands 11
Dorsum with pattern other than cross bands 12
11. Carapace dark brown; legs banded *malkini*
Carapace yellowish brown; legs not banded 32
12. Scape thick and foreshortened (fig. 88) *diasosnemis*
Scape long and moderately slender 13
13. Atrium concealed in ventral view (fig. 79) *orica*
Atrium visible in ventral view (fig. 77) *alameda*
14. Abdomen black, without pattern 15
Abdomen with banded pattern on dorsum 16
15. Scape very long and slender (fig. 106) *concolor*
Scape of moderate length (fig. 42) *simillimus*
16. Epigynal opening wider, scape shorter (fig. 50) *bishopi*
Epigynal opening narrower, scape longer (fig. 55) *pallidus*
17. Abdomen with a distinct color pattern on dorsum 18
Abdomen without such pattern 21
18. Legs unusually long and banded *keeni*
Legs of moderate length, not banded 19
19. Length 3 mm.; epigynum as shown in figure 46 *yukon*
Length 2.5 mm.; epigynum as shown in figure 11 20
20. Venter with transverse crease, dark gray *brevis*
Venter smooth, whitish *albiventris*
21. Abdomen black; parmula short (fig. 32) *insulanus*
Abdomen dark gray above, sides pale; parmula very slender, bent at right angle to venter (fig. 83) *alascensis*
22. Parmula slender 23
Parmula short and wide 28
23. Parmula elongate and straight 24
Parmula small or bent 25
24. Abdomen dense black; carapace orange *anceps*
Abdomen with pattern of dark and light gray; carapace dusky brown ... *pullatus*
25. Dorsum of abdomen with pattern of transverse bands or chevrons (Europe) *nigrinus*
Dorsum without such pattern 26
26. Parmula straight 27
Parmula bent; cave adapted (United States) (fig. 93) *weyeri*
27. Size small (about 2.0 mm.); parmula very slender *rufulus*
Size larger (about 2.5 mm.); parmula thicker (Europe) *dorsalis*
28. Epigynum with large exposed atrium; larger spiders 29
Epigynum with atrium concealed; small spiders 30
29. Legs banded; head dusky (western North America) *magnificus*
Legs not banded; head not darkened (Europe) *approximatus*

- 30. Tibia plus metatarsus I longer than tibia plus metatarsus IV ... *gracilis*
Tibia plus metatarsus I equal to tibia plus metatarsus IV 31
- 31. Sternum dusky; spinnerets brown (Europe) *parvulus*
Sternum yellowish brown; spinnerets yellowish (western United States)
..... *chico*
- 32. Epigynum as shown in figure 44 *eumenoides*
Epigynum as shown in figure 47 *umiatus*

MALES¹

- 1. Embolus formed into a long stout coil on distal half of tarsus 7
Embolus not of this form 2
- 2. Embolus a very long slender spiral (fig. 102) (Europe) *approximatus*
Embolus not spiraled 3
- 3. Embolus long, arising from base of palpal organ; tip looped (fig. 108)
..... *concolor*
Embolus much shorter; tip not looped 4
- 4. Length about 2.5 mm.; embolus very short (Europe) *dorsalis*
Length under 2.5 mm.; embolus elongate, pointed 5
- 5. Embolus twisted (fig. 118) 6
Embolus not twisted (fig. 112); color yellowish *rufulus*
- 6. Abdomen dense black; carapace orange *anceps*
Abdomen with color pattern; carapace dusky brown *pullatus*
- 7. Length more than 2.5 mm. 8
Length less than 2.5 mm. 19
- 8. Head humped behind eye area *keeni*
Head normal 9
- 9. Lamella of palpus with a long extension on postero-ectal corner 10
Lamella without a postero-ectal extension 13
- 10. Tibia I with three spines on anterior face *alascensis*
Tibia I with one or two spines on anterior face 11
- 11. Tibia-patella I as long as whole body of spider *diasosnemis*
Tibia-patella I less than length of spider 12
- 12. Radix of palpus long and straight in ventral view (fig. 73) *alameda*
Radix of palpus shorter and irregular (fig. 80) *orica*
- 13. Distal extension of lamella bifid at tip 14
Distal extension of lamella not bifid at tip 16
- 14. Dorsum with cross-banded color pattern 15
Dorsum with dark median stripe and lateral spots on pale background
..... *brevipes*
- 15. Process on radix longer and more slender (fig. 66) *latescens*
Process on radix shorter and thicker (fig. 69) *waneta*
- 16. Legs banded *malkini*
Legs not banded 17
- 17. Dorsum with pattern of cross bands or chevrons 18
Dorsum black *castor*

¹ Males of the following species are not included: *eumenoides*, *gulkana*, *insulanus*, *magnificus*, *umiatus*, *yukon*.

18. Distal extension of lamella thick (fig. 97) *crobyli*
 Distal extension of lamella long, slender and curved (Europe) .. *nigrinus*
19. Cymbium deeply excised distally; lamella very extensive; cave adapted
 *weyeri*
 Cymbium not excised distally 20
20. Lamella with ectodistal corner extended into a sharp point; small spiders
 21
 Lamella without such a point 23
21. Tibia plus metatarsus I longer than tibia plus metatarsus IV ... *gracilis*
 Tibia plus metatarsus I equal to tibia plus metatarsus IV 22
22. Sternum dusky (Europe) *parvulus*
 Sternum yellowish brown (western North America) *chico*
23. Lobe of tegulum with distinctive bulge on ectal side 24
 Lobe of tegulum not bulged on ectal side 25
24. Lamella wider on posterior part (fig. 52) *bishopi*
 Lamella narrower on posterior part (fig. 57) *pallidus*
25. Dorsum of abdomen all black *simillimus*
 Dorsum of abdomen with distinct pattern 26
26. Length less than 2.0 mm. *canadensis*
 Length more than 2.0 mm. 27
27. Distal extension of lamella bifid, the ectal branch longer and very sharp
 (fig. 18) *brevis*
 Distal extension of lamella with tip notched and enclosed in fold of median
 apophysis (fig. 12) *albiventris*

SUBGENUS *BATHYPHANTES* MENGE

This subgenus comprises the bulk of the species in the genus, 24 being listed here for North America. The distinctive features are to be found in the genitalia. Within this subgenus are various species groups, but no attempt has been made to define or characterize them other than by arranging the species according to their apparent relationships.

TYPE SPECIES: *Bathyphantes (Bathyphantes) gracilis* (Blackwall).

Bathyphantes (Bathyphantes) gracilis (Blackwall)

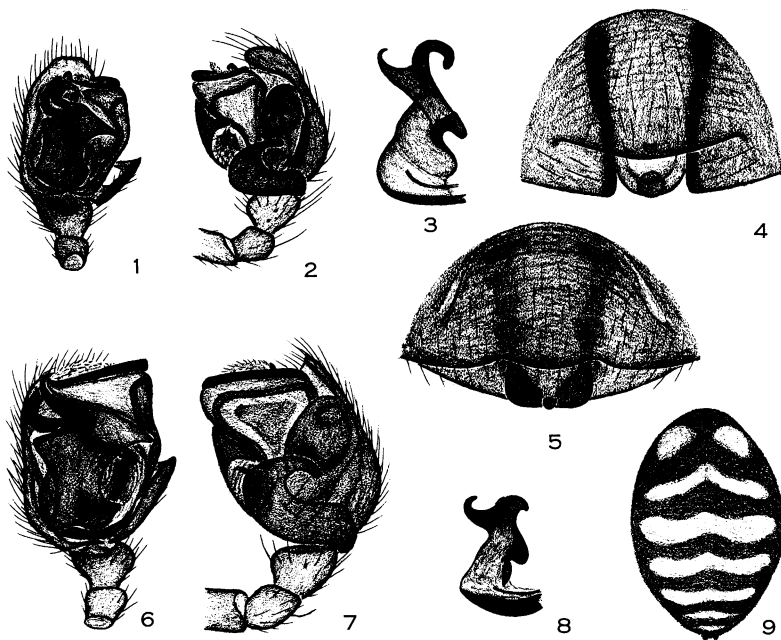
Figures 1-4

Linyphia gracilis BLACKWALL, 1841, p. 666; 1864 (1861-1864, pt. 2), p. 245.

Bathyphantes longipes MENGE, 1866, p. 116.

Bathyphantes gracilis: SIMON, 1884, p. 345; 1929, p. 641. MILLER, 1947, table 12, figs. 7, 12, 13. LOCKET AND MILLIDGE, 1953, p. 366. HACKMAN, 1954, p. 55. BONNET, 1955, p. 861. WIEHLE, 1956, p. 251.

DIAGNOSIS: A small species, 1.5 to 2.5 mm. in length; structure delicate; carapace low and wide; palpus large, oval; epigynum small, without scape, very short parma. Very close to *parvulus* (Westring) of Europe, from which most readily separated by setae pattern on paracymbium of male palpus.



FIGS. 1-4. *Bathypantes (Bathypantes) gracilis* (Blackwall). 1. Left palpus, ventral view. 2. Left palpus, ectal view. 3. Median apophysis. 4. Epigynum, ventral view.

FIGS. 5-9. *Bathypantes (Bathypantes) chico*, new species. 5. Epigynum, ventral view. 6. Left palpus, ventral view. 7. Left palpus, ectal view. 8. Median apophysis. 9. Dorsum of female.

DESCRIPTION: Color of carapace pale brown, with faint radial marks. Chelicerae light reddish brown, with pale tips. Sternum and labium dusky brown. Legs and palpi light yellowish brown, without markings. Abdomen pale to dark gray, some with a series of triangles or chevrons along dorsum. Spinnerets brownish.

Carapace relatively short and wide, low. Eye area about 0.75 width of head. Anterior eye-row slightly procurved, small median eyes about a radius apart, nearly a diameter from lateral eyes. Posterior eye-row straight, median eyes 0.7 diameter apart, 0.8 diameter from lateral eyes. Median ocular quadrangle as wide as long, wider behind than in front. Height of clypeus about two diameters of anterior lateral eye. Chelicerae with three teeth on front margin of fang groove, three denticles on hind margin. Sternum large, slightly longer than wide. Legs moderately long, slender. Abdomen rather large in female, small in male.

Colulus broadly triangular. Epigynum small; scape absent, parmula very short (fig. 4). Palpus relatively large, oval, structures shown in figures 1-3.

MEASUREMENTS: (Based on female from France and a male from England). Male: Length, 1.7 mm.; carapace, 0.75 mm. long, 0.6 mm. wide; tibia-patella I, 1.2 mm., IV, 1.0 mm. Female: Length, 2.5 mm.; carapace, 0.8 mm. long, 0.65 mm. wide; tibia-patella I, 1.25 mm., IV, 1.15 mm.

DISTRIBUTION: Common in Europe, extending across Siberia to Kamchatka; scarce in North America.

LOCALITY RECORDS: In North America: *Newfoundland*: Badger, Grand Falls, June 25, 1951 (C. Lindroth), one female. St. Barbe, June 22-25, 1951 (C. Lindroth), one female. *Alaska*: Fox, July 10, 1935 (L. Basset), one male.

DISCUSSION: The rare occurrence of this small species in North America indicates that it has been recently introduced to this continent from Europe and Siberia.

Bathyphantes (Bathyphantes) parvulus (Westring)

Linyphia parvula WESTRING, 1851, p. 59.

Bathyphantes parvulus: SIMON, 1884, p. 349. MILLER, 1947, pl. 12, figs. 15-17. LOCKET AND MILLIDGE, 1953, p. 366, figs. 219B, 221E. WIEHLE, 1956, p. 255, figs. 423-425.

Bathyphantes gracilis var. *parvulus*: BONNET, 1955, p. 863.

DISCUSSION: This small species is widespread in Europe, but is not known from North America. It is closely related to *gracilis* (Blackwall) and *chico*, new species.

***Bathyphantes (Bathyphantes) chico*, new species**

Figures 5-10

DIAGNOSIS: Small species related to *gracilis* and *parvulus*; differing from them in details of palpus and epigynum; a little larger than *gracilis*. With distinct pattern on abdomen.

DESCRIPTION: Color of carapace, appendages, sternum, and spinnerets light amber without distinct markings; chelicerae more reddish; sternum and labium shaded with gray. Abdomen gray, with characteristic series of pale gray cross bands (fig. 9).

Structure of carapace typical without special modifications; height of clypeus 2.2 diameters of anterior lateral eye. Eyes smaller than average; anterior row straight, median eyes 0.7 of a diameter apart, 1.5 diameters from lateral eyes; posterior row straight or slightly recurved,

median eyes 0.6 of a diameter apart, 0.8 of a diameter from lateral eyes. Chelicerae slightly retracted; exposed length about equal to combined width of both. Fang groove of female with four teeth in front, four denticles behind; dentition reduced in male.

MEASUREMENTS: Length of male, 2.0 mm.; carapace, 1.0 mm. long, 0.76 mm. wide; tibia-patella I, 1.3 mm., IV, 1.32 mm. Length of female holotype, 2.3 mm.; carapace, 1.0 mm. long, 0.76 mm. wide; tibia-patella I, 1.55 mm., IV, 1.5 mm.

TYPE DATA: *Oregon*: Tillamook, August 20, 1931 (R. W. Macy), female holotype, two female paratypes, in the American Museum of Natural History.

DISTRIBUTION: Western Oregon.

LOCALITY RECORDS: *Oregon*: Five miles west of Drain, May 29, 1948 (Roth and Brown), one female. Eight miles north of Corvallis, April 7, 1950 (V. Roth), two females. McMinnville; November–December, 1946 (K. M. Fender), one male, two females. Ten miles southwest of Philomath, February 6, 1949 (V. Roth), one male.

The name is a noun in apposition and means "little one."

Bathypantes (Bathypantes) keeni (Emerton)

Figures 10, 33–35

Diplostyla keenii EMERTON, 1917, p. 267, figs. 19 (1, 2, 7).

Bathypantes keeni: EMERTON, 1920, p. 319 (*keenii*). ROEWER, 1942, p. 574 (*keenii*). CHAMBERLIN AND IVIE, 1947, p. 55 (*keenii*). BONNET, 1955, p. 865; 1956, p. 1487.

Bathypantes bispapus KULCZYNSKI, 1926, pp. 33, 53. CHARITONOW, 1932, p. 69. ROEWER, 1942, p. 569. BONNET, 1955, p. 859. New synonym.

DIAGNOSIS: A large species, not closely related to other known species. Legs long, slender. Clypeus protruding slightly forward, somewhat swollen in male and covered with long setae. Carapace humped behind eye area, prominently in male, slightly in female. Palpus typical. Epigynum with short scape and parmula.

DESCRIPTION: Color of carapace light brownish with sides of thorax and all of head darkened with dusky shadings and streaks. Chelicerae and endites light brownish with dusky patches. Sternum light brownish outlined with black line, marginal region broadly shaded. Legs brownish yellow encircled with broad dusky bands, two on each femur, tibia, and metatarsus, one on each patella and tarsus. Palpi similar in color to legs but dusky bands fewer and narrower. Dorsum of abdomen covered with pattern of dark and light gray, venter pale. Spinnerets light brown shaded with dusky.

Male: Carapace normal in general outline; head behind eyes broadly humped; clypeus somewhat swollen, covered with long setae. Eye area occupying nearly full width of head in front; eyes a little smaller than average. Posterior eye-row very slightly procurved; median eyes 0.7 of a diameter apart, 1.5 diameters from lateral eyes. Anterior eye-row slightly recurved; small median eyes 0.6 of a diameter apart, nearly three diameters from much larger lateral eyes and 2.5 diameters from posterior median eyes. Chelicerae normal, only slightly retracted; fang

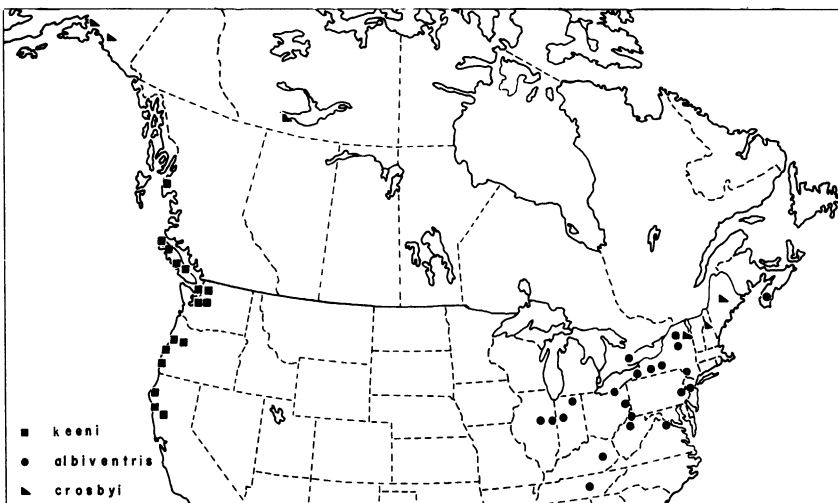


FIG. 10. Distribution of *Bathyphantes* (*Bathyphantes*) *keeni* (Emerton), *albiventris* (Banks), and *crosbyi* (Emerton).

groove normal, with five teeth on front margin, four denticles behind. Legs elongate and slender, leg I much longer than leg IV; femur I with three spines and tibia I with two spines on prolateral face. Palpus essentially typical in general features (figs. 33, 34).

Female: Similar to male, except clypeus slightly protruding, but not swollen; hump behind eyes much reduced; front legs less elongate; abdomen larger and more convex. Eyes, chelicerae, and leg spination similar to those of male. Epigynum with scape and parmula short (fig. 35).

MEASUREMENTS: Length of male, 3.25 mm.; carapace, 1.65 mm. long, 1.2 mm. wide; tibia-patella I, 3.5 mm., IV, 2.3 mm. Length of female, 3.5 mm.; carapace, 1.50 mm. long, 1.2 mm. wide; tibia-patella I, 2.7 mm., IV, 1.9 mm.

TYPE DATA: For *Diplostyla keenii*, male and female cotypes from Metlakatla, British Columbia, collected by J. H. Keen. For *Bathyphantes biscopius*, female, holotype, from Klutschevskoje, Kamchatka, June 10, 1909.

DISTRIBUTION: Pacific coast region from southern Alaska to central California; also Kamchatka.

LOCALITY RECORDS: *British Columbia*: Metlakatla (types). Prince Rupert, June 22, 1936 (C. R. Crosby), one female. July 3, 1950 (A. Ivie), one male. Alert Bay, June 21, 1936 (C. R. Crosby), two females. Kyuquot, April 11 and May 31, 1959 (S. L. Neave), two males. Tofino, Vancouver Island, May, 1950, two males and three females; July 1, 1950, two females, (R. Guppy). Wellington, various dates from May, 1950, to October, 1953 (R. Guppy), two males, five females, and immatures. *Alaska*: Juneau, April 28–29, 1945 (J. C. Chamberlin), one male and some immatures. *Washington*: Camono Island, June 5, 1932, one female; Bainbridge Island, April 24, 1932, one female; Green River Gorge, May 14, 1934, one female; Stillaguamish River, May 14, 1932, two males, three females; Maloney's Grove, May 10, 1931, one female; Olympia, March 26, 1931, one female; June 5–10, 1944, three males; May, 1944, one female; July, 1962, one female; (all collected by Harriet Exline). Seattle, July 25, 1954 (Borys Malkin), one female. Lake Sutherland, Olympic Peninsula, August 11, 1927 (C. R. Crosby), three females. *Oregon*: Portland, June 8, 1952, one female; Corvallis, May 12, 1953, one female; 10 miles east of Cascadia, May 30, 1949, one male; Nelscott Beach, April 10, 1949, one male; Myrtlewood, August 1, 1955, one female; 2 miles south of Comstock, May 28, 1948, one male; Charleston, May 27, 1952, one female; 8 miles east of Gold Beach, April 29, 1951, one male; May 28, 1952, one male and one female; Myrtle Grove, east of Brookings, May 29, 1952; (all collected by Vincent Roth). Myrtle Grove, May 23, 1957, two males, one female; Pistol River, May 28–29, 1952, five females; June 21, 1953, three females; June 18, 1952, three females; May 23, 1957, one male; (all collected by Borys Malkin). *California*: Fort Dick, May 1, 1951 (V. Roth), one male. Eighteen miles west of Willow Creek, August 21, 1959, one female; 5 miles east of Carlotta, August 20, 1959; (W. J. Gertsch and V. Roth). Miranda, April 6, 1960, one female; southeast of Casper, September 13, 1961, one female (W. J. Gertsch and W. Ivie). Rockport, July 19, 1962 (V. Roth), one female. Stinson Beach, October 24, 1952 (V. Roth), two females. Two miles north of Bolinas, September 27, 1963 (J. and W. Ivie), one male, five females.

