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PSEUDOSCORPIONS FROM RODENT NESTS

BY C. CLAYTON HOFF¹ AND DAVID L. CLAWSON¹

During the past few years, numerous collections of pseudoscorpions from rodent nests have accumulated in the laboratory of the senior author. These collections have been combined with a large number of collections recently submitted for determination by Dr. D. Elden Beck of Brigham Young University, and together the material serves as the basis for the present paper. An examination of specimens from rodent nests has proved very profitable, as indicated by the presentation here of the descriptions of seven species previously unknown in the literature.

The results of the present study indicate emphatically our distinct lack of knowledge of the pseudoscorpion fauna of rodent nests. The authors are inclined to believe that the presently reported species represent but a small part of the species that ultimately may be found in rodent nests within the United States. Under the stimulus of the application of studies in rodent ecology to such public health problems as the distribution and transmission of sylvatic plague and of murine typhus, more and more attention will be focused upon the insects and arachnids of rodent nests.

The authors are grateful to Dr. Raymond H. Beamer of the University of Kansas, to Dr. D. Elmo Hardy of the University of Hawaii, to Mr. Larry Gordon, now of the New Mexico Department of Health, and especially to Dr. D. Elden Beck of Brigham Young University, for the opportunity of studying the material presented here. Holotypes and allotypes of all new species except *Dinocheirus venustus* have been deposited in the American

¹ Department of Biology, University of New Mexico, Albuquerque, New Mexico. This study was completed with the aid of a University of New Mexico faculty research grant to the senior author.

Museum of Natural History. The holotype and allotype of *Dinocheirus venustus* are in the Entomological Museum of the University of Kansas. The paratypes have been distributed among the several persons and institutions interested in the current investigation.

SUBORDER HETEROSPHYRONIDA CHAMBERLIN

FAMILY **CHTHONIIDAE** HANSEN

SUBFAMILY **CHTHONIINAE** DADAY

TRIBE **LECHYTIINI** CHAMBERLIN

Lechytia pacifica (Banks, 1893)

Roncus pacificus BANKS, 1893, Canadian Ent., vol. 25, p. 66.

Lechytia pacifica, BANKS, 1895, Jour. New York Ent. Soc., vol. 3, p. 13.

RECORD: A single female provisionally assigned to this species taken from a nest of *Neotoma lepida* Thomas, November 9, 1951, at Rush Valley, Toole County, Utah.

REMARKS: In the absence of adequate information in the literature, it is impossible to verify the present determination. Our specimen agrees fairly well with the available descriptions, although it appears to have somewhat more slender palpal femur and chela when compared with the palpus pictured by Chamberlin (1931, fig. 28-C). It is possible that the differences in the length-width ratios of the femur and chela may be due to individual variation. No record of the actual lengths of palpal podomeres of *L. pacifica* is found in the literature. The following measurements have been taken from our female: body length 1.4 mm.; palpal femur, 0.358 mm. long, 0.093 mm. wide; tibia 0.210 mm. long, 0.116 mm. wide; chela with rudimentary pedicle included 0.57 mm. long, 0.144 mm. wide; chelal hand 0.147 mm. deep; hand with rudimentary pedicle included 0.26 mm. long; movable finger 0.33 mm. in length. The specimen is being retained in the collection of the senior author.

SUBORDER DIPLOSPHYRONIDA CHAMBERLIN

SUPERFAMILY **GARYPOIDEA** CHAMBERLIN

FAMILY **GARYPIDAE** HANSEN

SUBFAMILY **GARYPINAE** SIMON

ARCHEOLARCA, NEW GENUS

DIAGNOSIS: Moderate size, abdomen much wider than cara-

pace and distinctly ovate in outline; palpi with traces of pseudo-derm, slender, with setae somewhat bent, sublanceolate, and not terminally acute; movable chelal finger with four tactile setae, *t* and *st* submedial in position, *sb* and *b* proximal in position; movable chelal finger about as long as the hand without the pedicle; fixed chelal finger with eight tactile setae, *et* near the center of the distal one-half of the finger, *est* and *it* a little distad to the midpoint of the finger, *ist* not far proximad to *it*, other tactile setae basal in position; four setae in the cheliceral flagellum; laminal seta of chelicera absent; pars basalis of the first leg conspicuously longer than the pars tibialis, arolia exceeding tarsal claws in length. A single known species, the genotype.

GENOTYPE: *Archeolarca rotunda*, new genus and new species.

REMARKS: The present genus bears some relationship to the Neotropical genus *Progarypus* Beier and the Palearctic genus *Larca* Chamberlin. *Archeolarca* resembles *Progarypus* in the number of tactile setae on the chelal fingers and in the nature of the femur of the first leg. Conspicuous differences include the occurrence in our new genus of four rather than three setae in the flagellum and a much different distribution of the tactile setae of the fixed finger of the chela. The new genus *Archeolarca* resembles in many ways the genus *Larca* but can be separated by the presence of four rather than two tactile setae on the movable chelal finger. In general, it appears that *Archeolarca* is somewhat less modified and specialized than *Larca*, if one assumes that the archetype had four tactile setae on the movable chelal finger. The name *Archeolarca* implies the possible ancestral position of the present genus.

***Archeolarca rotunda*, new species**

Figures 1-4

MALE: The description of the male is based on three mounted individuals, the holotype and two paratypes. All measurements given are for the holotype except that the range of measurements for all three individuals is in many instances given in parentheses following the corresponding measurements of the holotype. Body robust, palpi moderately slender, legs slender; abdomen and legs light yellow, carapace deeper yellow, palpi reddish brown; length of body 2.45 (2.4-2.5) mm. Carapace subtriangular in outline, lateral margins gently convex, surface moderately granular; setae acute and gently arcuate, not numerous; six to

eight setae along the posterior margin of the carapace; carapace of all three males about 0.66 mm. long, width across posterior margin 0.74 (0.68–0.76) mm., ocular width of holotype 0.36 mm. Tergites 2 to 8 or 9 divided, intertergal spaces narrow, surface of tergites with scale-like markings, setae like those of the carapace; first tergite with four to six setae in a single marginal row; each tergal half of center of abdomen with usually five or six setae. Sternites 4 or 5 to 8 weakly divided; slender acute setae; each half sternite of 4 (when divided) with two or three setae, most sternal halves of center of abdomen with four or five setae; surface sculpturing much as on the tergites. No setae associated with the respiratory spiracles; pleural membranes marked by somewhat wavy striations; abdomen 1.72 (1.70–1.85) mm. long, 1.5 (1.3–1.5) mm. wide.

Chelicera fairly stout; length about 0.195 mm. for all specimens, width of hand about 0.113 mm.; seta *sb* about as long as *is*, *b* shorter than *es*; fixed finger with four or five marginal teeth and two or three small denticles on the inner margin of the terminal tooth; movable finger with two denticles near or distal to the level of the insertion of the galeal seta; apical tooth little sclerotic; galeal seta not reaching nearly to the end of the galea; galea relatively slender and long, with two or three small subterminal denticulations; serrula exterior of 16 or 17 plates, of which the distalmost is long, slender, and almost spine-like; movable finger about 0.135 mm. long for all specimens.

Palpi somewhat slender, rich reddish brown in color, surface of podomeres more or less uniformly and moderately granular; setae of fingers and extensor surface of chelal hand short, acute, and straight; setae of other surfaces sub lanceolate, arcuate, and not especially acute; thin, irregularly disposed, and not very conspicuous pseudoderm. Trochanter with pedicle a little wider than long and well set off from rest of podomere; center of flexor margin strongly convex; 0.345 (0.345–0.355) mm. long, 0.185 (0.185–0.200) mm. wide, length 1.87 (1.78 to 1.87) times the width. Femur with pedicle about as long as wide; flexor margin of femur very weakly convex, with a sinuation or concavity near the distal end of the margin; extensor margin a little convex except more convex in the distal fourth, beyond which there is a weak concavity; femur widest near the distal fourth of the podomere; length of femur 0.795 (0.795–0.83) mm., width 0.180 (0.180–0.185) mm., length 4.4 (4.35 to 4.5) times the width. Tibia with central

part of extensor margin weakly convex to flattened, more convex near the distal and proximal ends; flexor margin somewhat convex in the central portion and with a weak sinuation or concavity near the distal end; tibia 0.675 (0.675–0.70) mm. long, 0.205 (0.205–0.22) mm. wide, length 3.3 (3.15 to 3.3) times the width. Chela slender; base asymmetrical; extensor margin weakly and somewhat flatly convex and with a well-marked extensor-basal angle; flexor margin more convex, with no indication of a flexor-basal angle; hand tapering gently to the bases of the fingers; chela without pedicle 0.99 (0.99–1.06) mm. long, 0.27 (0.27–0.30) mm. wide, length 3.65 (3.55 to 3.65) times the width. From the side, chelal hand subcylindrical, ventral and dorsal margins little convex, basal margin rounded, pedicle displaced towards the ventral side; fixed finger nearly straight, with a weak sinuation or break in the regularity of the contour of the external margin at the finger base; movable finger a little curved; each finger with 30 to 35 contiguous teeth; tactile setae as shown in figure 3; length of chelal hand without pedicle 0.52 (0.52–0.55) mm., depth of hand 0.245 (0.245–0.27) mm., movable finger 0.50 (0.50–0.54) mm. long.

Legs relatively slender; light yellow in color; a very few granulations only on the proximal podomeres and observed only in profile view; setae not numerous, for the most part very similar to the investing setae of the palpal podomeres. First leg with flexor margin of pars basalis nearly straight, extensor margin actually a little concave, podomere deepest across the distal end, length 0.295 mm., depth 0.097 mm.; pars tibialis with both margins weakly convex, 0.218 mm. long, 0.097 mm. deep; tibia with weakly convex flexor margin, nearly straight extensor margin except a little convex near the proximal end, length 0.250 mm., depth 0.070 mm.; metatarsus subcylindrical, length 0.198 mm., depth 0.050 mm.; telotarsus subcylindrical but tapering a little towards the distal end, length 0.175 mm., depth 0.038 mm. Fourth leg with trochanter 0.276 mm. long, 0.120 mm. deep; pars basalis 0.218 mm. long, 0.118 mm. deep; pars tibialis with nearly straight flexor margin continuous with the flexor margin of the pars basalis, extensor margin flatly convex in the center and continuous with that of the pars basalis, pars tibialis 0.460 mm. long, 0.140 mm. deep; entire femur 0.63 mm. in length; tibia very weakly S-shaped, 0.440 mm. long, 0.089 mm. deep; tarsal podomeres subcylindrical; metatarsus 0.225 mm. long, 0.058 mm. deep; telotarsus 0.218 mm. long, 0.050 mm. deep.

The genitalia without complex chaetotaxy; anterior operculum with a somewhat regular row of 20 to 25 setae; posterior operculum with a row of about 20 setae, but many of these are irregularly grouped in a median position.

FEMALE: The description of the female is based on three mounted individuals, the allotype and two paratypes. Measurements are given for the allotype and are followed in parentheses in some instances by the range for all three females. The female is essentially like the male in general appearance, chaetotaxy, and sculpturing; the female, however, is slightly larger, although body parts are similarly proportioned. Body length 2.45 (2.45–2.6) mm. Carapace and abdomen like those of the male; carapace 0.67 (0.67–0.71) mm. long, greatest width across the posterior margin and equal to 0.79 (0.76–0.79) mm., ocular breadth about 0.35 mm. Abdomen 1.75 (1.75–1.85) mm. long, 1.45 (1.40–1.52) mm. wide. The chelicera as in the male except that the galea is relatively much longer and its subterminal denticulations are more pronounced; length of chelicera about 0.20 mm., width of base 0.125 (0.113–0.125) mm., length of movable finger 0.145 (0.140–0.145) mm. Palpi in dorsal view and chela in lateral view essentially as in the male; trochanter 0.37 (0.355–0.37) mm. long, 0.21 (0.195–0.21) mm. wide, length 1.75 (1.75 to 1.82) times the width; femur 0.91 (0.86–0.91) mm. long, 0.20 (0.19–0.20) mm. wide, length 4.55 (4.45 to 4.55) times the width; tibia 0.78 (0.73–0.78) mm. in length, 0.24 (0.22–0.24) mm. wide, length 3.25 (3.25 to 3.4) times the width; chela without pedicle 1.12 (1.10–1.12) mm. long, 0.31 (0.31–0.32) mm. wide, length 3.65 (3.5 to 3.65) times the width; length of hand without pedicle 0.58 (0.52–0.58) mm., depth of hand of allotype 0.29 mm.; movable finger 0.57 (0.57–0.61) mm. long. The legs are essentially like those of the male. First leg with pars basalis 0.325 mm. long, 0.101 mm. deep; pars tibialis 0.233 mm. long, 0.109 mm. deep; tibia 0.295 mm. long, 0.077 mm. deep; metatarsus 0.213 mm. long, 0.055 mm. deep; telotarsus 0.195 mm. long, 0.043 mm. deep. Fourth leg with trochanter 0.326 mm. in length, 0.136 mm. deep; pars basalis 0.233 mm. long, 0.128 mm. deep; pars tibialis 0.515 mm. long, 0.148 mm. deep; entire femur 0.69 mm. in length; tibia 0.525 mm. long, 0.094 mm. deep; metatarsus 0.255 mm. in length, 0.062 mm. deep; telotarsus 0.250 mm. in length, 0.054 mm. in depth. The genital complex includes a median and on each side a lateral cribriform plate, each plate large and con-

spicuous; anterior operculum with 15 setae arranged in nearly a single row; posterior operculum with a row of seven to 11 setae.