Bathypantes (Bathypantes) brevis (Emerton)

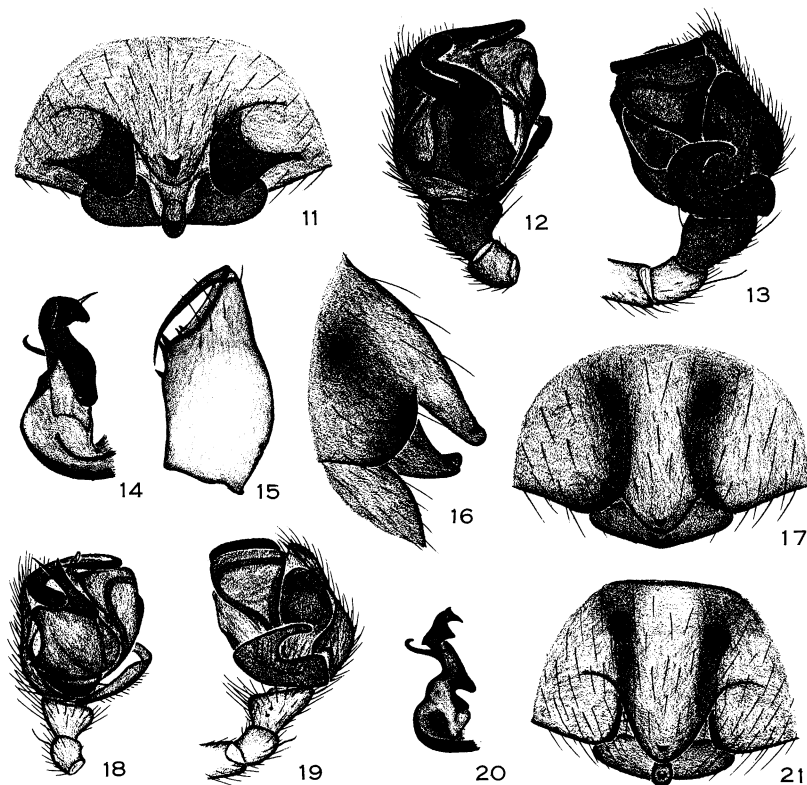
Figures 15–21, 110

Diplostyla brevis EMERTON, 1911, p. 297, pl. 4, figs. 1–1b; 1917, p. 59.*Bathypantes brevis*: CROSBY AND BISHOP, 1928, p. 1043. CHICKERING, 1935, p. 585. ROEWER, 1942, p. 573. HACKMAN, 1954, pp. 5, 13, 54. BONNET, 1955, p. 859; 1956, p. 1487. HOLM, 1960, p. 125, figs. 36–38.*Bathypantoides brevis*: KASTON, 1948, p. 132, figs. 307, 308, 2117. LEVI AND FIELD, 1954, p. 444.

DIAGNOSIS: Closely related to *albiventris*, resembling it in size, color, and general structural features, but with distinct differences in details of palpus and epigynum; usually with transverse crease on venter.

DESCRIPTION: Color of carapace light brown, lightly shaded on margins, sides of thorax narrowly edged with black; eyes on black spots. Chelicerae light reddish brown. Legs yellowish brown, lightly shaded with dusky gray. Sternum, labium, and endites dusky brown; endites with pale tips. Abdomen pale gray on dorsum, marked with blackish spots on anterior part and a series of black cross bands on posterior part; dark gray on sides; dark gray, more or less faded, on venter. Spinnerets dusky brown.

Size medium, structure essentially typical in general features. Carapace with head shorter than usual; height of clypeus a little more than two diameters of anterior lateral eye. Eye area occupying nearly full width of head; eyes a little larger than average. Eye-rows straight or very slightly procurved; anterior median eyes 0.6 of a diameter apart, 1.2 diameters from lateral eyes; posterior median eyes 0.75 of a diameter apart, one diameter from lateral eyes. Chelicerae of female only slightly retracted, exposed length a little less than width of both, only slightly flared distally; fang groove normal, with three teeth in front and three denticles behind. Chelicerae of male longer, thicker, and more flared than in female; fang groove broadly concave under basal half of fang, with three large teeth on anterior margin and two denticles close together on posterior margin (fig. 15). Legs moderately short, first leg only a little longer than fourth. Anterior face of leg I with one spine on femur (in some cases two) and one spine on tibia. Abdomen typical in general shape; venter often with a short transverse crease about one-third forward of the spinnerets to genital furrow, somewhat resembling advanced spiracle groove of certain other spiders (*Anyphaena* and *Neoantistea*, for example), but spiracle opening not in this crease, being near spinnerets as usual. Structure of palpus shown in figures 18 and 19; median apophysis with a slender hook on side, as in *albiventris* (fig. 20). Epigynum with very short scape and parmula, exhibiting some varia-



FIGS. 11-14. *Bathypantes (Bathypantes) albiventris* (Banks). 11. Epigynum, ventral view. 12. Left palpus, ventral view. 13. Left palpus, ectal view. 14. Median apophysis.

FIGS. 15-21. *Bathypantes (Bathypantes) brevis* (Emerton). 15. Right chelicera of male, anterior view. 16. Epigynum, lateral view. 17. Epigynum, ventral view. 18. Left palpus, ventral view. 19. Left palpus, ectal view. 20. Median apophysis. 21. Epigynum, variation, ventral view.

tion in form, as shown in figures 17 and 21.

MEASUREMENTS: Of selected specimens: Length of male, 2.3 mm.; carapace, 1.1 mm. long, 0.8 mm. wide; tibia-patella I, 1.5 mm., IV, 1.3 mm. Length of female, 2.5 mm.; carapace, 1.1 mm. long, 0.8 mm. wide; tibia-patella I, 1.45 mm., IV, 1.3 mm.

TYPE DATA: Cotypes, males and females, from Cambridge and Readville, Massachusetts (J. H. Emerton), in Museum of Comparative Zoology.

DISTRIBUTION: Across North America from Newfoundland to Alaska,

extending into northern United States (see fig. 110).

LOCALITY RECORDS: *Newfoundland* (reported by Hackman, 1954): Cow Head, August 8, 1949, one female, and South Branch, July 4, 1949, one female (E. Palmen). Deer Lake, May 30, 1951, one female, and Badger, June 22 to 25, 1951, one female (C. Lindroth). *Ontario*: Grenadier Pond, Toronto, September 1, 1946 (W. Ivie), three males and six females. Dundas, June 27, 1962 (W. Ivie), one female. Sturgeon Falls, July 22, 1948 (W. J. Gertsch, W. Ivie, and T. Kurata), four males and three females. Lake of the Woods, 18 miles north of Rainy River (town), August 8, 1948 (W. J. Gertsch and T. Kurata), one male and one female. Mackenzie: Hay River (town), August 8, 1965, one female; 5 miles southeast of Fort Providence, August 15, 1965, one male and one female (J. and W. Ivie). *Alaska*: Nome, August 11 and 12, 1958 (C. H. Lindroth), two males and one female, reported by Holm, 1960. *Massachusetts*: Cambridge, September 24, 1905 (J. H. Emerton), males and females, paratypes. Readville, November 11, 1912 (J. H. Emerton), many males and females in Museum of Comparative Zoology. Tyngsboro, reported by Emerton, 1911. Lexington, October, 1933 (W. J. Gertsch), one male and four females. *Connecticut*: Portland, May 16, 1936 (G. H. Plumb), one female. *Vermont*: Mount Mansfield, reported by Emerton, 1911. *New York*: Wilmington Notch, August 21, 1916 (J. H. Emerton). Ithaca, various dates, 1915 to 1933 (C. R. Crosby, *et al.*), two males and four females in Cornell University Collection. *Michigan*: Marquette, July, 1932 (A. M. Chickering), reported by Chickering, 1935. *Wisconsin*: Madison, April 9, 1949 (H. Levi), one female. *Minnesota*: Eight miles southeast of Warren, June 12, 1945 (W. Ivie), one male.

Bathyphantes (Bathyphantes) albiventris (Banks)

Figures 10-14, 22

Diplostyla alboventris BANKS, 1892, p. 43, pl. 5, fig. 31. EMERTON, 1919, p. 167.

Bathyphantes alboventris: BANKS, 1910, p. 34. BARROWS, 1918, p. 305. EMERTON, 1920, p. 319. CROSBY AND BISHOP, 1928, p. 1042. ROEWER, 1942, p. 573.

Bathyphantes albiventris: PETRUNKEVITCH, 1911, p. 216. WORLEY AND PICKWELL, 1931, p. 33. BONNET, 1955, p. 859.

Bathyphantes albomaculatus: EVERLY, 1938, p. 139 (*lapsus*).

DIAGNOSIS: A medium-sized species, close to *brevis*, with cross-banded pattern on dorsum, white or faded venter, and without markings on legs. Palpus and epigynum distinct (see figs. 11-13).

DESCRIPTION: Color of carapace varying from dusky brown with distinct blackish radial streaks in darker specimens to yellowish brown with little shading and almost no radial streaks in lighter specimens;

central area of carapace faded and more yellowish. Chelicerae and endites yellowish amber, more or less shaded with dusky. Sternum and labium dusky yellow to dusky brown. Legs and palpi yellowish to light brown, without distinct markings or bands. Dorsum of abdomen pale gray with conspicuous series of blackish cross bands of typical design; sides blackish; venter whitish, with median area and epigastric region sometimes shaded. Spinnerets light brown.

Structure essentially typical; carapace unmodified; legs moderately long and slender. Eyes moderately large; anterior row straight with small median eyes 0.4 of a diameter apart, one diameter from lateral eyes; posterior row straight with median eyes 0.4 of a diameter apart, 0.7 of a diameter from lateral eyes. Chelicerae of female typical, exposed length a little less than combined width of both; fang groove with four large teeth on front margin, four denticles on hind margin. Chelicerae of male larger than those of female, more attenuate and more divaricate at distal end; fang longer, with teeth on front margin of fang groove elevated on a low protuberance. Sternum, endites, and labium typical. Legs typical. Abdomen and spinnerets typical. Epigynum with scape and parmula short, the parmula extending farther caudad than scape (fig. 11). Structure of male palpus shown in figures 12 and 13; median apophysis very distinctive (fig. 14).

MEASUREMENTS: Of selected specimens from Ithaca, New York: Length of male, 2.5 mm.; carapace, 1.15 mm. long, 0.88 mm. wide; tibia-patella I, 1.50 mm., IV, 1.32 mm. Length of female, 2.5 mm.; carapace, 1.10 mm. long, 0.82 mm. wide; tibia-patella I, 1.50 mm., IV, 1.32 mm.

TYPE DATA: Male and female cotypes from vicinity of Ithaca, New York, 1889 (Nathan Banks), in Museum of Comparative Zoology.

Bathyphantes (Bathyphantes) castor Chamberlin

Figures 29-31

Bathyphantes castor CHAMBERLIN, 1925, p. 216. BONNET, 1955, p. 860.

DIAGNOSIS: Male: Length 3 mm. Abdomen dense black. Fang groove of male strongly modified (fig. 29). Close to *pogonias* and *insulanus* in size and color.

DESCRIPTION: Color of carapace and appendages light reddish amber, without markings; eyes on black spots. Sternum and labium dusky brown. Abdomen dense black. Spinnerets dusky brown.

Carapace broadly oval, rounded in front, clypeus protruding; head low. Eye area 0.7 of width of head; eyes smaller than usual. Height of clypeus 3.5 diameters of anterior lateral eye. Anterior eye-row straight; median eyes nearly as large as posterior lateral eyes, 0.6 of a diameter

apart, 1.4 diameters from lateral eyes. Median ocular quadrangle slightly longer than wide, wider behind than in front. Chelicerae stout, somewhat divergent distally; slightly swollen at base, extended and narrowed distally to base of fang; anterior margin of fang groove with four teeth, the two distal ones situated on apex of a stout conical projection; hind margin with two tiny denticles close together. Legs typical, of moderate length and thickness. Palpus of moderate size; structure shown in figures 30 and 31.

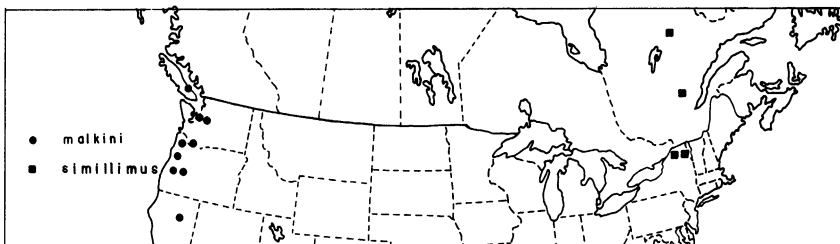


FIG. 22. Distribution of *Bathyphantes (Bathyphantes) malkini*, new species, and *simillimus* (L. Koch).

MEASUREMENTS: Male, holotype, length 2.8 mm.; carapace, 1.3 mm. long, 1.0 mm. wide; tibia-patella I, 1.8 mm., IV, 1.7 mm.

TYPE DATA: Male, holotype, from Beaver Mountains, Alaska, May 8, 1920, in the Museum of Comparative Zoology (No. 1270).

Bathyphantes (Bathyphantes) insulanus Holm

Figure 32

Bathyphantes insulanus HOLM, 1960, p. 126, figs. 39, 40.

Bathyphantes pogonias (part): BANKS, 1899, p. 347.

DIAGNOSIS: Large spider, with very short scape; abdomen unmarked. Close to *pogonias*, with minor differences in epigynum.

DESCRIPTION: Color of carapace brownish, shaded on the sides with dusky gray, and with evident radial streaks; eyes on black spots. Chelicerae reddish brown. Legs and palpi yellow, patellae lightly shaded. Sternum and labium blackish. Endites dark brownish. Abdomen black, somewhat faded along upper part of each side. Spinnerets dark grayish brown.

Structure of carapace typical. Height of clypeus equal to two diameters of an anterior lateral eye. Anterior eye-row slightly procurved; small median eyes separated from each other by 0.75 of a diameter, from lateral eyes by 1.3 diameters. Posterior eye-row straight; median eyes 0.6 of a diameter apart, nearly a diameter from lateral eyes. Cheli-

cerae vertical, as long as combined width of both, flared only slightly; fang groove with three teeth on anterior margin. Legs of usual length and thickness. Spination essentially typical; femur I with one spine on anterior side; all tibiae with spine on each side distally. Epigynum with scape and parmula very short (fig. 32).

MEASUREMENTS: Of female type: length, 3.0 mm.; carapace, 1.2 mm. long, 0.9 mm. wide; tibia-patella I, 1.65 mm., IV, 1.35 mm.

TYPE DATA: Female, holotype, from Attu, Aleutian Islands, Alaska, August 30–31, 1958 (Carl H. Lindroth), in the Museum of Comparative Zoology.

OTHER LOCALITY: Alaska: Bering Island, reported by Banks (1899, *sub B. pogonias* Kulczynski), one female in the Museum of Comparative Zoology (compared with type).

DISCUSSION: It is probable that *Bathypantes insulanus* and *castor* are the same species, but until more data are available, they are held separate.

Bathypantes (Bathypantes) canadensis (Emerton)

Figures 24–28, 101

Diplostyla canadensis EMERTON, 1882, p. 66; 1894, p. 410.

Bathypantes canadensis: COMSTOCK, 1903, p. 31. BANKS, 1910, p. 34. PETRUNKEVITCH, 1911, p. 217. EMERTON, 1920, p. 319. CROSBY AND BISHOP, 1928, p. 1043. ROEWER, 1942, p. 573. BONNET, 1955, p. 861 (part).

Bathypantes setiger F. PICKARD-CAMBRIDGE, 1894, p. 91. HOLM, 1950, pp. 120–135 (= *hyperboreus*); 1951, p. 144 (= *josephus*). LOCKET AND MILLIDGE, 1953, p. 369. BONNET, 1955, p. 868 (part). WIEHLE, 1956, p. 261. New synonym.

Bathypantes spretus O. PICKARD-CAMBRIDGE, 1906, p. 76.

Bathypantes holnacus MILLER, 1937, p. 569.

Bathypantes hyperboreus HOLM, 1945, pp. 46–48, fig. 13.

Bathypantes josephus CHAMBERLIN AND IVIE, 1947, p. 53. LOWRIE AND GERTSCH, 1955, p. 5.

DIAGNOSIS: Small species, with distinctive, although varied, pattern on dorsum. Epigynum with large exposed atrium; scape of medium length, parmula very short (fig. 27). Palpus of usual form with distinctive lamella and paracymbium (figs. 24–26); median apophysis distinctive.

DESCRIPTION: Color of carapace light to dark brown, with dusky radial marks. Chelicerae and endites brown to dusky brown, lighter at tips. Sternum and labium brownish black. Legs and palpi yellowish brown. Abdomen varying from pale gray to blackish above, usually with characteristic pattern of dark and light gray (fig. 28); lower sides and venter blackish. Spinnerets dusky brown to black.

Structure essentially typical. Anterior eye-row straight or slightly procurved; small median eyes half a diameter apart, a diameter from lateral

eyes. Posterior eye-row straight or slightly procurved; median eyes slightly less than diameter apart, a diameter from lateral eyes. Chelicerae moderately stout; typical in females, with three teeth in front, two or three denticles behind; longer in males, with fang groove broadly excavated, three teeth close together and far removed from base of fang in front, two or three denticles close together behind. Legs moderately short; spines inconspicuous but of typical number and arrangement.

MEASUREMENTS: Of selected specimens: male, 1.75 mm.; carapace, 0.85 mm. long, 0.7 mm. wide; tibia-patella I, 1.23 mm., IV, 0.9 mm. Length of female, 1.8 mm.; carapace, 0.85 mm. long, 0.7 mm. wide; tibia-patella I, 1.2 mm., IV, 0.9 mm.

DISTRIBUTION: Northern Europe, Canada, northern United States, Alaska, and probably Siberia (see fig. 101).

TYPE DATA: Of *Diplostyla canadensis* Emerton, male type from Montreal, Quebec, Canada. Of *Bathypantes josephus* Chamberlin and Ivie, male, holotype, from Matanuska, Alaska, September 27, 1945 (J. C. Chamberlin), in University of Utah collection.

LOCALITY RECORDS: In North America: *Quebec*: Montreal (type locality). *Ontario*: Island 1024, Lake Temagami, August 15–25, 1946 (W. J. Gertsch, W. Ivie, and T. Kurata), one female. Whitefish Lake, Manitoulin Island, August 10, 1939 (T. Kurata), one female. West of Providence Bay, Manitoulin Island, July 24, 1948 (W. J. Gertsch, W. Ivie, and T. Kurata), one male, four females. Lake of the Woods, 18 miles north of Rainy River (town), August 8, 1948 (W. J. Gertsch and T. Kurata), one female. *Mackenzie District*: Hay River (town), August 8, 1965 (J. and W. Ivie), one female. Five miles southeast of Fort Providence, August 15, 1965 (J. and W. Ivie), one female. *Alaska*: Matanuska (type material of *B. josephus*). *New York*: Lake Tear, Mt. Marcy, July, 1918 (C. R. Crosby), one male in Cornell University collection. Sherwin Bay, Jefferson County, June 27, 1931 (S. C. Bishop), one male. McLean, September 28, 1912 (C. R. Crosby), one female. *Wyoming*: Moran, July 12, 1950 (D. C. Lowrie), one male.

***Bathypantes (Bathypantes) gulkana*, new species**

Figure 23

DIAGNOSIS: Close to *canadensis*, but 1.5 times its length and with conspicuous differences in epigynum and eyes.

DESCRIPTION: Carapace dark brown. Chelicerae dark brownish red. Sternum brownish black. Labium and endites dark brown, with lighter tips. Legs and palpi amber brown, with faint shadings of dusky gray. Abdomen with upper sides pale gray; central region dark gray contain-

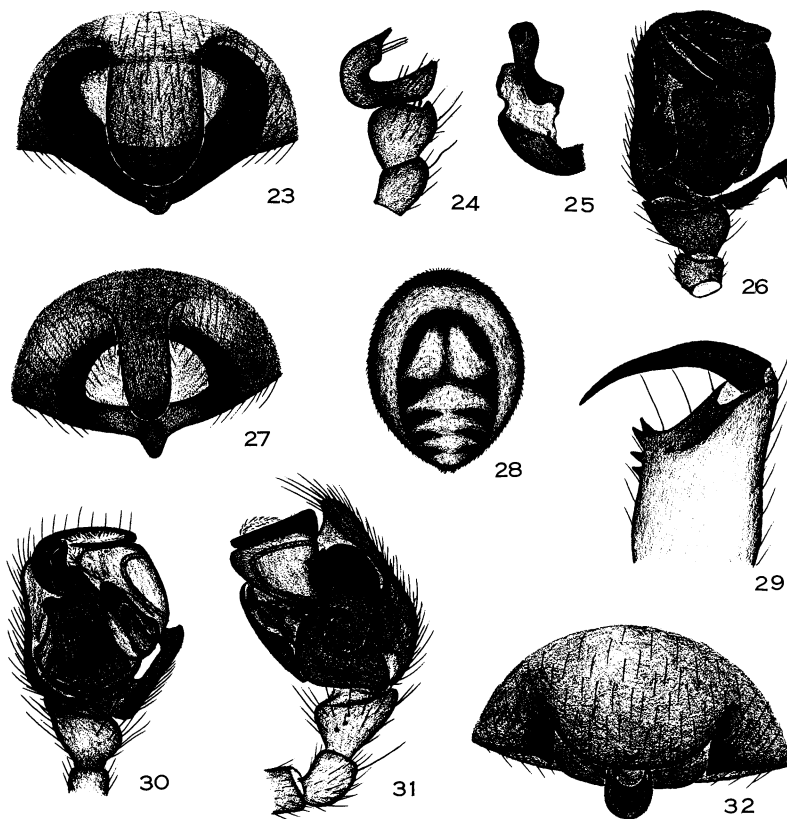


FIG. 23. *Bathyphantes (Bathyphantes) gulkana*, new species, epigynum, ventral view.

FIGS. 24-28. *Bathyphantes (Bathyphantes) canadensis* (Emerton). 24. Left palpus (in part), ectal view. 25. Median apophysis. 26. Left palpus, ventral view. 27. Epigynum, ventral view. 28. Dorsum of female.

FIGS. 29-31. *Bathyphantes (Bathyphantes) castor* Chamberlin. 29. Right chelicera, anterior view. 30. Left palpus, ventral view. 31. Left palpus, ectal view.

FIG. 32. *Bathyphantes (Bathyphantes) insulanus* Holm, epigynum.

ing a series of twin light spots; lower sides dark gray; venter darkish gray, a little lighter along sides. Spinnerets dusky brown.

Structure of carapace typical in outline. Eyes occupying nearly full width of head, moderately small. Height of clypeus 2.3 diameters of anterior lateral eye. Anterior eye-row straight, median eyes 0.5 of a diameter apart, 1.4 diameters from lateral eyes. Posterior eye-row straight; median eyes 1.0 diameter apart, 1.3 diameters from lateral eyes. Cheli-

cerae essentially typical in general shape; fang groove with five teeth on anterior margin, four denticles on posterior margin. Legs more slender than usual; spines very weak and inconspicuous. Epigynum similar in pattern to *canadensis*, but with wider scape and heavier frame around opening (fig. 23).