TRITONYMPH: Description based on a single mounted paratype. In general like the adult; lighter in color, palpi less reddish; posterior margin of carapace with four setae; tergal halves of center of abdomen with three or four setae; sternal halves of center of abdomen with three or four setae; body 1.95 mm. long. Chelicera essentially like that of the female, with the galea relatively long; only three or four denticles along the inner margin of the fixed finger; 14 plates in the serrula exterior. Palpi from the dorsad as in the adult except a little lighter in color and less granular; trochanter 0.29 mm. long, 0.145 mm. wide; femur 0.66 mm. long, 0.15 mm. wide; tibia 0.55 mm. long, 0.175 mm. wide; chela without pedicle 0.88 mm. long, 0.25 mm. wide; chelal hand without pedicle 0.45 mm. long, 0.245 mm. deep; movable finger 0.46 mm. long. Chela in lateral view with hand stouter than in the adult and with both ventral and dorsal margins fairly convex; about 30 marginal teeth on each finger; movable finger with tactile seta *t* and *st* submedial in position and with one basal seta; fixed finger with *ist* absent.

DEUTONYMPH: Description based on three mounted individuals; measurements given as the ranges of all three. General appearance of body and palpi like the adult; much lighter in color, less granular, investing setae less arcuate and more acute; body length 1.52–1.63 mm. Carapace with four marginal setae; each tergal half of the central part of the body usually with three setae; each sternal half usually with only one seta placed much closer to the medial than to the lateral margin of the sternal half. Chelicera like that of the tritonymph except much stouter, 13 to 14 plates in the serrula exterior. Palpi much as in the adult except femur and tibia stouter, color lighter, and surfaces of podomeres almost free of granulations; trochanter 0.215–0.24 mm. long, 0.11–0.125 mm. wide, length 1.85 to 1.95 times the width; femur 0.47–0.52 mm. long, 0.11–0.125 mm. wide, length 4.15 to 4.25 times the width; tibia 0.37–0.43 mm. long, 0.135–0.15 mm. wide, length 2.75 to 2.9 times the width; chela without pedicle 0.66–0.73 mm. long, 0.175–0.20 mm. wide, length 3.6 to 3.75 times the width. From the side, chela with hand stout, margins of hand somewhat convex; about 25 marginal teeth on each finger; movable finger with one tactile seta located a little proximal to the midpoint of the finger and another seta

basal in position; fixed finger with *ist* and one seta of the external basal pair absent; hand without pedicle 0.32–0.35 mm. long, 0.20 mm. deep; movable finger 0.36–0.39 mm. in length.

PROTONYMPH: Not represented in the collections.

TYPE LOCALITY: Utah County, Utah. Collections available for study are as follows: the holotype male, one paratype male, three paratype females, and one paratype tritonymph from a nest of *Neotoma cinerea* (Ord) in American Fork Canyon, March 16, 1951, by Allred and Beck; the allotype female from a nest of *N. cinerea* at Provo on November 5, 1951; one deutonymph paratype from a nest of *Erethizon epixanthum epixanthum* Brandt at Springville, April 6, 1949, by V. J. Tipton; one female paratype and one deutonymph paratype from a nest of *Neotoma cinerea* at Provo, March 30, 1951, by Beck and Allred; one male paratype, three female paratypes, and one deutonymph paratype from a nest of *N. cinerea* at Provo, November 5, 1951; and one deutonymph paratype from another nest of the same rodent at Provo, October 13, 1951.

SUBORDER MONOPHYRONIDA CHAMBERLIN

SUPERFAMILY **CHEIRIDIOIDEA** CHAMBERLIN

FAMILY **CHEIRIDIIDAE** CHAMBERLIN

Cheiridium insperatum, new species

Figures 5–8

MALE: The description of the male is based on five mounted specimens, the holotype and four paratypes. Measurements given are for the holotype, except that ranges for all five specimens are frequently given in parentheses. Body robust, almost oval in outline; body and legs light golden yellow in color; palps slender, not much darker than the carapace; body length 1.22 (1.18–1.25) mm. Carapace subtriangular, surface strongly reticulo-granulate; humeral angles fairly well developed; setae of carapace small, slightly arcuate, probably acuminate; apparently eight setae along the posterior margin of the carapace; length of carapace 0.35 (0.34–0.35) mm., greatest width across the posterior margin and equal to 0.41 (0.37–0.42) mm., distance between the eyes 0.13 mm. for the holotype. Tergites of abdomen divided, surface markings similar to those of the carapace; marginal setae very fine and apparently not clavate, about eight on each tergal half in the center of the abdomen; sternites of abdomen less

granulate than the tergites, sternites 4 to 10 divided, usually six or seven slightly arcuate and apparently acuminate setae on each sternal half of the midpart of the abdomen; abdomen 0.88 (0.83–0.90) mm. long, 0.73 (0.68–0.74) mm. wide.

Chelicera in general as described for other members of the genus; base stout, fingers relatively slender; four setae on cheliceral hand, all acuminate except that *b* has a fine subterminal denticulation (difficult to observe in some specimens); flagellum with four setae although there may appear to be only three since the two central ones are so placed that it is difficult to see both in the same preparation, the distalmost seta is a wide, flattened blade terminally and obliquely truncate and with an acute apex; fixed cheliceral finger gently curved and with about five subterminal denticles; movable finger more nearly straight; galea reduced to a short spine; serrula exterior of nine plates; length of chelicera of holotype 0.097 mm., width of base 0.057 mm., length of movable finger 0.074 mm.

The palpi are relatively slender, golden yellow in color, strongly granulate, and the investing setae are weakly arcuate and each has a small denticulation near the basal one-third. The trochanter is subquadrate in outline; the pedicle is a little longer than wide and is well separated from the rest of the podomere; trochanter 0.156 (0.151–0.159) mm. long, 0.104 (0.097–0.104) mm. wide, length 1.5 (1.5 to 1.6) times the width. Femur subcylindrical with the pedicle well separated from the rest of the podomere; flexor margin nearly straight except a very inconspicuous convexity near the distal fourth; extensor margin flatly convex except more convex near the ends; 0.400 (0.389–0.401) mm. long, 0.078 (0.073–0.078) mm. wide, length 5.15 (5.1 to 5.35) times the width. Tibia with well-developed pedicle; flexor margin gently convex except for a weak concavity near the distal end; extensor margin flattened in the basal two-thirds, more convex beyond; length of tibia 0.323 (0.299–0.323) mm., width 0.090 (0.084–0.090) mm., length 3.6 (3.3 to 3.75) times the width. Chela with a nearly square pedicle that is displaced very little towards the extensor margin; extensor margin very weakly convex, flexor margin much more convex and merging gently into the basal margin; fingers slender and gently curved; chela without pedicle 0.48 (0.455–0.48) mm. long, 0.122 (0.114–0.124) mm. wide, length 3.93 (3.8 to 4.0) times the width. From the side, hand of chela somewhat oval in outline with the gently convex dorsal and ventral margins

merging with the rounded basal margin; pedicle displaced a little towards the ventral side; movable finger gently curved to nearly straight, fixed finger nearly straight; both fingers with venom ducts; movable finger with usually eight or nine teeth near the distal end of the margin and with one or two more proximal vestigial teeth indicated; fixed finger with usually 11 or 12 marginal teeth in the distal third and with an indication of a few more proximally placed vestigial teeth; the two tactile setae of the movable finger and the seven tactile setae of the fixed finger are placed as indicated in figure 7; chelal hand without pedicle 0.237 (0.225–0.237) mm. long, hand 0.117 (0.115–0.117) mm. deep, movable finger 0.253 (0.233–0.253) mm. long.

Legs yellow in color, investing setae like those of the palpi; proximal podomeres with granulations similar to those of the palpal podomeres, granulations of more distal podomeres weakly developed in comparison; femora without indication of division; measurements given are for the holotype. First leg much stouter than the fourth leg; femur with flexor margin irregularly straight and extensor margin convex but with contour often broken by irregularities, length of femur 0.222 mm., depth 0.058 mm.; tibia with a weak concavity in the distal two-thirds of the extensor margin or the extensor margin may be nearly straight, flexor margin weakly convex in the center, length 0.167 mm., depth 0.039 mm.; tarsus with both margins nearly straight, deepest across the proximal end and tapering gently towards the distal end, length 0.174 mm., depth 0.034 mm. Fourth leg slender, much more so than the first leg; femur with nearly straight (sometimes irregularly so) flexor margin, extensor margin fairly convex and often flatly so in the center, deepest somewhat distal to the midpoint, length 0.303 mm., depth 0.068 mm.; tibia with nearly straight extensor margin except in the proximal portion, flexor margin gently convex in the basal half but nearly straight beyond, length 0.245 mm., depth 0.043 mm.; tarsus subcylindrical, narrowing towards the distal end, length 0.225 mm., depth 0.035 mm.

The genital complex with relatively simple opercula; the anterior operculum with four to six setae in an arc, placed anterior to a cluster of 12 to 15 setae; posterior operculum with a medial clump of six to eight setae and with three setae scattered in a transverse row between the medial clump and each lateral margin.

FEMALE: Description based on six females, the allotype and five paratypes. Measurements are given for the allotype and are

in some instances followed in parentheses by the ranges of corresponding measurements of all six females. In general, female is very similar to the male; body length 1.23 (1.23–1.32) mm. Carapace 0.35 (0.35–0.37) mm. long, width across the posterior margin 0.42 (0.41–0.45) mm., distance between the eyes about 0.15 mm. Abdomen 0.88 (0.88–0.96) mm. long, 0.72 (0.72–0.79) mm. wide. Chelicera much as in the male except for the galea which is much longer than in the male and is terminally trifid; length of chelicera of allotype 0.097 mm., width of base 0.058 mm., length of movable finger about 0.07 mm. No sexual dimorphism exhibited by the palpi, the female palpus being essentially as that in the male; trochanter 0.159 (0.155–0.163) mm. long, 0.097 (0.097–0.105) mm. wide, length 1.65 (1.48 to 1.65) times the width; femur 0.412 (0.393–0.420) mm. long, 0.078 (0.077–0.081) mm. wide, length 5.28 (5.05 to 5.3) times the width; tibia 0.322 (0.310–0.323) mm. long, 0.094 (0.094–0.097) mm. wide, length 3.44 (3.3 to 3.44) times the width; chela without pedicle 0.49 (0.47–0.50) mm. long, 0.128 (0.125–0.131) mm. wide, length 3.82 (3.73 to 3.85) times the width; chelal hand without pedicle 0.244 (0.233–0.244) mm. long, hand 0.122 (0.117–0.122) mm. deep, length of movable finger 0.253 (0.240–0.253) mm. Legs of female essentially like those of the male; measurements of allotype are given here. First leg with femur 0.225 mm. long, 0.057 mm. deep; tibia 0.171 mm. long, 0.039 mm. deep; tarsus 0.175 mm. long, 0.032 mm. deep. Fourth leg with femur 0.311 mm. long, 0.045 mm. deep; tibia 0.240 mm. long, 0.043 mm. deep; tarsus 0.214 mm. long, 0.035 mm. deep. Genital complex relatively simple; both anterior and posterior opercula weakly divided; anterior operculum with a posterior row of 10 marginal setae and 12 to 14 medial but fairly well-scattered setae anterior to the marginal row; a somewhat circular sclerotic surface plate with irregular margins submedial in position on each half of the anterior operculum; posterior operculum with four or five uniserially arranged setae on each opercular half; a fairly large medial cribriform plate and apparently a smaller but very irregular and less well-differentiated plate (seen only in side view, not surface view) on each side of the median one.

TRITONYMPH: Description based on seven paratypes; measurements expressed as the ranges for all seven specimens. General body shape much as in the adult; a little lighter in color; palpal podomeres small and perhaps on the average a very little stouter; posterior margin of carapace and posterior margin of the anterior

five or six tergites with well-separated marginal denticles; body length 0.95–0.105 mm., length of carapace 0.29–0.35 mm., width across the posterior margin 0.34–0.39 mm. Chelicera essentially as in the female but with only eight plates in the serrula exterior; for some reason the presence of four setae in the flagellum is much more easily seen in the tritonymph than in the adult. Palpi essentially as in the adult except that the pedicles of podomeres are not nearly so constricted and not so well set-off from the rest of the podomere and the segments are smaller; the length-width ratios, however, resemble very closely those of the adult; dentation and chaetotaxy of the chelal fingers essentially as in the adult. Femur of palpus 0.334–0.350 mm. long, 0.062–0.070 mm. wide, length 4.90 to 5.5 times the width; tibia 0.260–0.276 mm. long, 0.078–0.083 mm. wide, length 3.15 to 3.45 times the width; chela without the pedicle 0.42–0.44 mm. long, 0.099–0.110 mm. wide, length 3.9 to 4.3 times the width; chelal hand without pedicle 0.198–0.217 mm. long; depth of chela 0.098–0.107 mm.; length of movable finger 0.225–0.234 mm. long.