MEASUREMENTS: Length of female type, 2.9 mm.; carapace, 1.5 mm. long, 1.0 mm. wide; tibia-patella I, 1.7 mm., IV, 1.4 mm.

TYPE DATA: Female, holotype, from Gulkana River, near Paxson, Alaska (about longitude 145° 30' W., latitude 63° 02' N.), June–August, 1955 (George Schumann), in the American Museum of Natural History.

The name is a noun in apposition.

***Bathyphantes (Bathyphantes) yukon*, new species**

Figures 43, 44

DIAGNOSIS: Female resembling that of *B. latescens* in size and color pattern of abdomen, but with a distinctly different form of epigynum, scape being much shorter.

DESCRIPTION OF FEMALE: Color of carapace light brownish, with side margins shaded with dusky gray. Chelicerae, legs, and palpi yellowish brown; legs narrowly blackened at joints but otherwise unmarked. Endites, sternum, and labium dark dusky brown. Abdomen black, with a series of seven pale cross bars as shown in figure 43. Spinnerets dark dusky brown.

Structure essentially typical. Anterior eye-row straight; median eyes small, 0.4 of a diameter apart, 1.3 diameters from lateral eyes. Posterior eye-row straight; median eyes 0.7 of a diameter apart, 1.0 diameter from lateral eyes. Chelicerae with three large teeth on anterior margin of fang groove. Legs moderately stout, with one dorsal spine on femur of each leg plus two spines on anterior face of leg I; each tibia with two dorsal spines and a lateral spine on each side near distal end. Palpi slender. Epigynum with scape short and thick, wider than long (fig. 44).

MEASUREMENTS: Length of female holotype, 3.0 mm.; carapace, 1.25 mm. long, 1.0 mm. wide; tibia-patella I, 1.55 mm., IV, 1.5 mm.

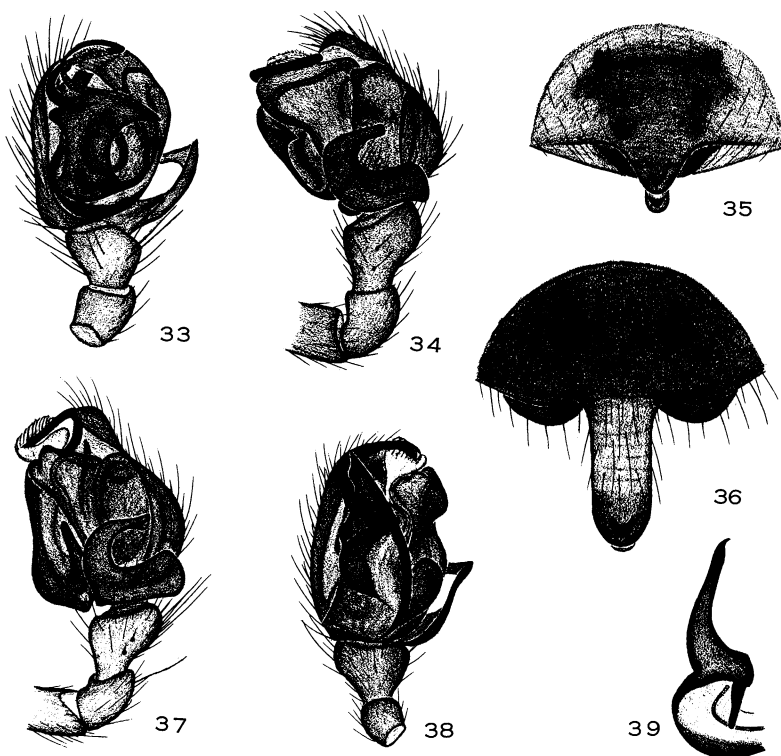
TYPE DATA: Female, holotype, from Old John Lake, Alaska (longitude 145° 00' W., latitude 68° 07' N.), August, 1954 (W. O. Pruitt), in the Museum of Comparative Zoology.

The name is a noun in apposition.

***Bathyphantes (Bathyphantes) eumenoides* Holm**

Figure 42

Bathyphantes eumenoides HOLM, 1967, pp. 64–66, figs. 83–85.



FIGS. 33-35. *Bathypantes* (*Bathypantes*) *keenii* (Emerton). 33. Left palp, ventral view. 34. Left palp, ectal view. 35. Epigynum, ventral view.

FIGS. 36-39. *Bathypantes* (*Bathypantes*) *malkini*, new species. 36. Epigynum, ventral view. 37. Left palp, ectal view. 38. Left palp, ventral view. 39. Median apophysis.

DIAGNOSIS: Female related to that of *pallidus* and that of *simillimus*. Differing from that of *pallidus* in being smaller, with shorter processes on epigynum. Size and structure close to those of *simillimus*, but abdomen marked with pale cross bands instead of being entirely black.

DESCRIPTION: Color of carapace yellowish brown, with narrow dusky margins and black rings around eyes. Chelicerae reddish brown. Sternum and labium dusky. Endites dusky brown, with pale tips. Legs and palpi yellowish, lightly shaded with dusky but no distinct bands. Abdomen dark gray, with a dorsal series of about six cross bands, more or less divided along midline.

Structure of carapace typical; eyes normal. Height of clypeus about two diameters of anterior lateral eye. Eyes unequal; order of size, an-

terior lateral, posterior median, posterior lateral, anterior median. Anterior eye-row straight; median eyes 0.6 of a diameter apart, 1.8 diameters from lateral eyes. Posterior eye-row slightly procurved; median eyes 0.8 of a diameter apart, 1.2 diameters from lateral eyes. Median ocular quadrangle much wider behind than in front, slightly longer than wide. Chelicerae vertical, slightly flared at distal end; fang groove with four teeth on front margin, two small teeth on hind margin. Legs of moderate length, slender. Epigynum as shown in figure 42.

MEASUREMENTS: Of selected female: length, 2.5 mm.; carapace, 1.1 mm. long, 0.87 mm. wide; tibia-patella I, 1.5 mm., IV, 1.5 mm.

TYPE DATA: Female, holotype, from Disko, Godhavn, Greenland (latitude 69° 15' N.), July 9, 1962 (Åke Holm), in Zoological Museum of the University of Uppsala.

DISTRIBUTION: Greenland, northern Canada, and Alaska.

LOCALITY RECORDS: *Greenland*: Disko, Godhavn, July 9, 1962 (Åke Holm), female, holotype, and female paratype. *Northwest Territories*: Reindeer Station (longitude 134° 10' W., latitude 68° 41' N.), July 1-5, 1948, two females; Kidluit Bay, July 24-29, 1948, one female (J. R. Vockeroth). *Labrador*: Joksut, August 18, 1927 (D. L. Austin, Jr.), one female. *Alaska*: Nome, May 22 to June 7, 1950 (George Schumann), one female.

Bathyphantes (Bathyphantes) simillimus (L. Koch)

Figures 22, 38-41

Linyphia simillima L. KOCH, 1879, p. 29, pl. 1, figs. 17-17c.

Bathyphantes simillimus: STRAND, 1906, p. 451 (*simillima*). BONNET, 1955, p. 868. HOLM, 1967, p. 66.

Diplostyla inornata EMERTON, 1917, p. 266, fig. 19 (5, 6).

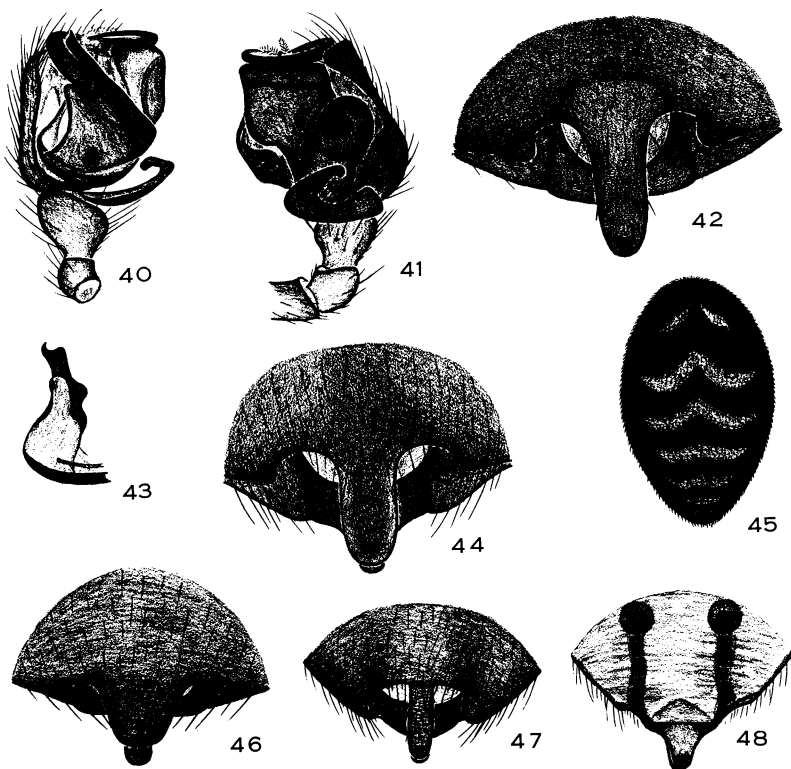
Bathyphantes inornata: CROSBY AND BISHOP, 1928, p. 1043. BONNET, 1955, p. 865 (*inornatus*).

Bathyphantes emertoni ROEWER, 1942, p. 574 (new name).

DIAGNOSIS: Close to *eumenis* (L. Koch) of Siberia and *eumenoides* Holm. Distinguished by concolorous dull black abdomen and minor differences in genitalia.

DESCRIPTION: Color of carapace dull brown, dusky on margins, paler on back of head. Chelicerae and endites light brown. Sternum and labium dark dusky brown. Legs and palpi amber yellow without markings. Abdomen dull black without markings.

Eye area occupying 0.7 of width of head. Height of clypeus two diameters of anterior lateral eye. Anterior median eyes much smaller than others which are about equal. Anterior eye-row straight; median eyes



FIGS. 40-43. *Bathyphantes (Bathyphantes) simillimus* (L. Koch). 40. Left palpus, ventral view. 41. Left palpus, ectal view. 42. Epigynum, ventral view. 43. Median apophysis.

FIG. 44. *Bathyphantes (Bathyphantes) eumenoides* Holm, epigynum, ventral view.

FIGS. 45, 46. *Bathyphantes (Bathyphantes) yukon*, new species. 45. Dorsum of female. 46. Epigynum, ventral view.

FIGS. 47, 48. *Bathyphantes (Bathyphantes) umiatus*, new species. 47. Epigynum, ventral view. 48. Epigynum, dorsal view.

0.6 of a diameter apart, 1.0 diameter from lateral eyes. Posterior eye-row very slightly procurved; median eyes 0.7 of a diameter apart, same distance from lateral eyes. Median ocular quadrangle about as wide as long, much wider behind than in front. Chelicerae with four teeth on front margin of fang groove, two denticles on hind margin. Epigynum with moderately short scape as shown in figure 40. Palpus rather small, but of usual structure as shown in figures 38 and 39.

MEASUREMENTS: Length of male, 2.1 mm.; carapace 1.1 mm. long, 0.85 mm. wide; tibia-patella I, 1.45 mm., IV, 1.35 mm. Length of female,

2.1 mm.; carapace, 1.0 mm. long, 0.8 mm. wide; tibia-patella I, 1.45 mm., IV, 1.35 mm.

DISTRIBUTION: Canada, Siberia, and northeastern United States (see fig. 22).

TYPE DATA: Of *Linyphia simillima* L. Koch, male cotypes from Siberia: Melnitschni; Pupkowskij; Surgutskoj; Tunguska (Jenissej Expedition, 1875). Of *Diplostyla inornata* Emerton, male type from Mt. Whiteface, New York, August, 1916 (J. H. Emerton), in the Museum of Comparative Zoology.

LOCALITY RECORDS: In North America: *Quebec*: Lake Pomerleau, Otish Mountains, August 6, 1949 (Jacques Rousseau), one male. Ile d'Alma, Lake St. John, July 28, 1934 (C. R. Crosby), two males, 14 females. Herbertville, July 29, 1934 (C. R. Crosby), one female. *New York*: Wawbeek, July 19, 1931, two males and six females; Mt. McIntyre, July 1, 1923, two females; Saranac Lake, September 6, 1931, one female; Mt. Whiteface, October 21, 1934, four males and three females; August 25, 1921, one male (all collected by C. R. Crosby); in the Cornell University and the American Museum of Natural History collections. Mt. Marcy, September 18, 1922 (S. C. Bishop), one male and one female, in the Cornell University collection.

***Bathyphantes (Bathyphantes) umiatus*, new species**

Figures 48, 49

DIAGNOSIS: Female resembling that of *pallidus* and that of *eumenoides* in color, size, and general structure. Epigynum distinctive, as shown in figures.

DESCRIPTION OF FEMALE: Color of carapace, chelicerae, legs, and palpi yellowish brown, with light shading on sides of carapace and on coxae and endites; eyes on black spots. Sternum and labium dark dusky brown. Abdomen dark gray, with series of light gray cross marks above, similar to pattern of *pallidus*. Spinnerets yellowish brown, shaded with dusky.

Eyes smaller than in most cases. Height of clypeus a little more than two diameters of anterior lateral eye. Anterior eye-row straight; median eyes about a radius apart, two diameters from lateral eyes. Posterior eye-row very slightly procurved; median eyes about a diameter apart, similar distance from lateral eyes. Chelicerae flared distally; four teeth on anterior margin of fang groove, four denticles on posterior margin, all well separated. Legs moderately short; tibia-patella IV nearly as long as I; spines typical. Colulus prominent.

MEASUREMENTS: Length of female, 2.6 mm.; carapace, 1.15 mm. long, 0.9 mm. wide; tibia-patella I, 1.5 mm., IV, 1.45 mm.

TYPE DATA: Female, holotype, from Umiat, on Colville River, Alaska (longitude 152° 20' W., latitude 69° 25' N.), July 3, 1949 (N. A. Weber), in the American Museum of Natural History.

The name is an adjective referring to the type locality.

***Bathypantes (Bathypantes) malkini*, new species**

Figures 22, 36-39

DIAGNOSIS: Similar to *simillimus* in size and general structure, but with distinctive color pattern on abdomen, and with minor differences in details of palpus as shown in figures.

DESCRIPTION: Carapace dark brown. Sternum dusky brown. Chelicerae, labium, and endites brown, with lighter tips. Legs with broad bands of dusky separated by wide bands of pale yellowish, two bands of each color to segment except patella, which is all dark. Abdomen black, with distinctive pale gray pattern above, consisting of one or two pairs of light spots anteriorly followed by series of chevrons; central pattern set off from each side anteriorly by wide longitudinal band; irregular light patch each side of spinnerets, often joined with posterior chevron and extending forward along side.

Structure of carapace typical; eye area occupying nearly full width of head; height of clypeus 2.5 diameters of anterior lateral eye; anterior median eyes much smaller than others. Anterior eye-row slightly pro-curved; median eyes a radius apart, nearly two diameters from lateral eyes. Posterior row straight; median eyes a radius apart, a diameter from lateral eyes. Median ocular area longer than wide, wider behind than in front. Lateral eyes raised on low tubercle. Chelicerae typical; four large teeth on front margin of fang groove, two very small denticles on hind margin. Legs slender, normal length. Epigynum with moderately long scape as shown in figure 36. Palpus of usual shape generally, but with distinctive details as shown in figures 37 and 38; embolus short and evenly curved.

MEASUREMENTS: Length of male, 2.75 mm.; carapace, 1.5 mm. long, 1.3 mm. wide; tibia-patella I, 1.7 mm., IV, 1.35 mm. Length of female holotype, 2.8 mm.; carapace, 1.35 mm. long, 1.0 mm. wide; tibia-patella I, 1.65 mm.; IV, 1.35 mm.

DISTRIBUTION: Pacific coast area from northern California to southern Vancouver Island (see fig. 22).

TYPE DATA: Female, holotype, from Union Creek, Oregon (longitude 122° 27' W., latitude 43° 54' N.), August, 1950 (Borys Malkin), in the American Museum of Natural History.

LOCALITY RECORDS: *California*: Hatchet Creek, 10 miles west of Burney,

August 1, 1953 (W. J. and J. W. Gertsch), one male. North of Happy Camp, August 22, 1959 (W. J. Gertsch and V. Roth), one male. *Oregon*: Bogus Creek east of Glide, July 23, 1962 (V. Roth), four males and one female. Silver Creek Falls State Park, September 27, 1959 (V. Roth), one female. Sulfur Springs, September 25, 1952 (Roth and Ritcher), one female. Philomath, July 21, 1949, one male and two females; 9 miles west of Philomath, September 1, 1949, two females; 9 miles north of Corvallis, May 16, 1952, one male and two females; 5 miles north of Corvallis, May 15, 1947, one female (all collected by V. Roth). Sourgrass Creek, southeast of Tillamook, July 17, 1948 (K. M. Fender), one female. *Washington*: Green River Gorge, August 5, 1937 (M. H. Hatch), one male. Snoqualmie Falls, August 6, 1935 (M. H. Hatch), one male. Enumclaw, September 6, 1934 (H. Exline), one female. Vancouver (Battlefield Lake), June 19, 1932 (Trevor Kincaid), one female. Five miles east of McCleary, August 26, 1959 (W. J. Gertsch and V. Roth), two males and four females. *British Columbia*: Wellington, Vancouver Island, September, 1950 (R. Guppy), two males and two females.

Bathyphantes (Bathyphantes) pallidus (Banks)

Figures 49, 54-60

Diplostyla pallida BANKS, 1892, p. 43 (not *Bathyphantes pallidus*, p. 45).

Diplostyla nigrina EMERTON, 1882, p. 65; 1894, p. 410; 1909, p. 96; 1913, p. 155; 1917, p. 60. BANKS, 1892, p. 43; 1895a, p. 87; 1895b, p. 425. BRYANT, 1908, p. 39. BONNET, 1956, p. 1493.

Linyphia nigrina MARX, 1890, p. 528; 1892, p. 156. FOX, 1892, p. 268. EMERTON, 1902, p. 147.

Bathyphantes nigrinia: BANKS, 1910, p. 34; 1911, p. 448. PETRUNKEVITCH, 1911, p. 218. COMSTOCK, 1912, p. 379; 1940, p. 393. BARROWS, 1918, p. 305. EMERTON, 1920, p. 319.

Bathyphantes nigrinus: CROSBY AND BISHOP, 1928, p. 1043. CHICKERING, 1934, p. 579. CROSBY AND ZORSCH, 1935, pp. 38-40. KURATA, 1937, p. 114. MUMA, 1943, p. 75. 1945, p. 31. GERTSCH AND JELLISON, 1939, p. 4.

Bathyphantes pallidus: ROEWER, 1942, p. 574. CHAMBERLIN AND IVIE, 1943, p. 22; 1947, p. 55. HACKMAN, 1954, p. 54. LEVI, LEVI, AND KASPER, 1958, p. 45.

Bathyphantes pallida: BANKS, 1910, p. 34. KASTON, 1948, pp. 131-132. LEVI AND LEVI, 1951, p. 220. LEVI AND FIELD, 1954, p. 444.

Bathyphantes banksi PETRUNKEVITCH, 1911, p. 216 (new name).

Bathyphantes sp. nr. *reprobis*: HACKMAN, 1954, pp. 13, 54.

DIAGNOSIS: Length about 2.5 mm., related to *bishopi* and *simillimus*. From *bishopi*, distinguishable by differences in details and proportions of palpus and epigynum; from *simillimus*, also distinguishable by well-developed color pattern of dorsum. Somewhat resembles *nigrinus* in size and color, but readily distinguishable by form of palpus and epigynum.

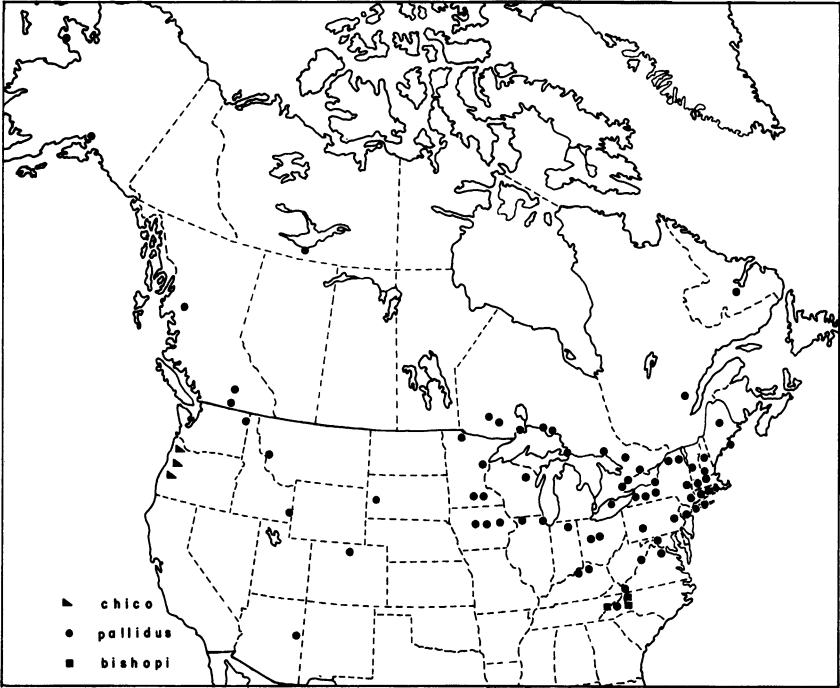


FIG. 49. Distribution of *Bathypantes* (*Bathypantes*) *chico*, new species, *pallidus* (Banks), and *bishopi*, new species.

Color of carapace yellowish brown to light brown, more or less shaded with dusky brown, especially on sides of thorax; eyes on black spots. Chelicerae and endites yellowish brown to light brown, lighter at tips. Sternum and labium dusky brown. Legs yellowish to light brown, without markings. Abdomen dark gray, with a long series of whitish cross bands above, usually divided medially by a narrow, longitudinal, dark gray stripe; venter in many specimens with pair of pale gray patches anterior to spinnerets. Spinnerets yellowish brown.

Size moderately large and robust. Carapace typical, with head narrowed in front; eye area occupying nearly full width of head; height of clypeus 2.0 to 2.5 diameters of anterior lateral eye. Anterior eye-row straight, small median eyes a scant radius apart, a full diameter from lateral eyes. Posterior row straight or slightly procurved; median eyes about a radius apart, about a diameter from lateral eyes. Chelicerae only slightly retracted and slightly flared. Fang groove normal in female, with three teeth on front margin, three denticles behind; excavated in

male, with teeth and denticles crowded mesially. Legs moderately long and robust, hind leg nearly as long as front leg. Epigynum with long scape and parmula, with parmula usually extending slightly beyond tip of scape (figs. 54, 55). Palpus with distinctive paracymbium, lamella, tegulum, and median apophysis (figs. 57, 58), tegulum with a prominent bulge on ectal side.

MEASUREMENTS: Selected specimens from Pennsylvania: length of male, 2.35 mm.; carapace, 1.2 mm. long, 0.9 mm. wide; tibia-patella I, 1.65 mm., IV, 1.5 mm. Length of female, 2.35 mm.; carapace, 1.2 mm. long, 0.9 mm. wide; tibia-patella I, 1.55 mm., IV, 1.5 mm.

TYPE DATA: Four specimens (male and female) from Six Mile Creek and Fall Creek, Upper Cayuga Lake Basin, New York, April, October, and December, 1889 (N. Banks), in the Museum of Comparative Zoology.

DISTRIBUTION: In North America; all across Alaska, Canada, and northern United States, extending south to latitude 34° N., in high mountains (see fig. 49).

LOCALITY RECORDS: *Newfoundland*: Quirpon; Fourché Harbour; Kitty's Brook; Cow Head; Daniels Harbour; Doctors Hill; St. John Island; Port Saunders; Spruce Brook; Table Mountain; South Branch, reported by Hackman (1954). *Labrador*: Goose Bay, June 9, 1948 (H. Friesen), one female. *Quebec*: Lake Megantic (Emerton, 1920). Bagotville, July 26, 1934, two females; and Ile d'Alma, Lake Saint John, July 28, 1934, one male and one female (C. R. Crosby), in Cornell University collection. *Ontario*: South of Passmore, July 17, 1965 (J. and W. Ivie), one female. Lake Opeongo, June 26 to July 7, 1945 (W. Ivie and T. Kurata), 12 males and 15 females; August 17, 1948 (W. J. Gertsch and T. Kurata), four males and seven females. Port Credit, August 28, 1944, and August 5, 1946 (S. Harrod), one male and one female. Island 1024, Lake Temagami, August 15–25, 1946 (W. J. Gertsch, W. Ivie, T. Kurata), 10 males and 12 females. Byron Bog, Dunnville, 1961 (W. W. Judd), one male and six females. Cochrane, September 1, 1957 (H. and L. Levi), one female in Museum of Comparative Zoology. Pelee Island, Lake Erie, June 4–16, 1950 (W. Ivie and T. Kurata), three females. Batchewana, July 29, 1948 (W. J. Gertsch, W. Ivie, and T. Kurata), one male and five females. Obatonga Provincial Park, July 22, 1965, one female; Neys Park, near Marathon, July 23, 1965, four females; (all J. and W. Ivie). Nipigon, August 12, 1948 (W. J. Gertsch and T. Kurata), one female. English River (town), July 24, 1965, one male; 15 miles west-northwest of Ignace, July 25, 1965, one female; (both, J. and W. Ivie). *Mackenzie District*: Hay River (town), August 8, 1965 (J. and W. Ivie), one male and three females. *British Columbia*: Penticton, one male, and Kelowna,

two males and one female, September, 1931. Vernon, August, 1931, two males and two females. Terrace, March, 1933 (M. Hippisley), two males and three females, in Cornell University collection; 1937 (W. E. Clark), 20 males and 20 females. *Alaska*: Kennecott area, June 5, 1955 (Berry), two males, in Museum of Comparative Zoology. Matanuska, 1943–1945, three males and five females; Palmer, October 16, 1943, one female; Homer, July 24, 1945, one male; (all collected by J. C. Chamberlin). Nome, May 22 to June 7, 1950 (G. Schuman), one female. *Maine*: Mount Desert Island, June 23, 1943 (W. Procter), one female. Mt. Katahdin, July 4, 1910 (J. H. Emerton), one male, in Museum of Comparative Zoology. *Rhode Island*: Providence (Emerton, 1882). *Massachusetts*: West Quincy and Waltham (Emerton, 1882). Mt. Greylock, October 2, 1927 (S. C. Bishop), one male and two females. *New Hampshire*: Hollis, August, 1888 (W. Fox), one male and one female, in Cornell University collection. Mt. Washington, June 17, 1911 (J. H. Emerton), five females, in Museum of Comparative Zoology. *Vermont*: Westminster West, May 5 and June 12, 1960 (M. S. Wilson), two females. *Connecticut*: Many localities recorded by Kaston (1948). *New York*: Ithaca (Banks, 1892) (types). Many localities recorded by Crosby and Bishop (1928). *New Jersey*: Lambertville, May, 1952 (W. Ivie), four males and four females. *Maryland*: Several localities recorded by Muma (1943). *Pennsylvania*: Neshaminy Creek, east of Jamison, 1953–1957 (W. Ivie), many males and females. October 27, 1963 (J. and W. Ivie), eight males and eight females. Johnstown, August 20, 1935 (H. K. Wallace), one female. *Virginia*: Great Falls, Potomac River, April 3, 1921 (C. R. Crosby), one female. Marion, July 6, 1934 (W. J. Gertsch), four males and seven females. *West Virginia*: Minnehaha Springs, July, 1948 (K. W. Haller), one female. *Ohio*: Gambier, June 30, 1905, one female; Urbana, August 30, 1905, four males and six females (Nelson); in Cornell University collection. Columbus, June 17, 1917, one female, and October 20, 1917, one male (W. M. Barrows). *North Carolina*: Highlands, April 5, 1929 (C. R. Crosby), one male. Clingmans Dome, April 22, 1952, one male. *Kentucky*: Lexington, July 5, 1925 (Giovannoli), one female, in Cornell University collection. Louisville, July 18, 1933 (W. J. Gertsch), one female. *Indiana*: Fort Wayne, August 3, 1964 (J. and W. Ivie), one female. *Illinois*: Waukegan, April 30, 1938 (R. E. Gregg), one male. Rockford, 1942 (A. F. Archer), one male. *Wisconsin*: Several localities recorded by Levi and Field (1954). *Iowa*: Ames, March–April, 1918 (H. A. Scullen). *Minnesota*: Lake Pepin, June 25, 1931, one male; Minneapolis, June 4, 1932, one male and one female; (W. J. Gertsch). Albert Lea, June 17, 1961 (H. Levi), one female, in the Museum of Comparative



FIGS. 50-53. *Bathypantes (Bathypantes) bishopi*, new species. 50. Epigynum, ventral view. 51. Left palp, ventral view. 52. Left palp, ectal view. 53. Median apophysis.

FIGS. 54-60. *Bathypantes (Bathypantes) pallidus* (Banks). 54. Epigynum, lateral view. 55. Epigynum, ventral view. 56. Carapace of female, dorsal view. 57. Left palp, ventral view. 58. Left palp (in part), ectal view. 59. Median apophysis. 60. Epigynum, dorsal view.

Zoology. *South Dakota*: Custer Park (Levi and Levi, 1951). *Colorado*: Estes Park, August 27, 1961 (W. J. Gertsch and W. Ivie), four males and six females. *Arizona*: White Mountain Reservoir, July 8, 1940 (W. J. Gertsch), one female. *Idaho*: Montpelier, August 19, 1928 (W. J.

Gertsch), three males and one female. *Montana*: Girds Creek, Ravalli County, August 26, 1934 (W. L. Jellison), one female. *Washington*: Cedar Lake, north of Leadpoint, September 30, 1964 (J. and W. Ivie), eight males and eight females.

DISCUSSION: This species is one of the most common of *Bathypantes* in North America. It is usually found near water where it lives under trash and objects on damp ground. Emerton (1882) identified this species with *nigrina*, a European species, which it somewhat resembles superficially, but from which it is structurally distinct. Many authors followed Emerton in this misidentification. Unfortunately, the name *pallidus*, based on freshly molted specimens, has priority for this dark-colored species.

***Bathypantes (Bathypantes) bishopi*, new species**

Figures 49–53

DIAGNOSIS: Near *B. pallidus*, resembling it in size, form, and color, but distinctive in details of palpus and epigynum. Among these differences, lamella of palpus wider at base; epigynal opening wider and scape shorter.

DESCRIPTION: Color of carapace light brown, more or less darkened or shaded; eyes on black spots. Chelicerae light brown. Sternum and labium blackish. Endites light brown, more or less shaded. Legs and palpi yellowish brown, in many cases darkened or shaded, in some with faint indications of annulations. Abdomen light gray above, with a typical series of cross bands of dark gray, usually disconnected along center; sides dark gray; venter varying from light gray to dark gray in different specimens. Spinnerets dark dusky brown.

Structure of female: Carapace typical; height of clypeus two diameters of anterior lateral eye. Eyes slightly elevated; larger than usual, except anterior median eyes very small. Anterior eye-row slightly procurved, median eyes 0.4 of a diameter apart, 0.6 of a diameter from lateral eyes. Median ocular quadrangle slightly longer than wide, much wider behind than in front. Chelicerae somewhat flared at distal end; fang groove with three large teeth in front, three small sharp teeth behind. Legs and abdomen typical. Epigynum as shown in figure 50.

Structure of male in general similar to that of female. Clypeus higher, height nearly three diameters of anterior lateral eye. Chelicerae wider and more flared; teeth on margins of fang groove very close together and situated on a common base; middle tooth of anterior margin long and stout; denticles of hind margin obscure. Palpus as shown in figures 51 and 52.

MEASUREMENTS: Length of male, 2.2 mm.; carapace 1.1 mm. long,

0.85 mm. wide; tibia-patella I, 1.65 mm., IV, 1.5 mm. Length of female, 2.25 mm.; carapace, 1.0 mm. long, 0.75 mm. wide; tibia-patella I, 1.55 mm., IV, 1.45 mm.

TYPE DATA: Male, holotype, from Clingman's Dome, Tennessee, June 22, 1941 (C. and M. Goodnight), in the American Museum of Natural History.

DISTRIBUTION: Great Smoky and Blue Ridge mountains of Tennessee and North Carolina (see fig. 49).

LOCALITY RECORDS: *North Carolina*: Grandfather Mountain, October 12, 1923, one male, one female; Frying Pan Gap, Mt. Pisgah, October 13, 1926, three males, five females; Mt. Mitchell, October 22, 1923, 10 males and 10 females; Wayah Bald, October 16, 1926, one male; (all collected by C. R. Crosby and S. C. Bishop); in Cornell University Collection. Highlands, April 5, 1929 (C. R. Crosby). *Tennessee*: Clingman's Dome, June 22, 1941 (C. and M. Goodnight), two males, one female. April 22, 1952, one male and five females. Mt. Leconte, October 10, 1926 (C. R. Crosby and S. C. Bishop), six males and six females.

Bathyphantes (Bathyphantes) brevipes (Emerton)

Figures 61-63, 71

Diplostyla brevipes EMERTON, 1917, p. 267, fig. 19 (3, 4, 8).

Bathyphantes brevipes: CHAMBERLIN, 1921, p. 42. ROEWER, 1942, p. 573. CHAMBERLIN AND IVIE, 1947, p. 53. HACKMAN, 1954, pp. 5, 54. BONNET, 1955, p. 859. HOLM, 1960, p. 125.

DIAGNOSIS: A large species close to *latescens* and *waneta*, from which readily distinguishable by color. Epigynum and palpus similar except for minor differences in details.

DESCRIPTION: Color of carapace yellowish to light brown, with sides of thorax narrowly edged in black; eyes on black spots. Chelicerae reddish amber. Endites light brownish. Sternum and labium dusky. Legs yellowish to light brown. Dorsum of abdomen pale gray, with an irregular or broken median band of blackish and a row of blackish spots along each side; spots in some cases narrowly connected with median band; lower sides of abdomen and region around spinnerets dark gray; venter pale gray, with mid region more or less shaded, more so in males. Spinnerets yellowish brown.

Similar in structure to *waneta*, agreeing with that species in most details. Female: Height of clypeus two diameters of anterior lateral eyes. Eye area 0.8 of width of head. Posterior row straight; median eyes 0.65 of a diameter apart, 0.9 of a diameter from lateral eyes. Anterior row straight; median eyes 0.4 of a diameter apart, 1.1 diameters from lateral

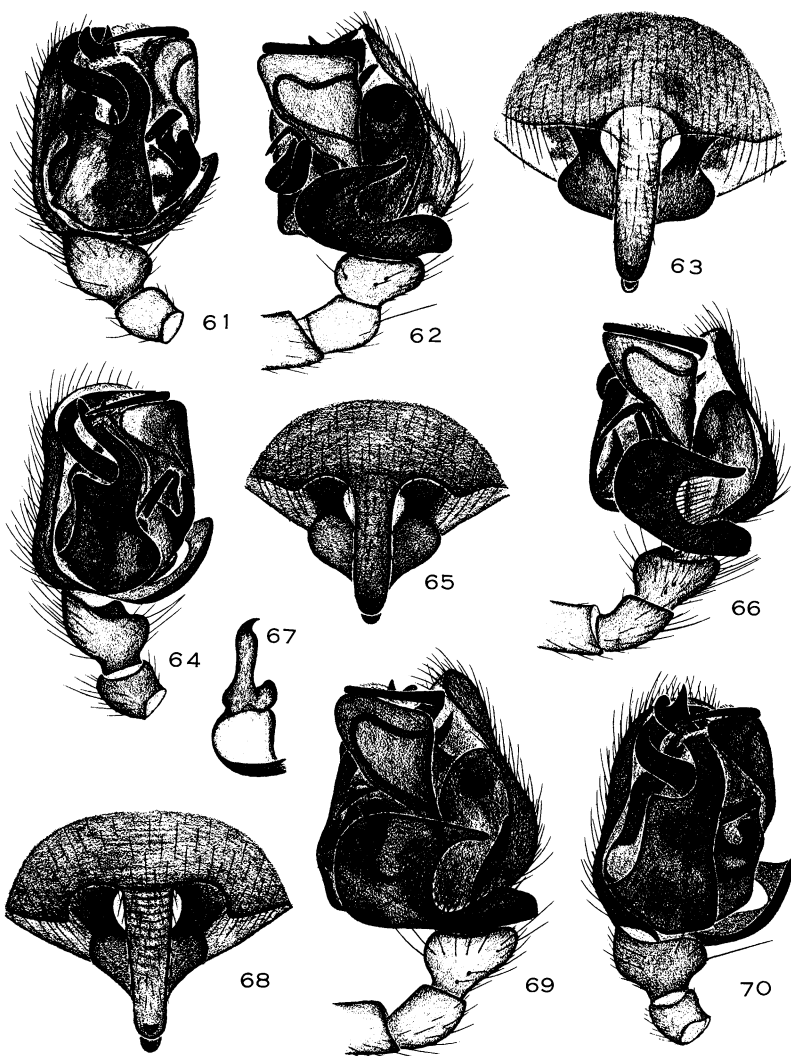
eyes. Median ocular quadrangle about as wide as long, wider behind than in front, ratio about 3:2. Fang groove of chelicerae with three to five teeth in front and four or five denticles behind. Fang groove of male broadly concave, with two large teeth (in some cases a third, smaller one) close together in front at mesal end and two or three denticles close together behind.

MEASUREMENTS: Length of female, 3.0 mm.; carapace, 1.25 mm. long, 1.0 mm. wide; tibia-patella I, 1.75, IV, 1.6 mm. Length of male, 2.9 mm.; carapace, 1.35 mm. long, 1.12 mm. wide; tibia-patella I, 1.9 mm., IV, 1.6 mm.

TYPE DATA: Male and female cotypes from Metlakatla, British Columbia, collected by J. H. Keen.

DISTRIBUTION: Western North America from Alaska to northern California; also Newfoundland and New York State (see fig. 71).

LOCALITY RECORDS: *British Columbia*: Metlakatla (types). Mt. Benson, Vancouver Island, July 5, 1949 (R. Guppy), one male. Parksville, July 12, 1951 (R. Guppy), one female. Wellington, Vancouver Island, various dates, 1950–1953 (R. Guppy), 15 males and 20 females. *Newfoundland*: Reported from several localities by Hackman, 1954, six males and 20 females. *Alaska*: Juneau, April 28–29, 1945, two males and one female; Haines, August 20–25, 1945, three females; Matanuska, 1945, one male and four females; Homer, July 24, 1945, two males and several immature; (all collected by J. C. Chamberlin). Saint Paul Island, 1910 (Harold Heath), two males and several females (Chamberlin, 1921). Menefee Inlet, Etolin Island, September 21, 1951, five females; Red Bay, Prince of Wales Island, August 9, 1951, six males and five females; southeast of Wrangel, August, 1951, two males; (all collected by Borys Malkin). Camp Island, September 7, 1935 (L. Townsend), two females. Attu, July 30–31, 1958, 10 females; Adak, July 26–29, 1958, one male and 24 females; Umanak, July, 1958, two males and seven females; Unalaska, July 11–14, 1958, three females; Kodiak Island, August 22–25, 1958, two males and four females; all in Aleutian Islands (C. H. Lindroth); recorded by Holm (1960). *Washington*: Mt. Baker Lake, August 21, 1955 (V. Roth), one female. Shelton, May 8, 1932 (Trevor Kincaid), one female. Redmond, November 17, 1944 (Forsell), three males and one female. Seattle, June, 1954, one male and one female; October 17, 1954, two males and one female; April, 1951, two males and one female; (all collected by Borys Malkin). April 23, 1932 (Schwartz), one female. April 19, 1939 (M. H. Hatch), one male and five females. Olympia, April 5, 1931, one female. Bay Center, July 5, 1931, one female, and August 15, 1931, one female; (all collected by



FIGS. 61-63. *Bathyphantes* (*Bathyphantes*) *brevipes* (Emerton). 61. Left palp, ventral view. 62. Left palp, ectal view. 63. Epigynum, ventral view.

FIGS. 64-66. *Bathyphantes* (*Bathyphantes*) *latescens* (Chamberlin). 64. Left palp, ventral view. 65. Epigynum, ventral view. 66. Left palp, ectal view.

FIGS. 67-70. *Bathyphantes* (*Bathyphantes*) *waneta*, new species. 67. Median apophysis. 68. Epigynum, ventral view. 69. Left palp, ectal view. 70. Left palp, ventral view.

H. Exline). Bothel, November 11, 1944 (Forsell), one female. Vancouver, September 24, 1964 (J. and W. Ivie), one female. *Oregon*: Hebo, April 3, 1948 (V. Roth), two males and four females. Charleston, September 5, 1947 (I. Newell), one female. Vicinity of Corvallis (V. Roth): 12 miles north, June 9, 1949, one female; Colorado Lake, June 25, 1952, two males; 12 miles south, April 28, 1949, one female; McFadden Pond, 15 miles south, April 30, 1953, two females. Independence, May 13, 1954 (V. Roth), one female. *California*: Klamath (beach); June 5, 1936 (C. R. Crosby and S. C. Bishop), one female. *New York*: Mt. Whiteface, October 21, 1924 (C. R. Crosby), two females.

Bathypantes (Bathypantes) latescens (Chamberlin)

Figures 64-67, 71

Linyphia latescens CHAMBERLIN, 1919, p. 248.

Bathypantes latescens: CHAMBERLIN AND IVIE, 1933, p. 34, figs. 119-120. ROEWER, 1942, p. 574. LEVI AND LEVI, 1951, p. 220. LOWRIE AND GERTSCH, 1955, p. 5.

DIAGNOSIS: Moderately large and robust species, closely related to *brevipes* and *waneta*. Readily distinguishable from *brevipes* by color; similar in color to *waneta*; separable from both by detailed structures of palpus and epigynum (figs. 64-67).

DESCRIPTION: Color of carapace light brown, shaded on margins. Chelicerae reddish brown. Sternum and labium dusky brown. Endites brownish, with whitish tips. Legs and palpi yellowish brown, with joints narrowly shaded and a hint of shaded zones between joints. Dorsum colored with a series of long, irregular cross bands of black and pale gray, usually completely separated from one another, angled anteriorly along midline. Sides and venter of abdomen typically blackish, except for a median pale patch anterior to spinnerets; venter in some cases faded. Spinnerets brown.

Close to *brevipes* in form of carapace, eyes, chelicerae, and legs. Leg spines weak. Palpus and epigynum as shown in figures 64-67.

MEASUREMENTS: Length of male, 3.0 mm.; carapace, 1.5 mm. long, 1.2 mm. wide; tibia-patella I, 1.85 mm., IV, 1.72 mm. Length of female, 3.5 mm.; carapace, 1.9 mm. long, 1.22 mm. wide; tibia-patella I, 2.0 mm., IV, 1.87 mm.

TYPE DATA: Female and male cotypes from Chalk Creek, Uintah Mountains, Utah, August-September, 1917 (R. V. Chamberlin), in Museum of Comparative Zoology.

DISTRIBUTION: Northern Rocky Mountain area of western United States (see fig. 71).