DEUTONYMPH: Description based on one individual. Much like the tritonymph but smaller and lighter in color; palpal podomeres stouter, much less granulate than in the adult; body length about 0.85 mm. Chelicera very much like that of the female except apparently only seven plates in the serrula exterior. Palp in general like that of the adult except podomeres much smaller and a little stouter; pedicles stout; flexor margin of tibia more gently convex than in the adult; chelal fingers not in favorable position for study but apparently one tactile seta on the movable finger at a point between one-third and one-fourth of the finger length from the base; tactile setae of fixed finger much as in the tritonymph and adult except only one seta in the exterior basal pair; femur of palpus 0.264 mm. long, 0.060 mm. wide; tibia 0.210 mm. long, 0.070 mm. wide; chela without pedicle 0.36 mm. long, 0.095 mm. wide; chelal hand without pedicle 0.175 mm. long; hand 0.093 mm. deep; movable finger probably about 0.185 mm. long, but position precludes accurate determination of length.

PROTONYMPH: Description based on one partly broken individual; one palp missing. Light yellow in color, very weakly granulate; body length about 0.65 mm.; carapace 0.245 mm. long, 0.27 mm. wide across the posterior margin. Chelicera with flagellum much as in the adult and galea resembling that of the female; serrula exterior apparently of six plates. The palpi in outline

much like those of the deutonymph except surfaces of podomeres are virtually free of granules and the podomeres are smaller and perhaps somewhat stouter; movable chelal finger with one tactile seta located a little proximal to the midpoint of the finger and with seven weakly developed marginal teeth; fixed chelal finger with three tactile setae, one (probably *et*) located near the midpoint of the finger and one basal seta exterior and one interior near the base of the finger; fixed finger with nine weakly developed marginal teeth; femur of palp 0.202 mm. long, 0.051 mm. wide; tibia broken and not measured; chela without pedicle 0.319 mm. long; chelal hand without pedicle 0.152 mm. long, 0.079 mm. deep; movable finger 0.172 mm. long.

TYPE LOCALITY: Grand County, Utah. The male holotype, nine male paratypes, seven female paratypes, five tritonymph paratypes, one deutonymph paratype, and one protonymph paratype from a collection made from a nest of *Neotoma cinerea* (Ord) at Moab on September 1, 1950. The female allotype, two female paratypes, three male paratypes, and two tritonymph paratypes from a collection made from a nest of the same species of rodent at Moab, August 18, 1950.

REMARKS: On first finding the present species, the authors considered the possible erection of a new genus on the basis of the presence of venom ducts in both the chelal fingers, since the genus *Cheiridium* Menge is reported by Chamberlin (1931) and by Beier (1932) to have a venom apparatus only in the fixed finger. Close study of the literature leaves some reasonable doubt regarding the venom apparatus of *Cheiridium museorum* Leach, the genotype of the type genus *Cheiridium* of the family Cheiridiidae. Until the nature of the venom apparatus in *Cheiridium museorum* is definitely determined by careful examination of European material, it seems advisable to follow the policy of Chamberlin (1938) who assigned a Hawaiian species to the genus *Cheiridium* in spite of the presence of a venom duct in each of the chelal fingers.

Chamberlin (1938) established two subgenera, *Cheiridium* and *Isocheiridium*, in the genus *Cheiridium*. It is difficult to assign our species *Cheiridium insperatum* to either of the two. It appears to the present authors that the distinctions between the two subgenera established by Chamberlin are very minute and that, due to individual variation, considerable confusion may result in attempts to designate the subgeneric position of species of *Cheiridium*. With this in mind, we consider the subgenera of *Cheiri-*

dium untenable at the present time. If future study shows conclusively that *C. museorum* has a venom duct in the fixed finger only, it may be advisable to raise the subgenus *Isocheiridium* to generic level, thus making a distinction between species that have a single venom duct and those that have two venom ducts.

Our present species, *Cheiridium insperatum*, differs distinctly from described species of the genus in the much more slender nature of the palpal podomeres. The name indicates the entirely unexpected occurrence of a species of the genus *Cheiridium* in our collections.

SUPERFAMILY CHELIFEROIDEA CHAMBERLIN

FAMILY **CHERNETIDAE** MENGE

SUBFAMILY **CHERNETINAE** BEIER

HESPEROCHERNES CHAMBERLIN

Hesperochnes CHAMBERLIN, 1924, Pan-Pacific Ent., vol. 1, p. 89.

DIAGNOSIS: Cephalothorax clearly longer than wide; carapace granular with two transverse carapacic furrows. Tergites divided, granular. Palps stout, femur with well-defined pedicle. Setae of body and palps usually lightly, but clearly, clavate. Flagellum of chelicera with four setae; seta *b* of hand of chelicera apparently acuminate to very weakly denticulate, seta *sb* thickened and denticulate. The sensory seta *ist* of the fixed chelal finger is distad of *est*; *st* of the movable finger is found nearer to *t* than to *sb*. The tarsus of the fourth leg is without a true sensory seta, although a short toothed pseudotactile seta may be present.

GENOTYPE: *Hesperochnes laurae* Chamberlin, 1924.

REMARKS: According to the original description of the genus *Hesperochnes* as given by Chamberlin (1924), both setae *b* and *sb* of the cheliceral hand are thickened and denticulate. At the present authors' request, Chamberlin has reexamined the type material and reports that seta *b* is apparently non-denticulate, although it is possible that minute denticles may be present. It appears that many species of *Hesperochnes*, as *H. thomomysi* described by Hoff (1948), have the seta *b* very weakly denticulate. These factors make it necessary to amend the generic diagnosis of the genus so that species with varying types of seta *b* can be included. It now becomes impractical to use the denticulate character of seta *b* for separating related genera.

***Hesperochnes tamiae* Beier, 1930**

Hesperochnes tamiae BEIER, 1930, Ann. Naturhist. Mus. Wien, vol. 44, p. 214.