LOCALITY RECORDS: *Wyoming*: Holly Lake, Grand Teton National Park, August 10, 1950 (D. C. Lowrie), one male and three females. East of Bedford, June 27, 1962 (W. Ivie), one female. *Utah*: Chalk Creek, Uintah Mountains (types). Clear Creek, Raft River Mountains, September 4, 1932, and Grouse Creek, September 8, 1932 (R. V. Chamberlin and W. Ivie), males and females, in University of Utah collection. Ogden River Canyon, July 23, 1947 (Borys Malkin), one female. Logan Canyon, April 11, 1959 (G. F. Knowlton), one female. Aspen Grove, Provo Canyon, July 1951 (D. E. Hardy), one male. Mill Creek Canyon, Wasatch Mountains, July 15, 1952 (S. Mulaik and B. Malkin), one female. *Idaho*: Montpelier, August 19, 1928 (W. J. Gertsch), seven females. Twin Creek Camp, Bitterroot Mountains, July 26, 1952 (B. Malkin), two females. *Oregon*: Sucker Creek Canyon, Malheur County, June 15-18, 1951 (B. Malkin), one female. *Nevada*: near Tonka, June 20, 1962 (W. Ivie), one female.

***Bathyphantes (Bathyphantes) waneta*, new species**

Figures 66-71

DIAGNOSIS: Related to *latescens* and *brevipes*, resembling *latescens* in color, but distinct from *brevipes* in pattern of dorsum. Palpus and epigynum distinct in structural details. Size large (length about 3.0 mm.), comparable to *crobyli*, a little larger than *latescens* and *brevipes*; robust; legs of moderate length.

Color of carapace yellowish brown, lightly shaded with dusky gray on side margins. Chelicerae reddish brown. Sternum, labium, and endites dusky brown. Legs light brownish, moderately shaded with dusky gray, usually in following vague pattern: under side of femora shaded, with faint band across top at distal end; patella shaded; tibia broadly shaded proximally and with a narrow dusky band at distal end; metatarsus with broad faint bands proximad of center and at distal end. Palpus similar to legs but with fewer bands. Abdomen dark gray, with series of pale gray chevrons which more or less coalesce longitudinally along upper sides; usually a faded patch on venter anterior to spinnerets. Spinnerets dusky brown.

Carapace smoothly pear-shaped, thoracic part nearly twice as wide as head at posterior eye-row; width of eye area about 0.85 of width of head; height of clypeus about two diameters of anterior lateral eye. Anterior eye-row straight, median eyes about half a diameter of lateral eyes, 0.5 of a diameter apart, 1.6 diameters from lateral eyes. Posterior eye-row straight; median eyes 0.6 of a diameter apart, 0.8 of a diameter from lateral eyes. Median ocular quadrangle a little wider than long,

much wider behind than in front, ratio 8:15. Chelicerae stout, vertical, flared laterally at distal end; fang groove with four large, well-spaced teeth on anterior margin, four denticles on posterior margin. Legs stout; spines minimal in number: one on dorsal side of each femur, with two additional spines on prolateral face of femur I, proximal one small. All tibiae with usual two spines on dorsal side; in addition, tibia I with

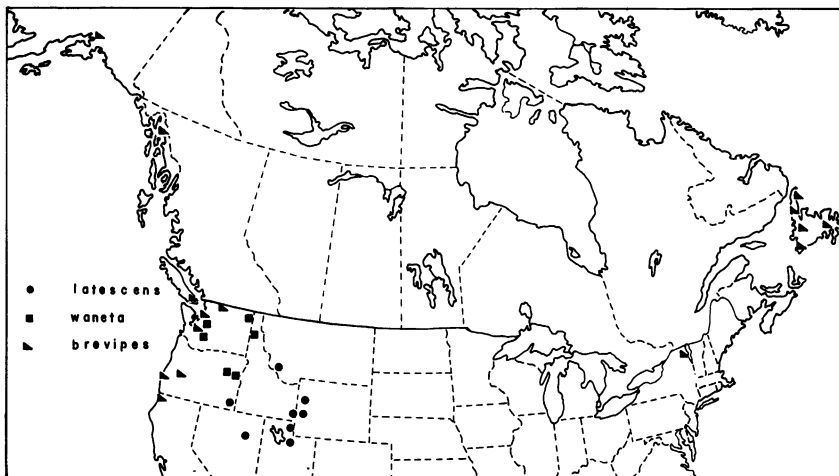


FIG. 71. Distribution of *Bathypantes (Bathypantes) latescens* (Chamberlin), *waneta*, new species, and *brevipes* (Emerton).

spine on each lateral side distally; II with retrolateral spine only. Patellae with usual distal spine, also small basal spine, above. Epigynum with long scape, tapering somewhat distally; atrial plate broadly and thickly lobed; parmula extending to tip of scape.

Male similar to female in color and size; clypeus higher. Chelicerae modified in usual manner: fang groove broadly concave distally, with anterior teeth close together at proximal end of concavity (two large teeth on nodule, followed proximally at a short distance by a third tooth); on posterior side, two denticles close together. Palpus large; paracymbium with very broad "leaf" on ventral end; other details shown in figures 69 and 70.

MEASUREMENTS: Length of male, 3.0 mm.; carapace, 1.5 mm. long, 1.2 mm. wide; tibia-patella I, 1.95 mm., IV, 1.7 mm. Length of female, 3.0 mm.; carapace, 1.45 mm. long, 1.2 mm. wide, tibia-patella I, 1.8 mm., IV, 1.7 mm.

TYPE DATA: Male, holotype, female, allotype, two male and three

female paratypes from Cedar Lake, Washington (longitude 117° 36' W., latitude 48° 56' N.), September 30, 1964 (Jean and Wilton Ivie).

DISTRIBUTION: Oregon, Washington, Idaho and British Columbia, east of coastal region (see fig. 71).

LOCALITY RECORDS: *Oregon*: Dixie Creek Forest Camp; July 11, 1953 (V. Roth and F. Beer), one female. Pine Creek, 10 miles northwest of Baker; June 2, 1957 (Borys Malkin), one male and two females. Twelve miles south of Baker, July 11, 1953 (Roth and Beer), three males and one female. *Washington*: White River Camp, Mt. Rainier; July 23, 1954 (Borys Malkin), one female. American River, Yakima County; July 23, 1939 (G. Minsk), two males and six females. Snoqualmie Falls, August 6, 1935 (M. H. Hatch), one female. Cedar Lake, Stevens County (types). *Idaho*: Mason Creek, 18 miles south of Coeur d'Alene, September 24, 1950 (Vincent Roth), two females. *British Columbia*: Six Mile Lake, Nelson, June 19, 1928 (Taka Kurata), three females.

Bathypantes (Bathypantes) crosbyi (Emerton)

Figures 10, 96-98

Diplostyla crosbyi: EMERTON, 1919, p. 105, pl. 7, fig. 4 a-c.

Bathypantes crosbyi: CROSBY AND BISHOP, 1928, p. 1043. HOLM, 1960, p. 125, pl. 4, fig. 35 (= *B. rufestris*).

Bathypantes rufestris HOLM, 1945, pp. 8, 48-51, figs. 14 a-d.

DIAGNOSIS: Large spider (length 3.0 mm.) with long legs; metatarsi of legs each bearing a small spine near base, a feature not found in other species of *Bathypantes*. Palpus with single coil at distal end (figs. 97, 98). Epigynum with elongated scape and parma, scape rather thick (see fig. 96). Abdomen banded on dorsum; legs without distinct markings.

DESCRIPTION: Color of carapace amber, with radial streaks and side margins very lightly shaded; eyes on black spots. Chelicerae reddish amber. Legs yellowish brown, with faint indications of dusky annulations. Sternum, labium, and endites dark dusky over light brown. Abdomen blackish gray on sides and venter; dorsum varies from a pattern of light gray cross bars on dark gray to one of dark gray cross bands on light gray background. Spinnerets light brown.

Female: Carapace typical. Eye area about two-thirds of width of head at posterior eye row. Height of clypeus about 2.5 diameters of anterior lateral eye. Anterior eye-row slightly recurved; anterior eyes 0.7 of a diameter apart, nearly two diameters from lateral eyes. Posterior eye-row faintly procurved; median eyes 0.9 of a diameter apart, 1.1 diameters from lateral eyes. Chelicerae strong, flared laterally at distal end; fang groove with four stout teeth on front margin, four small teeth on

hind margin. Legs longer and spinier than usual. Femora with one spine above on basal half; femur I with three (in some cases fewer) additional spines on prolateral side. Tibiae with two spines above, two spines on prolateral side, one on retrolateral side, five spines (2-2-1) on ventral side of legs I and II, and one spine on ventral side of legs III and IV. Metatarsi of all legs with small spine on dorsal side near base. Epigynum as seen in ventral view shown by figure 96. Length of female, 3.1 mm.; carapace, 1.5 mm. long, 1.2 mm. wide; tibia-patella I, 2.7 mm., IV, 2.15 mm.

Male: Similar to female in size and color, with various sexual differences in structure: head region of carapace more elongated; clypeus higher; chelicerae longer and more flared, fang groove larger, with teeth bunched closer together; legs longer; abdomen smaller. Palpus stout (figs. 97, 98).

TYPE DATA: Of *Diplostyla crosbyi* Emerton: Male, holotype, from Opalescent River at Uphill Brook, Mt. Marcy, New York, July, 1918 (C. R. Crosby), in Cornell University collection. One teneral male, same data, in the Museum of Comparative Zoology. Of *Bathypantes rupestris* Holm: Male, holotype, female, allotype, from Abiskoajokks Canyon, Abisko, Torne Lappmark, Sweden, July 7, 1943 (Ake Holm), in Museum of Zoological Institute, Uppsala University.

LOCALITY RECORDS: *Alaska*: Valdez; August 20, 1958 (C. H. Lindroth), one male; Fort Richardson; June 8, 1948 (Sailer and Nielsen); reported by Holm (1960). *Maine*: Mt. Katahdin; July 4, 1910 (J. H. Emerton), one male, in the Museum of Comparative Zoology. *New Hampshire*: Mt. Washington; August 1906 (Slosson), one male, in the Museum of Comparative Zoology. *New York*: Mt. Marcy (type). Mt. Whiteface; October 21, 1924 (C. R. Crosby), one female. *MacKenzie District, Canada*: Lady Evelyn Falls, Kakisa River; August 10, 1965 (J. and W. Ivie), two females, several immatures.

***Bathypantes (Bathypantes) alameda*, new species**

Figures 72-77

DIAGNOSIS: Closely resembling *alascensis*, *diasosnemis*, and *orica* (all of which are sympatric) in size, color, and general shape; very similar to *orica* except for smaller details of palpus and epigynum. Epigynum with posterior rim narrower in median portion than in *orica*, exposing openings to ventral view; openings of fertilization ducts farther apart, and basal section of parma larger (figs. 76, 77). In palpus, radix longer and straighter than in *orica*, embolus thicker near tip of cymbium, and ventral process of lamella longer and more slender (figs. 73, 75).

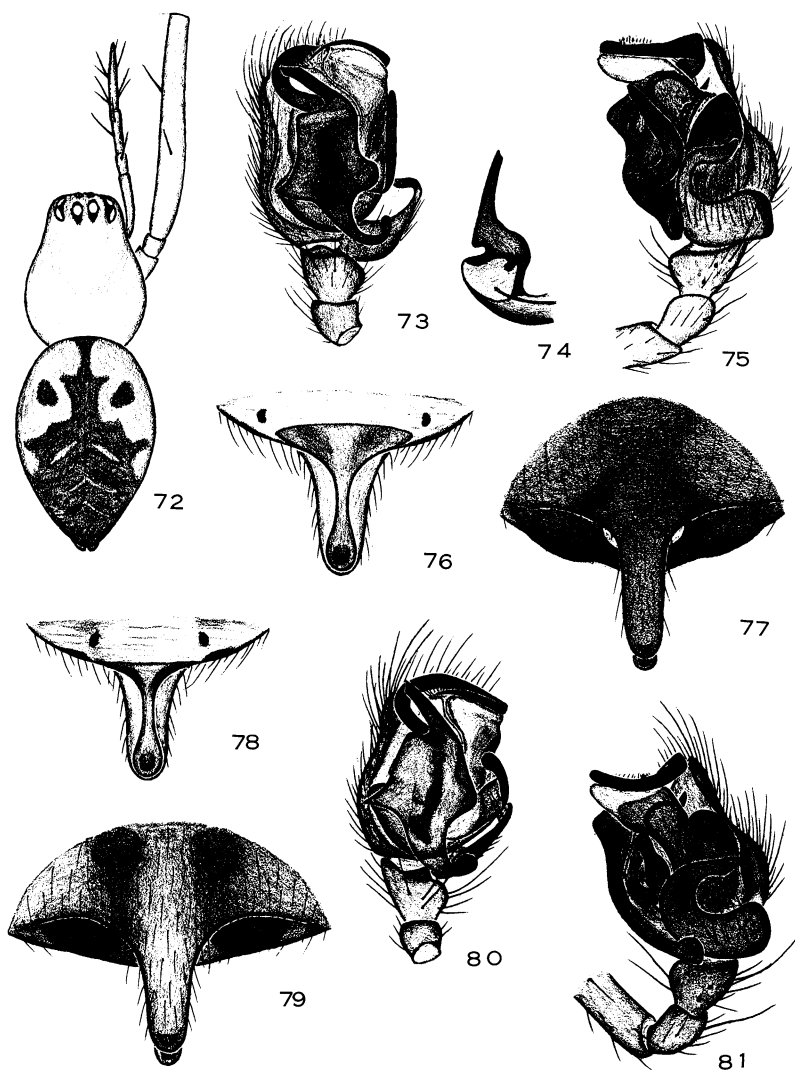
DESCRIPTION: Color of carapace, chelicerae, legs, palpi, and endites amber brown, edges shaded with dusky gray; chelicerae more reddish. Sternum and labium dusky brown. Abdomen dark gray, with varying amounts of pale gray above anteriorly. Spinnerets amber brown.

Carapace typical; clypeus relatively low, about 1.7 diameters of anterior lateral eye. Anterior median eyes about half of diameter of other eyes, which are subequal. Anterior eye-row slightly recurved; median eyes 0.7 of a diameter apart, two diameters from lateral eyes. Posterior eye-row straight or very slightly recurved; median eyes 0.5 of a diameter apart, one diameter from lateral eyes. Chelicerae stout, slightly retracted, flared; each narrowed, and the two widely separated, at distal end; exposed length equal to greatest width of both; fang groove with three large teeth on anterior margin, three small teeth behind. Sternum about as wide as long, anterior corners moderately acute. Legs moderately long and stout. Each femur with small spine basad of middle; femur I also with two small spines on distal half of anterior face. Patella with long distal spine. Each tibia with two dorsal spines and a lateral spine on each side distally. Epigynum with long scape above, which gradually narrows distally; parma extending to tip of scape, slender in middle portion, spatulate distally (figs. 76, 77). Male similar to female in size, color, and length of legs. Head a little longer and narrower in front. Chelicerae more retracted and more flared distally, but fang groove not conspicuously different from that of female. Palpus moderately large; details shown in figures 73 and 75.

MEASUREMENTS: Length of male holotype, 2.75 mm.; carapace, 1.35 mm. long, 1.10 mm. wide; tibia-patella I, 2.10 mm., IV, 1.7 mm. Length of female allotype, 3.2 mm.; carapace, 1.3 mm. long, 1.0 mm. wide; tibia-patella I, 1.9 mm., IV, 1.8 mm.

TYPE DATA: Male, holotype, and female, allotype, from Oakland, California, October 17, 1953 (V. Roth and R. O. Schuster), in the American Museum of Natural History.

LOCALITY RECORDS: *California*: San Geronimo, September 19, 1963 (Jean and Wilton Ivie), two females. Berkeley Hills, September 27, 1953 (V. Roth), one female. Two miles north of Bolinas, September 27, 1963 (J. and W. Ivie), one male. Muir Woods, Marin County, February 2, 1953 (R. Wagner), one female. Between Mill Valley and Muir Woods, January 10, 1964 (V. Roth), one male, three females. Empire Cave, Santa Cruz County; August 7, 1962 (R. Graham), one male, three females. Taylor State Park, October 24, 1953 (V. Roth), one female. Inverness, November 8, 1953 (V. Roth), one female. South of Woodacre, November 1, 1953 (V. Roth), one female. Five miles east of Anchor



FIGS. 72-77. *Bathyphantes (Bathyphantes) alameda*, new species. 72. Female, dorsal view. 73. Left palp, ventral view. 74. Median apophysis. 75. Left palp, ectal view. 76. Epigynum, dorsal view. 77. Epigynum, ventral view.

FIGS. 78-81. *Bathyphantes (Bathyphantes) orica*, new species. 78. Epigynum, dorsal view. 79. Epigynum, ventral view. 80. Left palp, ventral view. 81. Left palp, ectal view.

Bay, September 12, 1961 (W. J. Gertsch and W. Ivie), one female. Mendocino, January 1, 1958 (J. R. Helfer), one male; July 25, 1954, one female. Mystery Spot, March 27, 1954 (J. R. Helfer), one female. *Oregon*: Comstock, August 1, 1955 (V. Roth), one male. *British Columbia*: Union Island, Kyoquot, April 11, 1959 (S. L. Neave), one male.

The name is a noun in apposition.

Bathyphantes (*Bathyphantes*) orica, new species

Figures 78–81

DIAGNOSIS: Related to *alameda*, *diasosnemis*, and *alascensis*, being very close to *alameda*, from which it differs in following details: eye-rows straight rather than slightly recurved; tibia I with two spines on prolateral face; epigynum with atrial openings concealed from ventral view; openings of fertilization ducts closer together, and atrial plate longitudinally wider as seen in dorsal view (fig. 78). Palpus with embolus less thickened near tip of cymbium; ventral extension of lamella shorter and thicker; radix shorter and more distorted.

DESCRIPTION: Color of carapace and appendages yellowish amber; chelicerae more reddish; endites shaded at base; organs of male palpus darker. Sternum and labium dusky gray over yellowish amber. Abdomen dark gray, with pale gray patches on front half of dorsum. Spinnerets yellowish brown.

Structure of carapace essentially typical; height of clypeus 1.8 diameters of anterior lateral eye; eye area occupying more than four-fifths of width of head; eyes prominent, anterior medians much smaller than others. Anterior eye-row straight or very slightly recurved; median eyes a radius apart, 1.5 diameters from lateral eyes. Posterior eye-row straight; median eyes a radius apart, nearly a diameter from lateral eyes. Chelicerae long, slightly retracted, and spreading apart distally; fang groove with three large teeth on anterior margin, three small teeth on posterior margin; chelicerae of male very similar to those of female, without special modification. Legs moderately long and stout. Each femur with one spine above, proximad of middle; femur I with one spine (rarely two or three) on prolateral face, distad of middle. Patella with one spine above, at distal end. Tibiae with two spines above and a lateral spine on each side distally; tibia I in many cases with a second spine on prolateral side (see discussion). Sternum as wide as long. Epigynum with moderately long, tapering scape; parma reaching to tip of scape, slender in middle portion, spatulate at distal end. Palpus of male moderately large (see figs. 80, 81).

MEASUREMENTS: Length of male holotype, 2.6 mm.; carapace, 1.3 mm. long, 1.0 mm. wide; tibia-patella I, 2.0 mm., IV, 1.65 mm. Length of

female allotype, 2.5 mm.; carapace, 1.3 mm. long, 1.0 mm. wide; tibia-patella I, 2.0 mm., IV, 1.65 mm.

DISCUSSION: The specimens from California almost invariably have two spines on the prolateral face of tibia I, whereas those from north of California have only one. These two groups may represent different geographical races or possibly subspecies.

TYPE DATA: Male, holotype, female, allotype, and male paratype from Orick, Humboldt County, California, September 16, 1961 (W. J. Gertsch and W. Ivie), in the American Museum of Natural History.

DISTRIBUTION: Pacific coast area from latitude of San Francisco to southern British Columbia.

LOCALITY RECORDS: *California*: Berkeley Hills, July 27, 1953 (V. Roth), one male. Mendocino, August 4, 1957 (J. R. Helfer), one female. Little River, Mendocino County, June 7, 1955, one male, August 12, 1957, one female (J. R. Helfer). Four miles south of Rockport, August 19, 1959 (W. J. Gertsch and V. Roth), one female. Five miles east of Carlotta, August 20, 1959 (W. J. Gertsch and V. Roth). Patrick Point State Park, September 21, 1964 (J. and W. Ivie), two females. Orick (type specimens). *Oregon*: Charleston, August 28, 1947; September 9, 1947; Coos Head, September 12, 1947 (I. Newell), three females. Cascadia, September 5, 1948 (V. Roth), one female. Eight miles north of Corvallis, November 22, 1949 (V. Roth), one female. *Washington*: Olympia, January 17, 1933 (H. Exline), one female. Rosario Beach, Whidbey Island, August 19, 1955 (V. Roth), one female. Sequim, August 27, 1959 (W. J. Gertsch and V. Roth), one male. Friday Harbor, August 15, 1934 (H. Exline), one female. *British Columbia*: Wellington, Vancouver Island, October 5, 1949, male and female; September 1-15, 1951, one female; September, 1953, one female; (all collected by R. Guppy).

The name is a noun in apposition.

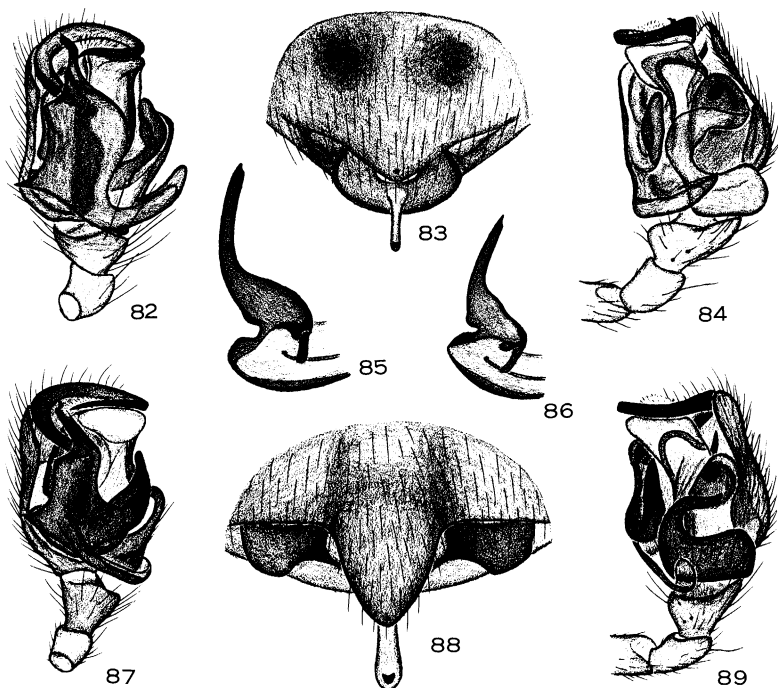
Bathypantes (Bathypantes) diasosnemis Fage

Figures 86-90

Bathypantes diasosnemis FAGE, 1929, pp. 181-184, figs. 1-3. WOLF, 1936, p. 578; 1937, p. 505.