RECORD: An American Museum of Natural History collection of 26 specimens, including males, females, and young, taken from the nest of a chipmunk, *Tamias striatus lysteri* (Richardson), at Rutland, Vermont, April 21, 1941, by F. L. Osgood and R. Traub.

REMARKS: The specimens at hand agree well with the original description of the species with the exception that our specimens usually have 19 rather than 20 plates in the serrula exterior and the flexor-basal area of the chelal hand of the female is somewhat more swollen than in the chela pictured by Beier (1930, fig. 10-B).

***Hesperochnes utahensis*, new species**

Figures 9-10

MALE: Description based on two mounted individuals, the holotype and one male paratype. All measurements given are of the holotype except that in some instances the measurements of the paratype are given in parentheses. Body ovate, fairly stout; golden yellow with reddish brown palps; body length about 2.4 (2.5) mm. Carapace widest just anterior to the median transverse furrow, carapace somewhat narrowed posteriorly, setae strongly clavate; the posterior transverse furrow closer to the posterior margin than to the median furrow; eye spots absent; posterior margin of carapace with 10 to 12 clavate setae; surface granular; 0.66 (0.66) mm. long, 0.59 (0.56) mm. in greatest width; posterior width 0.51 (0.49) mm. Tergites of abdomen, except eleventh, divided, moderately granular, intertergal spaces wide; central tergal halves with as many as 10 (12) clavate setae, all in an irregular row except the innermost and lateralmost setae; tergites light yellowish brown. Sternites with scale-like sculpturing, setae acuminate to lightly clavate; sternites divided; as many as 10 setae on some sternal halves; pleural membranes roughly striated. Abdomen about 1.69 (1.94) mm. long, 1.14 (1.08) mm. wide.

Chelicerae moderately slender; basal and subbasal setae thickened and denticulate; length of chelicera 0.21 mm., width of base 0.11 mm.; length of movable finger 0.155 mm. Movable finger only slightly curved; galea moderately slender, with four stout but simple rami along distal one-half; apical tooth highly sclerotic; subapical lobe rounded, moderately developed; galeal

seta not extending to the tip of the galea; serrula exterior with 16 (17) plates; setae *b* and *sb* flattened and denticulate.

Palpi fairly stout; setae clavate on the proximal podomeres to lightly clavate and paucidentate on chela and acuminate on fingers. Trochanter strongly granular, with rounded protuberances; length 0.345 (0.366) mm., width 0.197 (0.204) mm. Femur moderately stout, pedicle about as long as wide and well-separated from rest of podomere; outer margin flatly convex in the center and more convex beyond; inner margin weakly convex proximally and only slightly concave beyond center; surface strongly granular; length 0.577 (0.648) mm., width 0.225 (0.260) mm. Tibia strongly granular on flexor surface and weakly granular on the extensor surface; pedicle about as long as wide; outer or extensor margin convex, but more rounded just distad of the middle; flexor margin bulging somewhat proximad of the middle but relatively flattened or a little concave beyond; length of tibia 0.562 (0.619) mm., width 0.26 (0.28) mm. Chela in the dorsal view with pedicle slightly displaced towards outer surface; both margins convex, the inner more than the outer; fingers moderately slender, distinctly but evenly curved; chela weakly granulate except strongly granulate on flexor surface; length of chela without pedicle 0.90 (0.97) mm., width 0.32 (0.38) mm.; depth of chela 0.33 (0.35) mm.; length of chelal hand without pedicle 0.57 (0.49) mm.; length of movable finger slightly less than length of chelal hand, 0.45 (0.506) mm. From the side, chela with pedicle displaced towards ventral side; basal margin of hand rounded, ventral margin flatly convex, dorsal margin more convex; fingers fairly stout; outer margin of fixed finger almost straight, inner margin straight; movable finger with convex outer margin, inner margin concave. Each finger with 35 to 40 marginal teeth; each finger with four to six external and one or two internal accessory teeth. Nodus ramosus of movable finger usually about midway between tactile setae *t* and *st*. Tactile setae as shown in figures 9 and 10.

Legs moderately slender; setae varying from clavate on the extensor margin of proximal podomeres to acuminate on the flexor margin of the distal podomeres; sculpturing moderately heavy on most podomeres. Femur of fourth leg with weakly convex extensor margin and a flattened flexor margin; the extensor margin of the fourth tibia weakly concave to virtually straight in the distal two-thirds and the flexor margin gently convex; both margins

of the fourth tarsus nearly straight. First leg with pars tibialis 0.28 (0.28) mm. long, 0.11 (0.11) mm. deep; tibia 0.295 (0.295) mm. long, 0.077 (0.077) mm. deep; tarsus 0.295 (0.295) mm. long, 0.077 (0.077) mm. deep. Fourth leg with pars basalis 0.197 (0.197) mm. long, 0.141 (0.141) mm. deep; pars tibialis 0.373 (0.394) mm. long, 0.141 (0.148) mm. deep; entire femur 0.506 (0.520) mm. long, 0.148 (0.155) mm. deep; tibia 0.408 (0.408) mm. long, 0.098 (0.098) mm. deep; tarsus 0.337 (0.337) mm. long, 0.07 (0.07) mm. deep.

Genital complex with the anterior operculum having about 20 setae anterior to the genital aperture; with as many as 20 setae posterior to the genital aperture and in addition about 12 setae in a row along the posterior margin of the posterior operculum or third sternite.

FEMALE: The description of the female is based on three individuals, the allotype female and two paratype females. The measurements given are for the allotype except that the range of measurements of all three specimens is given in parentheses. Body much like that of the male; body length 2.5–2.9 mm. Carapace as in the male; usually 12 setae along posterior margin; length of carapace 0.703 (0.62–0.73) mm., width near posterior margin 0.59 (0.50–0.62) mm. Abdomen 2.11 (1.94–2.11) mm. long, 1.50 (1.08–1.50) mm. wide. Chelicerae as in the male; length 0.246 (0.225–0.246) mm., width of base 0.120 (0.113–0.134) mm.; length of movable finger 0.176 (0.162–0.204) mm. Palpi much as in the male; femur 0.577 (0.577–0.633) mm. long, 0.225 (0.225–0.246) mm. wide, length 2.56 (2.56 to 2.64) times the width; tibia 0.591 (0.541–0.591) mm. long, 0.260 (0.246–0.267) mm. wide, length 2.27 (2.16 to 2.27) times the width; length of chela without pedicle 1.01 (0.935–1.01) mm., width 0.38 (0.366–0.38) mm., length 2.66 (2.55 to 2.66) times the width; length of hand without pedicle 0.506 (0.45–0.506) mm.; depth of hand 0.373 (0.345–0.387) mm.; length of movable finger 0.52 (0.485–0.52) mm. Legs much as in the male. First leg with pars tibialis 0.267 (0.246–0.281) mm. long, 0.120 (0.113–0.120) mm. deep; tibia 0.309 (0.288–0.309) mm. long, 0.084 (0.084) mm. deep; tarsus 0.316 (0.295–0.316) mm. long, 0.063 (0.056–0.063) mm. deep. Fourth leg with pars basalis 0.218 (0.190–0.218) mm. long, 0.148 (0.134–0.148) mm. deep; pars tibialis 0.401 (0.366–0.401) mm. long, 0.158 (0.141–0.158) mm. deep; entire femur 0.492 (0.492–0.520) mm. long; tibia 0.436 (0.408–0.436) mm.