Bathypantes hubbsi CHAMBERLIN AND IVIE, 1943, p. 22, fig. 43.

DIAGNOSIS: Moderately large species, closely related to *alascensis*, from which it differs in form of lamella of palpus and epigynum; also by having only one spine on anterior face of tibia I instead of three. Carapace low and broad, unmarked; legs long and slender, tibia-patella I being fully as long as whole spider; abdomen with gray patch above but no color bands.



FIGS. 82-85. *Bathyphantes (Bathyphantes) alascensis* (Banks). 82. Left palp, ventral view. 83. Epigynum, ventral view. 84. Left palp, ectal view. 85. Median apophysis.

FIGS. 86-89. *Bathyphantes (Bathyphantes) diasosnemis* Fage. 86. Median apophysis. 87. Left palp, ventral view. 88. Epigynum, ventral view. 89. Left palp, ectal view.

DESCRIPTION: Color of cephalothorax and appendages yellowish, with chelicerae darker and more reddish, with sternum more or less shaded with dusky. Abdomen pale gray, with darker gray markings on dorsum consisting of a narrow median streak on anterior half and a wide median patch on posterior half exhibiting a herringbone pattern; venter shaded with dark gray. Spinnerets yellowish.

Carapace low and broad; height of clypeus two diameters of anterior lateral eye. Eye-rows straight; small anterior median eyes a radius apart, two diameters from lateral eyes; posterior median eyes 0.6 of a diameter apart, 1.1 diameters from lateral eyes. Chelicerae retracted; long, slender, and divergent distally; fang groove with three large, sharp teeth on front margin, two small teeth on hind margin. Chelicerae of male similar to those of female. Legs unusually long; spine arrangement on leg I typical.

Abdomen high and arched above. Epigynum with wide, obtusely pointed scape; parma slender and extending well beyond end of scape (fig. 88). Lamella of male palpus with a very long posterio-ectal extension, curved and spatulate at tip (figs. 87, 89).

MEASUREMENTS: Length of male, 2.5 mm.; carapace, 1.2 mm. long, 1.1 mm. wide; tibia-patella I, 2.55 mm., IV, 2.0 mm. Length of female, 2.5 mm.; carapace, 1.25 mm. long, 1.1 mm. wide; tibia-patella I, 2.6 mm., IV, 2.1 mm.

TYPE DATA: Of *B. diasosnemis*, one male, one female, and immatures from Oregon Cave, about 1928 (F. Silvestri), presumably in Muséum National d'Histoire Naturelle, Paris. Of *B. hubbsi*, female, holotype, from Subway Cave, near Hat Creek, California, August 18, 1934 (Carl Hubbs), in University of Utah collection.

DISTRIBUTION: Southern Oregon and northern California, inside and outside of caves.

LOCALITY RECORDS: *Oregon*: Oregon caves (types); June 30, 1951 (D. C. Lowrie), one male and one female, deep in cave. August 11, 1959, one female. *California*: Mendocino, January 20, 1955 (J. Helfer), one female. One mile southeast of Casper, September 3, 1961 (W. J. Gertsch and W. Ivie), one male. McCloud, Siskiyou County, September 2, 1959 (W. J. Gertsch and V. Roth), one female. Subway Cave, June 9, 1961 (W. J. Gertsch, R. Graham, and W. Ivie), three males and 13 females; September, 1965 (J. and W. Ivie), males and females.

***Bathyphantes (Bathyphantes) alascensis* (Banks), new combination**

Figures 82–85, 90

Lepthyphantes alascensis BANKS, 1900, p. 481, fig. 6. 1910, p. 34. ROEWER, 1942, p. 560.

Lepthyphantes alascensis: BONNET, 1957, p. 2409.

DIAGNOSIS: Closely related to *diasosnemis*, from which it is readily separated by form of lamella of palpus and epigynum; also by having three spines on prolateral face of tibia I instead of only one. Abdomen not banded above; legs long and unmarked; median eyes widely separated from laterals.

DESCRIPTION: Color of carapace and appendages light yellowish to light brown, without markings, legs in some cases broadly darkened between joints. Abdomen dark gray above, without cross bands, pale gray on sides, medium gray on venter. Spinnerets yellowish.

Carapace low, broadened at thorax, head much narrower, eye area occupying about seven-eighths of width of head. Eye-rows nearly straight, posterior row in many cases slightly recurved. Small anterior median

eyes about a radius apart, 1.5 to two diameters from lateral eyes. Posterior median eyes about radius apart, one to 1.5 diameters from lateral eyes. Chelicerae moderately long and slender, exposed length equal to combined width at base; flared distally and moderately retracted, similar in both sexes. Fang groove simple, with four or five long teeth on front margin, four to six denticles on hind margin. Legs moderately long and slender; tibiae I and II with three spines on each lateral face. Epigynum with wide, short scape; parma very slender, rising from wide, thick, atrial plate and bending downward or even forward (fig. 83). Palpus with typical coiled embolus; lamella distinctive, with long postero-ectal extension capped at tip with membranous fold (figs. 82, 84). Abdomen moderately short and highly arched.

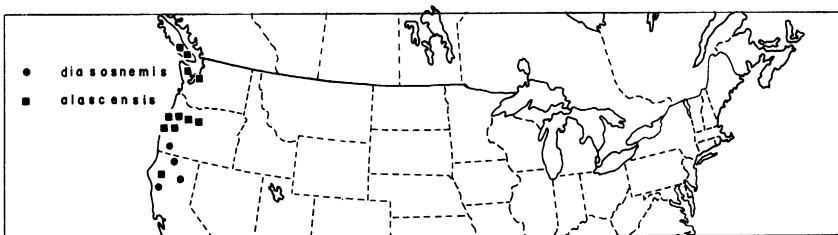


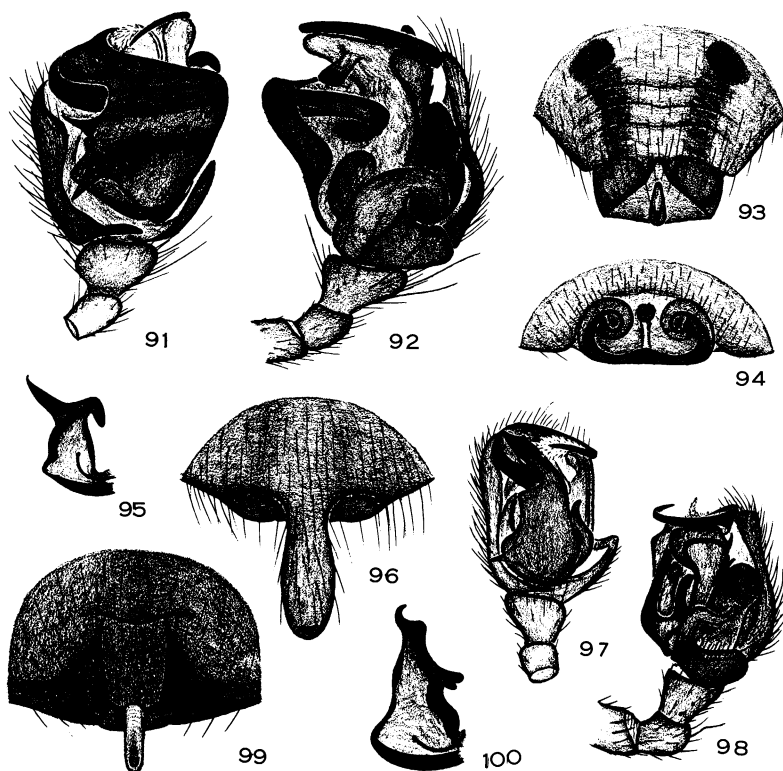
FIG. 90. Distribution of *Bathyphantes* (*Bathyphantes*) *diasosnemis* (Fage) and *alascensis* (Banks).

MEASUREMENTS: Of selected specimens: length of male, 2.7 mm.; carapace, 1.37 mm. long, 1.05 mm. wide; tibia-patella I, 2.55 mm., IV, 2.0 mm. Length of female, 3.2 mm.; carapace, 1.45 mm. long, 1.10 mm. wide; tibia-patella I, 2.55 mm., IV, 2.0 mm.

TYPE DATA: Female, holotype, from Yakutat, Alaska; June 18–23, 1899 (Trevor Kincaid), in United States National Museum.

DISTRIBUTION: Pacific coast area from Alaska to northern California.

LOCALITY RECORDS: *Alaska:* Yakutat (type). Southeast of Wrangell, September 15, 1951 (Borys Malkin), one male and two females. *British Columbia:* Kyuquot, July 5, 1956, one male. Tofino, May–June, 1950 (R. Guppy), one female. Wellington, Vancouver Island, winter of 1950–1951 (R. Guppy), one male. *Washington:* Maloney's Grove, May 10, 1931 (Harriet Exline), one male. Four miles northwest of Monroe, August 27, 1959 (W. J. Gertsch and V. Roth), one male and three females. Lake Sutherland, Olympic Peninsula, August 11, 1927 (C. R. Crosby), one male. *Oregon:* Nelscott, April 10, 1949 (V. Roth), two males and two females. Charleston, August 17, 1947, two males, and September 9, 1947, one female.



FIGS. 91-95. *Bathyphantes* (*Weyerphantes*) *weyeri* (Emerton). 91. Left palpus, ventral view. 92. Left palpus, ectal view. 93. Epigynum, ventral view. 94. Epigynum, posterior view. 95. Median apophysis.

FIGS. 96-98. *Bathyphantes* (*Bathyphantes*) *crosbyi* (Emerton). 96. Epigynum, ventral view. 97. Left palpus, ventral view. 98. Left palpus, ectal view.

FIGS. 99, 100. *Bathyphantes* (*Bathyphantes*) *nigrinus* (Westring). 99. Epigynum, ventral view. 100. Median apophysis.

(I. Newell); May 27, 1952, one female; July, 1950, one male; July 25, 1950 (in cave), one male and one female; (all collected by V. Roth). Reedsport, September 30, 1959 (V. Roth), one male. Glenada, September 14, 1941 (Borys Malkin), one female. Bogus Creek east of Glide, July 23, 1962 (V. Roth), two males and one female. Nine miles west of Philomath, September 1, 1949 (V. Roth), two males. Comstock, January 7, 1950 (V. Roth), one male. Cascadia, September 5, 1948, one male and one female. East of Cascadia, July 23, 1949 (V. Roth), four males and four females. Skyline Trail, Three Sisters area, August 31,

1941 (Borys Malkin), one female. *California*: Hall City Cave, Trinity County, August 25, 1962 (Richard Graham), two males and five females.

Bathyphantes (Bathyphantes) nigrinus (Westring)

Figures 99, 100

Linyphia nigrina WESTRING, 1851, p. 38.

Linyphia pulla BLACKWALL, 1853, p. 19.

Bathyphantes nigrinus: SIMON, 1884, p. 339. LOCKET AND MILLIDGE, 1953, p. 368, figs. 219C, 221B. WIEHLE, 1956, pp. 256-261, figs. 426-431.

Diplostyla nigrina: BONNET, 1956, p. 1493.

DISCUSSION: This species is common in Europe but is not known from North America. American references to *Diplostyla nigrina* and *Bathyphantes nigrinus* refer to *B. pallidus* (Banks), not to this species. See discussion under *Bathyphantes pallidus*.

WEYERPHANTES, NEW SUBGENUS

TYPE SPECIES: *Bathyphantes (Weyerphantes) weyeri* (Emerton).

DIAGNOSIS: Close to subgenus *Bathyphantes* but with significant differences in palpus and epigynum. Cymbium of palpus much excised distally; lamella very large and enveloping ventral aspect of palpus; paracymbium without large setae. Epigynum with outer walls of atrium much developed; scape absent; parma slender and bent dorsoventrally. Structure partially adapted for living in caves.

Only one species is placed in this subgenus.

Bathyphantes (Weyerphantes) weyeri (Emerton)

Figures 91-95, 101

Linyphia weyeri EMERTON, 1875, p. 279, figs. 7-12. PETRUNKEVITCH, 1911, p. 255.

Bathyphantes weyeri: BERLAND, 1931, p. 385. BONNET, 1955, p. 870. LEVI, LEVI, AND KASPER, 1958, p. 45.

DIAGNOSIS: Color pale, abdomen gray, without distinctive pattern. Legs a little longer than usual for genus; eyes small, but distinct. Palpus and epigynum very distinctive, as shown in figures.

DESCRIPTION: Color of carapace pale to medium brown, in some cases with very faint pattern; eyes narrowly surrounded with black. Chelicerae and endites brownish, faded distally. Sternum and labium light yellowish brown, more or less shaded with gray. Legs and palpi pale yellowish. Abdomen gray, varying from nearly white to dark gray in different specimens, without pattern. Spinnerets pale yellowish.

Carapace typical in outline. Height of clypeus about three diameters

of an anterior lateral eye. Eyes smaller than usual, but fully pigmented. Anterior eye-row very slightly recurved, median eyes 0.6 of a diameter apart, 1.1 diameters from lateral eyes. Lateral eyes of each side contiguous. Chelicerae similar in both sexes, a little weaker than usual, flared and separated at tips; anterior margin of fang groove with four long teeth, hind margin with two or three widely separated denticles. Legs longer and more slender than usual; spines small and pale. Femora with one dorsal spine on basal half as usual; femur I with two spines

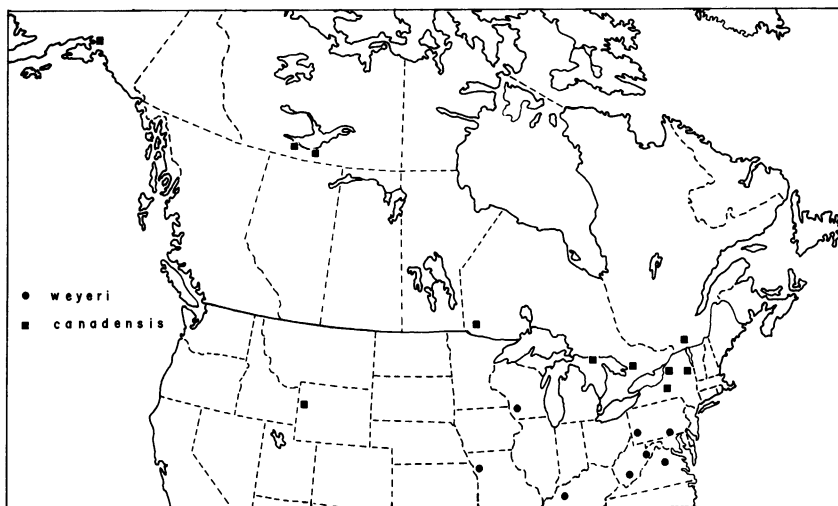


FIG. 101. Distribution of *Bathypantes* (*Weyerphantes*) *weyeri* (Emerton) and *canadensis* (Emerton).

on anterior face of distal half. Patella with long spine above. Tibiae with usual two spines above, two lateral spines distally on tibia I, one spine on retrolateral side of tibia II, tibiae III and IV without lateral spines; tibiae I and II with two or three spines on ventral side, dispersal appearing to vary with different specimens.

Male palpus relatively large; cymbium much excised; lamella wide, closely enveloping much of ventral and distal parts of palpus (figs. 91, 92). Epigynum lacking a scape; parmula a slender, curved ligula which is contained in posterior part of opening (figs. 93 and 94).

MEASUREMENTS: Of selected specimens: length of female, 2.55 mm.; carapace, 1.0 mm. long, 0.85 mm. wide; tibia-patella I, 1.7 mm., IV, 1.5 mm. Length of male, 2.35 mm.; carapace, 1.1 mm. long, 0.9 mm. wide; tibia-patella I, 1.75 mm., IV, 1.6 mm.

TYPE DATA: Male and female cotypes from Weyer Cave, Virginia (A. S. Packard), in darkness, but not far from entrance.

LOCALITY RECORDS: *Pennsylvania*: Refton Cave, south of Lancaster, March 18, 1936 (John W. Price), five males, three females; January 20, 1936, one male, two females. *Virginia*: Weyer Cave (types). *West Virginia*: Kenny Simons Cave, Pendleton County, April 8, 1962 (John R. Holsinger), one male, one female; August 30, 1958 (T. C. Barr), three females. Organ Cave, west of Organ, March 24, 1961 (Lyle G. Conrad), one female, two immature. McClung Cave, March 23, 1961 (Lyle G. Conrad), immature male. *Kentucky*: Hoy Cave, 2 miles north of Franklin, March 2, 1957 (L. Hubricht), one female. Bypass Cave, Warren County, June 16, 1957 (T. C. Barr), immature male. Brushy Knoll Cave, 2 miles west of Cave City, May 4, 1957 (T. A. Barr), one female. *Arkansas*: Cockscrew Cave, Washington County, November 12, 1938; one female. *Wisconsin*: Eagle Cave, Richland County, December 3, 1954 (J. Kaspar), one male, in Museum of Comparative Zoology.

MAGNIPHANTES, NEW SUBGENUS

TYPE SPECIES: *Bathyphantes* (*Magniphantes*) *approximatus* (O. Pickard-Cambridge).

DIAGNOSIS: Similar to subgenus *Bathyphantes* in general features, but with distinctive genitalia. Palpus with a very long spiral embolus (fig. 102). Epigynum with a large atrial opening; scape absent; parma very short and wide (fig. 104).

In addition to the type species, *Bathyphantes magnificus* Chamberlin and Ivie is tentatively included in this subgenus pending the discovery and diagnosis of the male.

Bathyphantes (*Magniphantes*) *approximatus* O. Pickard-Cambridge

Figures 102-104

Linyphia approximata O. PICKARD-CAMBRIDGE, 1871, p. 424.

Bathyphantes approximatus: SIMON, 1884, p. 338. WIEHLE, 1956, pp. 266-269, figs. 440-446. LOCKETT AND MILLIDGE, 1953, p. 366, figs. 218D, 221A. MERRETT, 1963, p. 379, figs. 35A-C.

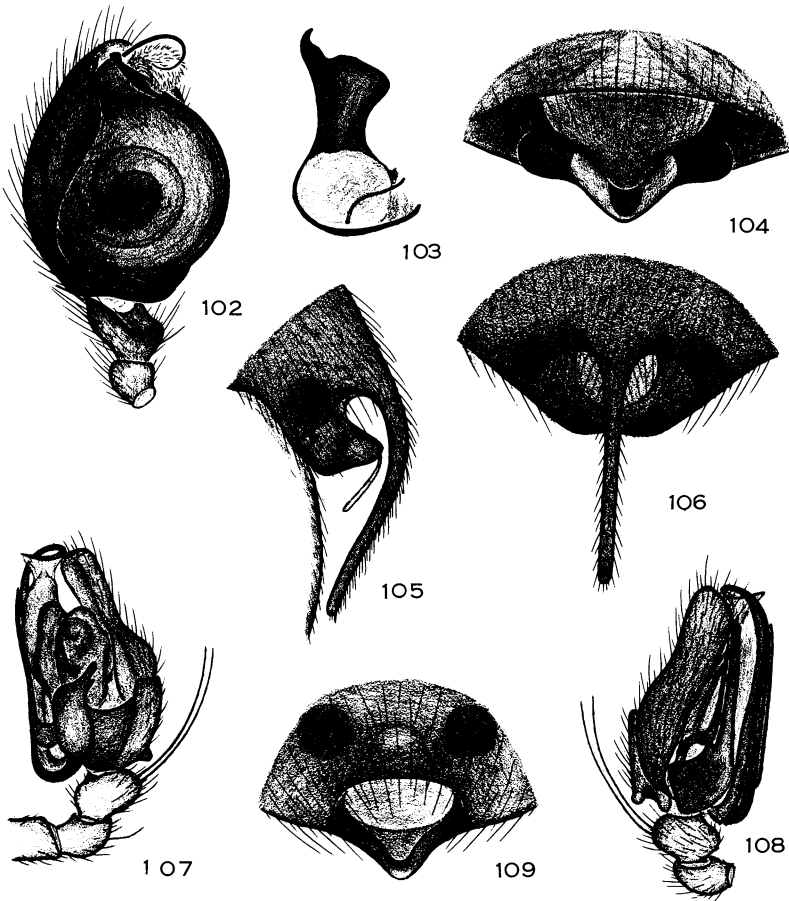
DISCUSSION: This distinctive species is common in Europe but has not been reported from North America.

Bathyphantes (*Magniphantes*) *magnificus* Chamberlin and Ivie

Figures 109, 110

Bathyphantes magnificus CHAMBERLIN AND IVIE, 1943, p. 23, fig. 44.

DIAGNOSIS: Size large; legs with dusky rings; epigynum lacking scape,



FIGS. 102-104. *Bathypantes* (*Magniphantes*) *approximatus* (O. P.-Cambridge). 102. Left palp, mesioventral view. 103. Median apophysis. 104. Epigynum, ventral view.

FIGS. 105-108. *Bathypantes* (*Diplostyla*) *concolor* (Wider). 105. Epigynum, lateral view. 106. Epigynum, ventral view. 107. Left palp, ectal view. 108. Left palp, mesioventral view.

FIG. 109. *Bathypantes* (*Magniphantes*) *magnificus* Chamberlin and Ivie, epigynum, ventral view.

with parmula much reduced. Resembling *approximatus* in general form of epigynum, but distinct from that species in color and structural details.

DESCRIPTION OF FEMALE: Color of cephalothorax and appendages light brown with dusky markings, thus: carapace with edges, radial streaks, and a large wedge-shaped patch on top of head dusky; legs with

dusky rings at distal end of femur, tibia, and metatarsus, shaded or dusky zones at other places, patella dusky; basal part of chelicerae and endites more or less shaded; sternum and labium dusky. Abdomen dark gray, with series of paired pale gray spots, separated anteriorly by dark gray median band but joined posteriorly to form chevrons. Spinnerets brownish.

Carapace low and wide, narrowed anteriorly on head to about half of greatest width of thorax. Anterior median eyes much smaller than others, less than a diameter apart, 1.5 diameters from lateral eyes. Posterior eye-row slightly recurved; median eyes less than a diameter apart, more than a diameter from the lateral eyes. Chelicerae moderately long; fang groove with three large teeth on front margin, none on hind margin. Legs elongate; leg I much longer than leg IV. Epigynum as shown in figure 109.

MEASUREMENTS: Length of female type, 3.6 mm.; carapace, 1.7 mm. long, 1.4 mm. wide; tibia-patella, I, 2.7 mm., IV, 1.7 mm. Some specimens much smaller.

TYPE DATA: Female, holotype, from Lake Cameron, Vancouver Island, British Columbia, September 13, 1935 (R. V. Chamberlin and W. Ivie), in University of Utah collection.

DISTRIBUTION: Pacific northwest from British Columbia to Oregon (see fig. 110).

LOCALITY RECORDS: *British Columbia*: Terrace, 1937 (W. E. Clark), female. Lake Cameron, Vancouver Island (type). *Washington*: Five miles east of McCleary, August 26, 1959 (W. J. Gertsch and V. Roth), female. *Oregon*: Five miles east of Detroit, May 18, 1952 (V. Roth), female.

DISCUSSION: Judged from the female alone, this species is quite distinct from all other North American species. It has certain resemblances to *approximatus* of Europe, hence it is here placed in the new subgenus *Magniphantes*, erected for that species.

CONIPHANTES, NEW SUBGENUS

TYPE SPECIES: *Bathyphantes* (*Coniphantes*) *pullatus* (O. Pickard-Cambridge).

DIAGNOSIS: Small spiders resembling those of subgenus *Bathyphantes* in bodily characters but distinctive in genitalia. Epigynum without scape but with extended parmula. Palpus with large median apophysis; embolus slender but not coiled or looped.

DISCUSSION: In addition to the type species, *B. anceps* and *B. rufulus* are included in this subgenus. *Bathyphantes* (*Coniphantes*) *anceps* is very close to *pullatus*, but *rufulus* shows considerable divergence in the genitalia.

Bathypantes (Coniphantes) pullatus (O. Pickard-Cambridge)

Figures 116-121

Linyphia pullata O. PICKARD-CAMBRIDGE, 1863, p. 8580.*Bathypantes pullatus*: SIMON, 1884, p. 341. LEVI AND LEVI, 1951, p. 33; 1955, p. 220 (sp. close to *pullatus*). HOLM, 1945, p. 8. 1950, p. 53. LOCKETT AND MILLIDGE, 1953, p. 366. LOWRIE AND GERTSCH, 1955, p. 5.*Tmeticus conicus* EMERTON, 1914, p. 263.*Bathypantes conicus*: CROSBY AND BISHOP, 1928, p. 1043. KASTON, 1948, p. 132.*Stylophora pullatus*: SIMON, 1929, pp. 640, 746.*Diplostyla pullata*: BONNET, 1956, p. 1496.*Kaestmeria pullata*: MERRETT, 1963, p. 368, figs. 22A-D.

DIAGNOSIS: Small species (length, 2.0 mm.); legs unmarked; carapace dusky and abdomen dark gray, with light gray pattern on dorsum (in full-colored specimens). Epigynum without a ventral scape, but with a prolonged parma. Palpus with a slender, twisted embolus. Close to *anceps* and *rufulus*, from which readily distinguishable by color.

DESCRIPTION: Color of carapace dusky brown, more or less faded centrally and posteriorly. Mouth parts and sternum dusky brown. Legs amber yellow, unmarked. Abdomen light gray above, marked with pattern shown in figure 117; sides dark gray; venter varying from black to pale gray. Spinnerets dusky brown. Many light specimens lacking dusky markings on carapace and abdomen; dark specimens in some cases with carapace blackish and abdomen nearly black, especially in males.

Carapace of female pear-shaped, wide behind, narrow in front; eye area occupying nearly full width of head. Height of clypeus two diameters of anterior lateral eye. Eyes typical. Posterior eye-row straight or slightly procurved; median eyes 0.8 of a diameter apart, 0.9 of a diameter from lateral eyes. Anterior eye-row straight; small median eyes 0.6 of a diameter apart, one diameter from lateral eyes. Chelicerae vertical; fang groove with three teeth in front, three denticles behind. Legs slender.

MEASUREMENTS: Of selected specimens: length of female, 2.1 mm.; carapace, 0.95 mm. long, 0.72 mm. wide; tibia-patella I, 1.2 mm., IV, 0.95 mm. Length of male, 1.9 mm.; carapace, 1.0 mm. long, 0.8 mm. wide; tibia-patella I, 1.25 mm., IV, 1.0 mm.

TYPE DATA: Of *Linyphia pullata* O. Pickard-Cambridge, male and female cotypes, from Bloxworth, England, May, 1962 (O. Pickard-Cambridge), presumably in British Museum (Natural History). Of *Tmeticus conicus* Emerton, male, holotype, from Ithaca, New York, December, 1911 (C. R. Crosby), presumably in the Museum of Comparative Zoology.

DISTRIBUTION: Europe, Siberia, and North America at temperate and northerly latitudes (see fig. 121).

LOCALITY RECORDS: For North America: *Quebec*: St. Joseph d'Alma, July 30, 1934 (C. R. Crosby and H. M. Zorsch), one female. *Ontario*: Lake Opeongo, Algonquin Park, June 26 to July 7, 1945 (W. Ivie and T. Kurata), four males and four females. Island 1024, Lake Temagami,

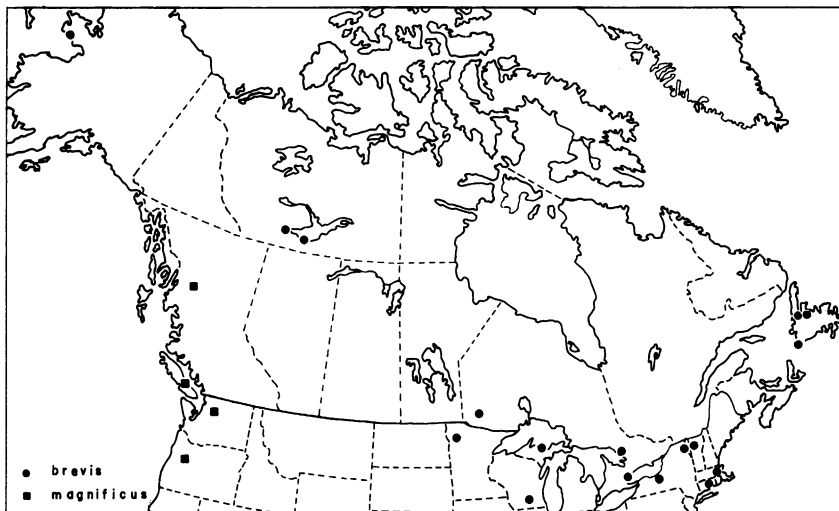


FIG. 110. Distribution of *Bathyphantes* (*Bathyphantes*) *brevis* (Emerton) and *Bathyphantes* (*Magniphantes*) *magnificus* Chamberlin and Ivie.

August 15–25, 1946, one male, four females; Manitoulin Island, Lake Huron, July 24, 1948, males and females (W. J. Gertsch, W. Ivie, and T. Kurata). Pancake Bay near Batchewana, July 23, 1965 (J. and W. Ivie), one female. English River settlement, July 24, 1965, one male, three females; 2 miles north of Dryden, July 25, 1965, one female; (J. and W. Ivie). *Alberta*: Gainford, August 21, 1965 (J. and W. Ivie), two males, four females. *MacKenzie District, Northwest Territories*: Hay River (town), August 8, 1965, three males, 20 females; Lady Evelyn Falls, August 10, 1965, one female; 5 miles southeast of Fort Providence, August 15, 1965, one female; Stagg River Camp, 12 miles southeast of Rae, August 12, 1965, two males, two females; (all collected by J. and W. Ivie). *New York*: Tully, September 25, 1900 (H. W. Britcher), one male, one female. Mud Pond, Wayne County, May 17, 1931 (C. R. Crosby), one male. Ithaca, December, 1911 (C. R. Crosby), male, holotype of *Tmetiscus conicus*. *Utah*: Cobble Rest Camp, Uinta Mountains,

August 20, 1942 (W. Ivie), four males, four females. Salt Lake City: July 30, 1947 (W. Ivie), one female. *Wyoming*: Moran, July 3, 1950 (D. C. Lowrie), two males, three females. *Washington*: Cedar Lake, Stevens County, September 30, 1964 (J. and W. Ivie), two males and two females. Blakely Island, Puget Sound, July 1, 1927 (Worley), one male, one female. Canyon Park, June 8, 1942 (H. Exline), one female. *Oregon*: Corvallis, April 24, 1949 (H. Mitchell), one female. Charleston, September 3, 1947 (I. Newell), one male, eight females; June 17, 1952 (Borys Malkin), one male, two females; May 27, 1952 (V. Roth), four females.

Bathyphantes (Coniphantes) anceps Kulczynski

Figure 121

Bathyphantes anceps KULCZYNSKI, 1885, pp. 9, 33; 1926, p. 33 (synonym of *pullatus*). SIMON, 1894, p. 687. STRAND, 1906, p. 451. ROEWER, 1942, p. 569.

Erigone schumaginensis KEYSERLING, 1886, p. 182, pl. 17, fig. 241. New synonym.

Bathyphantes kuratai CHAMBERLIN AND IVIE, 1947, p. 54, figs. 70, 71. New synonym.

Bathyphantes pullatus (part): KULCZYNSKI, 1926, p. 33. HOLM, 1950, p. 134 (= *kuratai*). LEVI AND LEVI, 1951, p. 220. HACKMAN, 1954, p. 5.

Diplostyla pullata (part): BONNET, 1956, p. 1496.

DIAGNOSIS: Similar to *B. pullatus* in size and structure; no obvious differences in male and female genitalia; easily distinguishable by color. Abdomen completely dense black. Cephalothorax and appendages bright orange; eyes ringed with black; mouth parts, sternum, and distal segments of legs shaded with dusky; male palpus beyond tibia dark dusky brown.

TYPE DATA: Of *Bathyphantes anceps*, male and female cotypes from Kamchatka (B. Dybowski). Of *Erigone schumaginensis*, male, holotype, from Schumagin Island, Alaska, in United States National Museum. Of *B. kuratai*, male, holotype, from Matanuska, Alaska, May 12, 1945 (Allan Linn) and female, allotype, from same locality, July 5-12, 1945 (J. C. Chamberlin), in University of Utah Collection.

LOCALITY RECORDS: *Alaska*: Homer, July 24, 1945 (J. C. Chamberlin), one male, two females. Gulkana River, near Paxson; June to August, 1955 (George Schumann), one female. Mouth of Sadie Creek, Baldwin Peninsula; July 2, 1956 (W. C. Pruitt), one female, in Museum of Comparative Zoology. *Northwest Territories*: Reindeer Station; July 7-12, 1948 (J. R. Vockeroth), one male. *Colorado*: Gothic, Elk Mountains, 9500 feet in elevation; July, 1957 (H. Levi), one female, in Museum of Comparative Zoology.

Bathyphantes (Coniphantes) rufulus Hackman

Figures 112–114, 121

Bathyphantes rufulus HACKMAN, 1954, pp. 12, 13, 15, 55, figs. 6–13.

DIAGNOSIS: Small, plain species, without distinct color markings; legs moderately short. Palpus with embolus slender, nearly straight, not coiled. Epigynum lacking scape; parma short and slender. Related to *anceps* and *pullatus* but distinct from those species in color and structure of genitalia.

DESCRIPTION: Cephalothorax and appendages light orange; front of head darker; eyes on black spots. Abdomen pale gray, in some cases darker, without dorsal pattern. Spinnerets light brown.

Structure typical, with legs somewhat shorter and weaker than usual; leg IV nearly as long as leg I. Eye-rows straight or nearly so; eye relationships typical. Spination of legs typical. Chelicerae simple, similar in both sexes, not flared distally; fang groove of male not excavated, three teeth in front, three denticles behind. Palpus with large lamella, embolus not coiled (figs. 112, 113). Epigynum lacking scape; parma short and slender, arising from a large, exposed, atrial plate (fig. 114).

MEASUREMENTS: Length of male, 1.9 mm.; carapace, 1.0 mm. long, 0.75 mm. wide; tibia-patella I, 1.12 mm., IV, 0.98 mm. Length of female, 2.0 mm.; carapace, 0.95 mm. long, 0.75 mm. wide; tibia-patella I, 1.1 mm., IV, 1.0 mm.

TYPE DATA: Female, holotype, from Pushthrough, Newfoundland (longitude 56° 10' W., latitude 47° 38' N.) June 24, 1949 (E. Palmén); male, allotype, from Eddies Cove West, Newfoundland (longitude 57° 9' W., latitude 50° 45' N.), July 30, 1949 (E. Palmén); deposited in Canadian National Collection, Ottawa.

DISTRIBUTION: Eastern Canada and northeastern United States.

LOCALITY RECORDS: *Newfoundland*: Lomond, July 15, 1949 (E. Palmén), one male and two females. Springdale, June 20, 1951 (C. Lindroth), two females. *Labrador*: Goose Bay, June 9, 1948 (H. Friesen), two females. *New York*: Lake Sebago, near Suffern, July 1, 1934 (W. J. Gertsch), one male. *New Jersey*: Lambertville, May 16, 1953 (W. Ivie), one female. *Pennsylvania*: Neshaminy Creek, east of Jamison, August, 1957 (W. Ivie), one female.

SUBGENUS *DIPLOSTYLA* EMERTON

TYPE SPECIES: *Bathyphantes (Diplostyla) concolor* (Wider).

DIAGNOSIS: Structure essentially typical, except genitalia. Organs of palpus elongated, embolus extending full length of cymbium. Epigynum

with very long, slender scape, with shorter parmula.

DISCUSSION: In 1882, Emerton erected the new genus *Diplostyla*, with *concolor* as the type species, to supplant *Stylophora* Menge which was pre-occupied. Of the various species that have been placed in *Diplostyla* by different authors, only *concolor* is here retained, and *Diplostyla* is regarded as a subgenus of *Bathypantes*.

Bathypantes (Diplostyla) concolor (Wider)

Figures 105-108, 111

Linyphia concolor WIDER, 1834, p. 267. WALCKENAER, 1842, p. 270. KEYSERLING, 1886, pp. 53, 54, 81. MARX, 1890, pp. 527, 529. EMERTON, 1902, p. 147 (*Diplostyla*).

Theridion fillipes BLACKWALL, 1836, p. 484.

Stylophora concolor: MENGE, 1866, p. 128. KASTON, 1938, p. 187. ROEWER, 1942, p. 597. WIEHLE, 1956, p. 263.

Diplostyla concolor: EMERTON, 1882, p. 66; 1894, p. 410; 1919, p. 167. BANKS, 1892, p. 44. STRAND, 1906, p. 541. BRYANT, 1908, p. 39.

Bathypantes concolor: BERTKAU, 1880, p. 320. SIMON, 1884, p. 336. COMSTOCK, 1912, p. 379; 1940, p. 393. BANKS, 1910, p. 54. PETRUNKEVITCH, 1911, p. 217. BARROWS, 1918, p. 305. EMERTON, 1920, p. 319; 1924, p. 124. CROSBY AND BISHOP, 1928, p. 1043. KASTON, 1948, p. 131. LOCKET AND MILLIDGE, 1953, p. 264. HACKMAN, 1954, pp. 5, 38, 40, 43, 53. LEVI AND FIELD, 1954, p. 444.

DIAGNOSIS: Medium size, without color markings; structure essentially typical, except palpus and epigynum, which are unique. Embolus of palpus extending full length of cymbium, coiled in a single loop at tip; lamella with small, flat base and very long distal process. Epigynum with a very long, slender scape and a much shorter, very slender parmula.

DESCRIPTION: Color of carapace light brown, without markings; eyes narrowly ringed with black. Chelicerae and endites brown, lighter at tips. Sternum and labium dusky. Legs and palpi yellowish brown usually darker on femur, without markings. Abdomen gray to blackish, without markings. Spinnerets yellowish brown.

Carapace essentially typical; thorax low, head short and narrowed in front. Clypeus slightly protruding, height about two diameters of anterior lateral eye. Eye area occupying nearly full width of head in front. Anterior median eyes much smaller than others, which are nearly equal. Eye-rows straight or very slightly procurved. Anterior median eyes about 0.6 of a diameter apart, twice as far from lateral eyes. Posterior median eyes about 0.6 of a diameter apart, 0.75 of a diameter from lateral eyes. Chelicerae slightly retracted, moderately slender, attenuated and flared distally; fang groove simple in both sexes, margin with three or four teeth in front, three or four denticles behind. Legs moderately long and slender, slightly longer in male than in female;

hind leg only a little shorter than front leg; spination essentially typical, but spines weak. Epigynum with scape long and slender, of about uniform thickness throughout length; parmula only half as thick as scape and less than half of its length, concealed behind scape in ventral view (figs. 105, 106). Palpus distinctive, elongate; tibia with a pair of very long spines on dorsal side; paracymbium with heavy, modified base, tip not formed into curved hook; lamella with a small base and a long, narrow extension distad; embolus arising near base of cymbium and extending more than full length of cymbium, parallel with its edge; slender tip forming a small loop (figs. 107, 108).

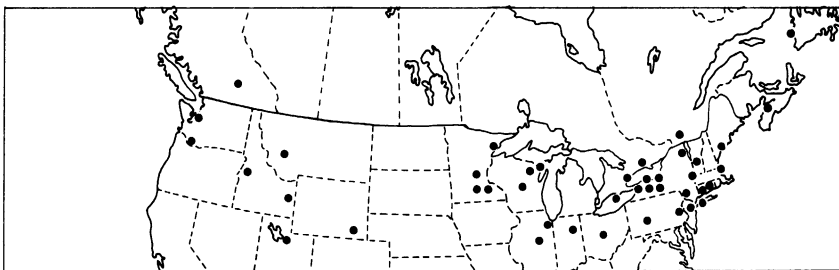
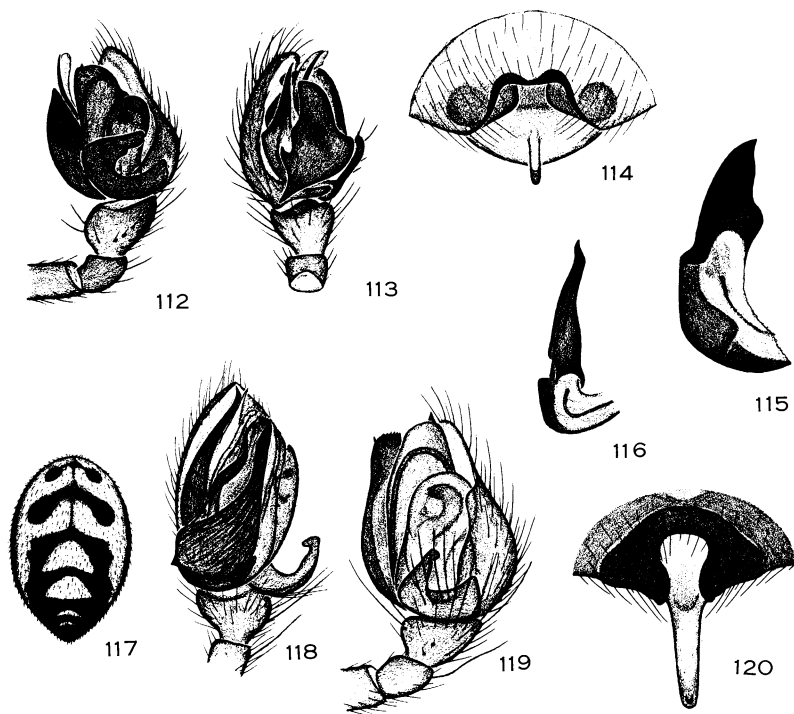


FIG. 111. Distribution of *Bathyphantes* (*Diplostyla*) *concolor* (Wider).

MEASUREMENTS: Length of male, 2.5 mm.; carapace, 1.2 mm. long, 0.85 mm. wide; tibia-patella I, 1.75 mm., IV, 1.65 mm. Length of female, 2.4 mm.; carapace, 1.0 mm. long, 0.8 mm. wide; tibia-patella I, 1.45 mm., IV, 1.35 mm.

DISTRIBUTION: Holarctic, occurring in north temperate latitudes of Europe, Asia, and North America (see fig. 111).

LOCALITY RECORDS: In North America only: *Newfoundland*: Saint Johns; Holyrood; Burgeo; Corner Brook; Saint Fintans; Piccadilly; Spruce Brook; Cooks Brook; all reported by Hackman (1954). *Nova Scotia*: Kentville, May 8, 1956 (C. D. Dondale), four males and three females. *Quebec*: Montreal; reported by Emerton (1882). Gaspé, reported by Emerton (1920). *Ontario*: Moira River, north of Bellville, July 17, 1965 (J. and W. Ivie), one male and four females. Toronto, August 27, 1946 (W. J. Gertsch), four males and seven females, September, 1946 and 1950 (W. Ivie), many males and females. Thistletown, April 20, 1946 (Stanley Harrod), two males and three females. Pelee Island, Lake Erie, June 4-16, 1950 (W. Ivie and T. Kurata), one male and two females. *British Columbia*: Vernon, March 24, 1940 (F. Leech), one male and one female. *Maine*: Portland, reported by Bryant (1908). *Massachusetts*: Brook-



FIGS. 112-114. *Bathyphantes* (*Coniphantes*) *rufulus* Hackman. 112. Left palpus, ectal view. 113. Left palpus, ventral view. 114. Epigynum, ventral view.