long, 0.106 (0.091–0.106) mm. deep; tarsus 0.337 (0.337) mm. long, 0.07 (0.07) mm. deep. Genital complex consists of an anterior operculum with about 25 setae and a posterior operculum with eight to 10 setae.

TRITONYMPH: Observations and measurements made from two paratype tritonymphs mounted in balsam. Measurements of one are given in parentheses. General characteristics much as in the adult; color slightly lighter; serrula exterior of 14 or 15 plates. Movable finger of chela with three tactile setae, *st* about midway between *b* (or *sb*?) and *t*; *nodus ramosus* proximad of *t* by width of one areole; fixed finger with *it* about midway between *et* and *est*, *ist* absent. Body 1.90 (2.25) mm. long; palpal femur 0.408 (0.422) mm. long, 0.162 (0.176) mm. wide; tibia 0.401 (0.394) mm. long, 0.190 (0.204) mm. wide; chela without pedicle 0.773 (0.759) mm. long, 0.274 (0.302) mm. wide; chelal hand without pedicle 0.380 (0.380) mm. long, 0.267 (0.281) mm. deep; movable finger 0.408 (0.408) mm. long.

DEUTONYMPH: Description based on one mounted paratype. Smaller than the tritonymph, otherwise similar in general characteristics. Serrula exterior of movable chelal finger appears to consist of 12 or 13 plates. Movable finger of chela with two tactile setae, one located a little more than one-third of the finger length from the tip of the finger, the other about one-sixth of the finger length from the base. Length of body 2.1 mm.; palpal femur 0.394 mm. long, 0.162 mm. wide; tibia 0.387 mm. long, 0.176 mm. wide; chela without pedicle 0.773 mm. long, 0.253 mm. wide; chelal hand without pedicle 0.366 mm. long, 0.246 mm. deep; movable finger 0.408 mm. long.

PROTONYMPH: Description based on three paratypes; measurements are given as ranges. Body slender, light in color; setae of body, legs, and palps as in the adult but fewer in number. Serrula exterior of movable cheliceral finger of about 12 plates. Movable finger of chela with one tactile seta located slightly proximad of midpoint of finger; *nodus ramosus* distad of tactile seta by one areole width; fixed finger with tactile seta *t* between one-third and one-fourth of finger length from tip and one seta externally and one internally near the base of the finger. Body length 1.46–1.49 mm.; palpal femur 0.267–0.281 mm. long, 0.106–0.120 mm. wide; tibia 0.253–0.267 mm. long, 0.120–0.134 mm. wide; chela without pedicle 0.534–0.577 mm. long, 0.155–0.176 mm. wide; chelal hand without pedicle 0.267–0.281 mm. long, 0.155–0.169 mm. deep; movable finger 0.267–0.295 mm. long.

TYPE LOCALITY: Utah. Holotype male, allotype female, one paratype female, two paratype tritonymphs, one paratype deutonymph, and two paratype protonymphs from a nest of *Neotoma lepida* Thomas from the Kanab Sand Dunes, Kanab, Kane County, on April 22, 1951; and one paratype male, two paratype females, and four paratype nymphs from a nest of *Neotoma cinerea* (Ord) at Lehi, Utah County, on April 22, 1949. Both collections were made by D. Elden Beck.

REMARKS: The present species appears related to *Hesperochernes unicolor* (Banks, 1908) and *H. laurae* Chamberlin, 1924, but differs from these two species in the shape and size of the palpal podomeres.

***Hesperochernes riograndensis*, new species**

Figures 11–12

MALE: Description based on one male, the holotype. Body ovate, fairly stout; light yellow in color, with carapace a light golden brown; palps a golden brown; length of body 2.1 mm. Carapace rounded anteriorly, sides convex; widest near the median transverse furrow; narrowed posterior to the posterior furrow; surface moderately to coarsely granular, more weakly granular on the dorsal surface; setae scattered, denticulate to subclavate; distance from the posterior transverse furrow to the posterior margin about one-half of the distance from the posterior transverse furrow to the median transverse furrow; posterior carapacial margin with 10 setae; eyes apparently wanting; length of carapace 0.703 mm., greatest width 0.605 mm., posterior width 0.506 mm. Tergites of abdomen moderately granulate; intertergal spaces moderately wide; setae of tergites clavate and with six setae on the central tergal halves. Sternites divided, weakly sclerotic; central sternal halves with as many as eight setae; all setae of sternites acuminate; sternites weakly granular; abdomen 1.38 mm. long, 0.98 mm. wide.

Chelicera with base fairly stout, fingers relatively slender, fixed finger moderately curved, movable finger nearly straight; subbasal seta terminally and subterminally denticulate, basal seta apparently acuminate; length of chelicera 0.211 mm., width of base 0.113 mm. Fixed finger with three strongly developed teeth on the distal inner margin in addition to three denticles on the inner surface of the apical tooth. Movable finger with subapical lobe weakly developed; apical tooth terminally sclerotic and with one

cusps; galea moderately stout, with six moderately developed rami along the distal two-thirds; serrula exterior apparently with about 16 plates; movable finger 0.169 mm. long.