FIG. 115. *Bathyphantes* (*Kaestneria*) *dorsalis* (Wider), median apophysis of left palpus.

FIGS. 116-120. *Bathyphantes* (*Coniphantes*) *pullatus* (O. Pickard-Cambridge). 116. Median apophysis. 117. Dorsum of female. 118. Left palpus, ventral view. 119. Left palpus, ectal view. 120. Epigynum, ventral view.

line; Cambridge; Medford; Salem; reported by Emerton (1882). Gloucester; Danvers; Woods Hole; reported by Bryant (1908). *Connecticut*: New Haven, reported by Emerton (1882). South Meriden; Hadlyme; Orange; reported by Kaston (1948). *New York*: Sea Cliff, Long Island, reported by Banks (1895a). Brooklyn; Poughkeepsie; Albany; Coxackie; Rennselaer; Bergen Beach; Kingston; Ithaca; Lake Bluff; all reported by Crosby and Bishop (1928). Manhattan Island, December, 1963 (J. and W. Ivie), one female. *New Jersey*: Ramsey, July, 1944 (W. J. Gertsch), one male and one female. Princeton, 1943 (K. Cooper), two males and one female. *District of Columbia*: Washington, August (G. Marx), reported by Keyserling (1886). *Pennsylvania*: Neshaminy Creek east of Jamison,

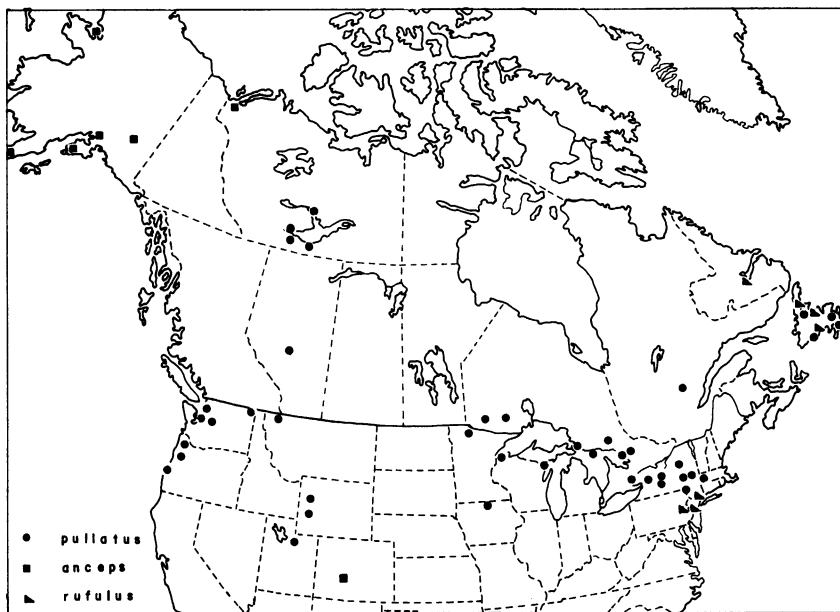


FIG. 121. Distribution of *Bathyphantes* (*Coniphantes*) *pullatus* (O. Pickard-Cambridge), *anceps* Kulczynski, and *rufulus* Hackman.

September, 1953 (W. Ivie), males and females. Johnstown, August 20, 1935 (H. K. Wallace), one male. *Ohio*: Columbus, October 28, 1917 (W. M. Barrows), one male. *Wisconsin*: Oshkosh; Madison; Wauson; Polar; Colby; Perrot State Park; all reported by Levi and Field (1954). *Wyoming*: Laramie, July, 1961 (W. D. Fronk), one female. *Montana*: Helena, October 4, 1964 (J. and W. Ivie), one female. *Utah*: Salt Lake City, February 25, 1928 (W. J. Gertsch), one male and two females; September, 1947 (W. Ivie), males and females. Provo, March 29, 1949, one male. *Washington*: Seattle, April 12, 1945 and May 10, 1947 (M. H. Hatch), two males; August 18, 1944 (H. Exline), six females.

SUBGENUS *KAESTNERIA* WIEHLE

TYPE SPECIES: *Bathyphantes* (*Kaestneria*) *dorsalis* (Wider).

DIAGNOSIS: Essentially typical in bodily features, but with distinctive genitalia. Embolus of palpus very short. Epigynum with a vaulted atrium; without scape; parmula short.

DISCUSSION: Wiehle (1956) erected the genus *Kaestneria* for *Bathyphantes dorsalis* (Wider). *Kaestneria* is here retained as a subgenus of *Bathyphantes*,

with *dorsalis* as the only common species. *Bathypantes leucophthalmus* Fage from India also appears to belong in this subgenus.

Bathypantes (Kaestneria) dorsalis (Wider)

Figure 115

Linyphia dorsalis WIDER, 1834, p. 265.

Bathypantes dorsalis: SIMON, 1884, p. 343. LOCKET AND MILLIDGE, 1953, p. 363, figs. 218A, 220A, 220B.

Stylophora dorsalis: ROEWER, 1942, p. 596.

Diplostyla dorsalis: BONNET, 1956, p. 1491.

Kaestneria dorsalis: WIEHLE, 1956, pp. 272-275, figs. 450-454. MERRETT, 1963, p. 367, figs. 21A, 21B.

DISCUSSION: This distinctive species is common in Europe but is not known from North America.

BIBLIOGRAPHY

BANKS, NATHAN

- 1892. The spider fauna of the upper Cayuga Lake Basin. Proc. Acad. Nat. Sci. Philadelphia, pp. 11-81, pls. 1-5.
- 1895a. A list of spiders of Long Island, with descriptions of new species. Jour. New York Ent. Soc., vol. 3, pp. 76-93.
- 1895b. The Arachnida of Colorado. Ann. New York Acad. Sci., vol. 8, pp. 417-434.
- 1899. Arachnida. In Ashmead, W. E. (ed.), Reports upon the insects, spiders, mites and myriopods collected . . . on the Commander Islands. Rept. of Fur-Seal Investigations, 1896-1897, pt. 4, app. C, pp. 347-350.
- 1900. Arachnida of the expedition, in papers from the Harriman Alaska expedition. Proc. Washington Acad. Sci., vol. 2, pp. 477-486, pl. 29.
- 1910. Catalogue of Nearctic spiders. Bull. U. S. Natl. Mus., no. 72, pp. 1-80.
- 1911. Some Arachnida from North Carolina. Proc. Acad. Nat. Sci. Philadelphia, vol. 63, pp. 440-456, pls. 34-35.

BARROWS, W. M.

- 1918. A list of Ohio spiders. Ohio Jour. Sci., vol. 18, pp. 297-318.

BERLAND, L.

- 1931. Biospeologica. LVI. Campagne spéologique de C. Bolivar et R. Jeannel dans l'Amérique du Nord (1928). 7. Arachnides Aranéides. Arch. Zool. Exp., vol. 71, no. 3, pp. 383-388.

BERTKAU, PH.

- 1880. Verzeichniss der bisher bei Bonn beobachteten Spinnen. Verhandl. Naturhist. Ver. Preussischen Rheinlande und Westfalens, vol. 37, pp. 215-343, pl. 6.

BLACKWALL, J.

- 1836. Characters of some undescribed species of Araneidae. London Phil. Mag. Jour. Sci., vol. 8, pp. 481-491.

1841. The difference in the number of eyes with which spiders are provided. *Trans. Linnean Soc. London*, vol. 18, pp. 601-670.
1852. Descriptions of some newly discovered species of Araneidea. *Ann. Mag. Nat. Hist.*, ser. 2, vol. 10, pp. 93-100.
1853. [Same title.] *Ibid.*, ser. 2, vol. 11, pp. 14-25.
[Same title.] *Ibid.*, ser. 2, vol. 13, pp. 173-180.
- 1861-1864. A history of the spiders of Great Britain and Ireland. London, published for the Ray Society, 2 vol., pt. 1, 1861, pp. 1-174, pls. 1-12; pt. 2, 1864, pp. 175-384, pls. 13-29.
- BONNET, PIERRE
1955. *Bibliographia araneorum*. Toulouse, vol. 2, pt. 1, pp. 1-918.
1956. [Same title.] Toulouse, vol. 2, pt. 2, pp. 919-1925.
- BRYANT, ELIZABETH B.
1908. Fauna of New England. 9. List of the Araneida. *Occas. Papers Boston Soc. Nat. Hist.*, vol. 7, pp. 1-103.
- CHAMBERLIN, RALPH V.
1919. New western spiders. *Ann. Ent. Soc. America*, vol. 12, pp. 239-260, pls. 14-19.
1921. Linyphiidae of St. Paul Island, Alaska. *Jour. New York Ent. Soc.*, vol. 29, pp. 35-43, pls. 3-4.
1925. Diagnoses of new American Arachnida. *Bull. Mus. Comp. Zool.*, vol. 67, pp. 211-248.
- CHAMBERLIN, RALPH V., AND WILTON IVIE
1933. Spiders of the Raft River Mountains of Utah. *Bull. Univ. Utah*, biol. ser., vol. 2, no. 2, pp. 1-79, figs. 1-129.
1943. New genera and species of North American linyphiid spiders. *Ibid.*, biol. ser., vol. 7, no. 6, pp. 1-37, figs. 1-42.
1947. The spiders of Alaska. *Ibid.*, biol. ser., vol. 10, no. 3, pp. 1-103, pls. 1-11.
- CHARITONOW, D. E.
1932. Katalog der russischen Spinnen. *Iejiegod. Zool. Mouz. Akad. Naouk S.S.S.R.*, vol. 32, pp. 1-206.
- CHICKERING, A. M.
1934. Araneae from the Northern Peninsula of Michigan. *Papers Michigan Acad. Sci.*, vol. 19, pp. 577-580.
1935. Further additions to the list of Araneae from Michigan. *Ibid.*, vol. 20, pp. 583-587.
- COMSTOCK, J. H.
1903. A classification of North American spiders. New York, pp. 1-56.
1912. The spider book. Garden City, New York, pp. 1-721, figs. 1-770.
1940. The spider book. Revised by W. J. Gertsch. New York, pp. 1-729, figs. 1-770.
- CROSBY, C. R., AND S. C. BISHOP
1928. A list of the insects of New York, orders Araneae and Opiliones. *Mem. Cornell Univ. Agr. Exp. Sta.*, no. 101, pp. 1034-1121.
- CROSBY, C. R., AND H. M. ZORSCH
1935. Spiders from the Lac St. Jean Region of Quebec. *Canadian Ent.*, vol. 67, pp. 38-42, figs. 1-4.

EMERTON, J. H.

- 1875. Notes on spiders from caves in Kentucky, Virginia and Indiana. *Amer. Nat.*, vol. 9, pp. 278-281, pl. 1.
- 1882. New England spiders of the family Theridiidae. *Trans. Connecticut Acad. Sci.*, vol. 6, pp. 1-86, pls. 1-24.
- 1894. Canadian spiders. *Ibid.*, vol. 9, pp. 400-429, pls. 1-4.
- 1902. The common spiders of the United States. Boston, pp. 1-225, figs. 1-501.
- 1909. Supplement to the New England Spiders. *Trans. Connecticut Acad. Sci.*, vol. 14, pp. 171-236, pls. 1-11.
- 1911. New spiders from New England. *Ibid.*, vol. 16, pp. 385-407, pls. 1-6.
- 1913. New and rare spiders from within fifty miles of New York City. *Bull. Amer. Mus. Nat. Hist.*, vol. 32, pp. 255-260, pl. 48.
- 1914. New spiders from the neighborhood of Ithaca. *Jour. New York Ent. Soc.*, vol. 22, pp. 262-264, pl. 8.
- 1917. New spiders from Canada and the adjoining states. *Canadian Ent.*, vol. 49, pp. 261-272, figs. 12-23.
- 1919. New spiders from Canada and the adjoining states, no. 2. *Ibid.*, vol. 51, pp. 105-108, figs. 14-16, pl. 7.
- 1920. Catalogue of the spiders of Canada known to the year 1919. *Trans. Roy. Canadian Inst.*, vol. 12, pp. 309-338.
- 1924. Recent collections of Canadian spiders. *Ent. News*, pp. 122-124.

EVERLY, R. T.

- 1938. Spiders and insects found associated with sweet corn. *Ohio Jour. Sci.*, no. 3, pp. 136-148, 1 fig.

FAGE, L.

- 1929. Sur quelques araignées des grottes de l'Amerique du Nord et de Cuba. *Boll. Lab. Zool. Portici*, vol. 22, pp. 181-187, 2 figs.

FOX, W. H.

- 1892. A list of the spiders of Indiana. *Proc. Ent. Soc. Washington*, vol. 2, no. 2, pp. 267-269.

GERTSCH, W. J., AND W. L. JELLISON

- 1939. Notes on a collection of spiders from Montana. *Amer. Mus. Novitates*, no. 1032, pp. 1-13, figs. 1-6.

GRUBE, A. ED.

- 1859. Verzeichniss der Arachnoiden. *Arch. Naturk. Liv-, Ehst-, und Kurlands, Biol. Naturk.*, Dorpat, vol. 1, pp. 417-486.

HACKMAN, WALTER

- 1954. The spiders of Newfoundland. *Acta Zool. Fennica*, no. 79, pp. 1-99, figs. 1-121, 5 maps.

HOLM, ÅKE

- 1945. Zur Kenntnis der Spinnenfauna des Torneträskgebietes. *Arkiv Zool.*, vol. 36A, no. 15, pp. 1-80, 26 figs.
- 1950. Studien über die Spinnenfauna des Torneträskgebietes. *Zool. Bidrag Uppsala*, vol. 29, pp. 103-213, 26 figs.
- 1951. (Arachnida). In Brinck, Per, and Karl Georg Wingstrand, The mountain fauna of the Virihaure area in Swedish Lapland. *Lunds Univ. Årsskr. new ser.*, vol. 46, no. 2, pp. 138-149, figs. 7, 8.
- 1960. On a collection of spiders from Alaska. *Zool. Bidrag Uppsala*, vol. 33, pp. 109-134, 4 pls.

1967. Spiders (Araneae) from West Greenland. Meddel. Grønland, vol. 184, no. 1, pp. 1-99, figs. 1-103.
- JUDD, W. W.
1965. Studies of the Byron Bog in southwestern Ontario. Nat. Hist. Papers Natl. Mus. Canada, no. 28, pp. 1-12.
- KASTON, B. J.
1948. Spiders of Connecticut. Bull. Connecticut Geol. Nat. Hist. Surv., no. 70, pp. 1-874, figs. 1-2144.
- KEYSERLING, E.
1886. Die Spinnen Amerikas. Nuremberg, vol. 2, pt. 2, pp. 1-295, pls. 11-21.
- KOCH, C.
1845. Die Arachniden. Nuremberg, vol. 11, pp. 1-174, pls. 391-396.
- KOCH, L.
1879. Arachniden aus Sibirien und Novaja Semlja. Svenska Vetensk.-Akad. Handl., vol. 16, no. 5, pp. 3-136, pls. 1-7.
- KULCZYNSKI, W.
1885. Araneae in Camtschadalia a Dre B. Dybowski collectae. Pam. Akad. umiej. Kraków, vol. 11, pp. 1-60, pls. 9-11.
1926. Arachnoidea Camtschadalia. Iejiegod. Zool. Mouz. Akad. Naouk S.S.S.R., vol. 27, pp. 29-72.
- KURATA, T.
1937. The spiders of Mer Blue, near Ottawa. Canadian Field Nat., vol. 51, no. 8, pp. 114-115.
- LEVI, HERBERT W., AND HOWARD M. FIELD
1954. The spiders of Wisconsin. Amer. Midland Nat., vol. 51, no. 2, pp. 440-467, figs. 1-113.
- LEVI, HERBERT W., AND LORNA R. LEVI
1951. Report on a collection of spiders and harvestmen from Wyoming and neighboring states. Zoologica, vol. 34, pp. 219-237, figs. 1-50.
- LEVI, H. W., L. R. LEVI, AND J. L. KASPER
1958. Harvestmen and spiders of Wisconsin; additional species and notes. Trans. Wisconsin Acad. Sci., vol. 47, pp. 43-52.
- LEVI, LORNA R., AND HERBERT W. LEVI
1955. Spiders and harvestmen from Waterton and Glacier National parks. Canadian Field-Nat., vol. 9, pp. 32-69, figs. 1-30.
- LOCKET, G. H., AND A. F. MILLIDGE
1953. British spiders. London, Ray Society, vol. 2, pp. 1-449, figs. 1-254.
- LOWRIE, D. C., AND W. J. GERTSCH
1955. A list of the spiders of the Grand Teton Park area, with descriptions of some new North American spiders. Amer. Mus. Novitates, no. 1736, pp. 1-29, 32 figs.
- MARX, GEORGE
1890. Catalogue of the described Araneae of temperate North America. Proc. U. S. Natl. Mus., no. 1889, vol. 12, pp. 497-594.
1892. A list of the Araneae of the District of Columbia. Proc. Ent. Soc. Washington, vol. 2, no. 2, pp. 148-161.
- MENGE, A.
1866. Preussische Spinnen (part I). Schr. Naturf. Gesell. Danzig, new ser.,

- vol. 1, pp. 1-152, pls. 28-43.
- MERRETT, P.
1963. The palpus of male spiders of the family Linyphiidae. *Proc. Zool. Soc. London*, vol. 140, pt. 3, pp. 347-467, figs. 1-127.
- MILLER, FRANT
1937. Neue Spinnenarten (Araneae) aus der Čechoslovakischen Republik II. Festschrift zum 60. Geburtstage von Professor Dr. Embrik Strand. *Riga*, vol. 2, pp. 563-570, 11 figs.
1947. Pavoici zvirna hadcovych stepi u Mohelna. *Acta Soc. Cogn. et Cons. nat. Morav. Siles*, vol. 7, pp. 1-99, 16 pls.
- MUMA, MARTIN H.
1943. Common spiders of Maryland. *Baltimore, Natural History Society of Maryland*, pp. 1-173, pls. 1-15.
1945. An annotated list of the spiders of Maryland. *Bull. Univ. Maryland Agr. Exp. Sta.*, no. A38 (tech.), pp. 1-65.
- OHLERT, E.
1867. Die Araneiden oder echten Spinnen der Provinz Preussen. *Leipzig*, pp. 1-172, 2 pls.
- PETRUNKEVITCH, A.
1911. A synonymic index-catalogue of spiders of North, Central and South America. *Bull. Amer. Mus. Nat. Hist.*, vol. 29, v+ 791 pp.
- PICKARD-CAMBRIDGE, F.
1894. New genera and species of British Spiders. *Ann. Mag. Nat. Hist.*, ser. 6, vol. 13, pp. 87-111, pls. 1-2.
- PICKARD-CAMBRIDGE, O.
1863. Description of twenty-four new species of . . . British spiders. *Zoologist*, vol. 21, pp. 8561-8599.
1871. Descriptions of some British spiders new to science. . . . *Trans. Linnean Soc. London*, vol. 27, pp. 393-464, pls. 54-57.
1874. Systematic list of the spiders at present known to inhabit Great Britain and Ireland. *Ibid.*, vol. 30, pp. 319-334.
- ROEWER, C.
1942. *Katalog der Araneae*. Bremen, vol. 1, viii + 1040 pp.
- SIMON, EUGENE
1884. *Arachnides de France*. Paris, vol. 5, pt. 2, pp. 181-420, figs. 1-198, pl. 26.
1929. [Same title.] Paris, vol. 6, pt. 3, pp. 533-722, figs. 813-1112.
- STRAND, EMBRIK
1906. Die arktischen Araneae, Opiliones und Chernetes. *In* Römer, F., and F. Schaudinn, *Fauna Arctica*. Jena, vol. 4, pp. 431-478, 3 figs.
- THORELL, T.
1856. Recensio critica araneorum Suecicarum, quas descripserunt Clerckius, Linnaeus, deGeerus. *Nova Acta R. Soc. Sci. Upsala*, ser. 3, vol. 2, pt. 1, pp. 61-176.
1870. Remarks on synonyms of European spiders. *Upsala*, pt. 1, pp. 1-96.
1875. Descriptions of several European and North African spiders. *K. Svenska Vetensk.-Akad. Handl.*, new ser., vol. 13, pt. 5, pp. 3-203.
- WALCKENAER, C. A.
1842. *Histoire naturelle Insectes Aptères*. Paris, vol. 2, pp. 1-549.

WATERHOUSE, C. O.

1902. *Index zoologicus*. London, xii + 421 pp.

WESTRING, N.

1851. Forteckning öfver de till nävarande tid Kande; i Sverige forekommande Spindlarter. Göteborgs K. Vet. Handl., vol. 2, pp. 25-62.

WIDER

1834. Beschreibung der Arachniden. *In* Reuss, A., *Zoologischen Miscellen*. Mus. Senckenbergianum, vol. 1, pp. 195-282, pls. 14-18.

WIEHLE, HERMANN

1956. Spinnentiere oder Arachnoidea (Araneae) 28. Familie Linyphiidae-Baldachinspinnen. *In* *Die Tierwelt Deutschlands*. Jena, pt. 44, pp. 1-337, figs. 1-551.

WOLF, B.

1936. *Animalium cavernarum catalogus*. The Hague, vol. 3, pp. 465-720.
1937. [Same title.] The Hague, vol. 2, pp. 457-516.

WORLEY, L. G., AND G. B. PICKWELL

1931. The spiders of Nebraska. *Studies Univ. Nebraska, Dept. Zool.*, no. 135, pp. 1-129.