Palpi fairly stout; the flexor surfaces of the trochanter, femur, and tibia moderately granular; other surfaces except extensor surface of trochanter weakly granular to smooth; setae of trochanter, femur, and tibia weakly clavate; setae stouter on the trochanter and femur than elsewhere; setae on chelal hand short and subclavate to paucidenticate; setae of fingers acuminate. Trochanter with flexor or inner margin moderately convex; 0.373 mm. long, 0.211 mm. wide. Femur moderately stout; outer margin weakly convex, more convex near the ends than near the center; inner margin weakly convex in the basal two-thirds, a very little concave in the distal one-third; the pedicle twice as long as wide, well separated from the rest of the podomere; 0.605 mm. long, 0.232 mm. wide. Tibia with basal two-thirds of outer margin nearly flat but moderately convex in the distal one-third; inner margin strongly convex, but very slightly concave distad from the center; pedicle stout, about as wide as long; 0.591 mm. long, 0.260 mm. wide. Chela with inner margin evenly convex; the outer margin more flatly convex; pedicle slightly displaced towards the outer margin; fingers slender, curved; chela without pedicle 0.956 mm. long, 0.323 mm. wide; chelal hand 0.485 mm. long, 0.323 mm. deep; movable finger of chela 0.485 mm. long. From the side, hand appears somewhat oval in general outline, pedicle displaced towards ventral side; ventral margin weakly convex, dorsal margin more convex; fingers slender, the fixed finger nearly straight, the movable finger gently curved. Each finger with about 40 marginal teeth, conical and with well-developed cusps at the distal end of the row but rounded and acuspid at the proximal end; each finger with but two accessory teeth. Nodus ramosus of movable finger located just distad of seta *st*. Tactile setae arranged as shown in figures 11 and 12.

Legs moderately slender; light yellow in color; pedal segments almost smooth; setae varying from subclavate on extensor surfaces of proximal podomeres to paucidenticate and even acuminate on flexor surfaces of distal podomeres. First leg with pars basalis 0.148 mm. long, 0.108 mm. deep; pars tibialis with extensor margin weakly convex and flexor margin nearly straight, length 0.281 mm., depth 0.091 mm.; tibia with weakly concave extensor margin except for proximal one-third which is weakly

convex, flexor margin weakly convex, deepest near distal one-third; length of tibia 0.323 mm., depth 0.07 mm.; tarsus slender, length 0.337 mm., depth 0.052 mm. Fourth leg with pars basalis 0.176 mm. long, 0.106 mm. deep; pars tibialis 0.422 mm. long; entire femur with flexor margin very weakly concave, extensor margin weakly convex, length 0.555 mm., depth 0.106 mm.; tibia with extensor margin very weakly concave, flexor margin weakly convex, length 0.478 mm., depth 0.77 mm.; tarsus with flexor margin nearly straight, extensor margin weakly convex, tarsus tapering towards distal end, widest across proximal end, length 0.366 mm., depth 0.056 mm.

Genital complex with 15 long acuminate setae on posterior operculum and with four short acuminate setae along the posterior margin of the genital pore; 18 scattered setae on the anterior operculum.

FEMALE: Description based on the allotype female and one paratype female. Measurements of the allotype are followed in some instances by corresponding measurements of the paratype in parentheses. Female much like the male; slightly larger, 2.6 (2.3) mm. long; carapace of female with much less convex lateral margins than in the male, 0.74 (0.70) mm. long, 0.49 (0.56) mm. in greatest width. Chelicerae slightly larger than in the male, very similar; length 0.225 (0.232) mm., width of base 0.120 (0.134) mm.; movable finger 0.176 (0.183) mm. long. Palpi with chela slightly larger than in the male and tibia and chela a little more slender than in the male, otherwise similar. Trochanter 0.323 (0.380) mm. long, 0.225 (0.225) mm. wide; femur 0.605 (0.633) mm. long, 0.204 (0.232) mm. wide; tibia 0.591 (0.605) mm. long, 0.225 (0.260) mm. wide; chela without pedicle 0.970 (1.03) mm. long, 0.323 (0.323) mm. wide; depth of hand 0.323 (0.323) mm., length of hand without pedicle 0.492 (0.506) mm.; movable finger as long as hand, 0.492 (0.506) mm. From the side chela much as in male; ventral margin flatly convex; dorsal margin moderately convex. Movable finger with only two accessory teeth; fixed finger with two internal and two external accessory teeth. Nodus ramosus between *t* and *st*, slightly nearer *st*. First leg with pars tibialis 0.302 mm. long, 0.084 mm. deep; tibia 0.359 mm. long, 0.070 mm. deep; tarsus 0.352 mm. long, 0.056 mm. deep. Fourth leg of female with tibia and tarsus more regularly cylindrical and slightly more slender than in the male; pars basalis 0.185 mm. long, 0.113 mm.

deep; pars tibialis 0.436 mm. long, 0.113 mm. deep; entire femur 0.577 mm. long; tibia 0.534 mm. long, 0.077 mm. deep; tarsus 0.394 mm. long, 0.056 mm. deep. Anterior operculum of genital complex with 15 setae. Posterior operculum with nine or 10 setae. Each seminal receptacle a long slender tube of uniform diameter, with conspicuous terminal bulb.

TRITONYMPH: The measurements of the tritonymph are based on two paratypes mounted in balsam, measurements of one follow in parentheses those of the other. In general like the adult except smaller and slightly lighter in color; appendages much stouter. Serrula exterior appears to have 13 plates. Movable chelal finger possessing three tactile setae; *b* (or *sb*?) missing; *st* at midpoint between *b* (or *sb*?) and *t*; *t* about one-third of finger length from tip; nodus ramosus proximad of *t* by one-third of the distance between *t* and *st*. Body 1.83 (2.05) mm. long. Palp with femur 0.443 (0.436) mm. long, 0.176 (0.190) mm. wide; tibia 0.422 (0.436) mm. long, 0.197 (0.225) mm. wide; chela without pedicle 0.759 (0.717) mm. long, 0.253 (0.267) mm. wide; chelal hand without pedicle 0.366 (0.366) mm. long, 0.253 (0.267) mm. deep; movable finger 0.394 (0.422) mm. long. Teeth of the chela much like the adult except fewer in number.

DEUTONYMPH: Measurements based on two paratypes, with measurements of one given in parentheses after those of the other. Smaller and lighter in color than the tritonymph but similar in general characteristics. Serrula exterior appears to have 13 plates. Movable chelal finger with two tactile setae, one slightly distad of the midpoint of the finger and the other about one-fifth of the finger length from the base; nodus ramosus on a level with the more distal seta. Body 1.43 (1.55) mm. long. Palp with femur 0.295 (0.323) mm. long, 0.134 (0.134) mm. wide; tibia 0.281 (0.281) mm. long, 0.148 (0.148) mm. wide; chela without pedicle 0.562 (0.562) mm. long, 0.190 (0.190) mm. wide; chelal hand without pedicle 0.274 (0.302) mm. long, 0.190 (0.197) mm. deep; movable finger 0.302 (0.295) mm. long. Marginal teeth similar to those of the adult but fewer in number; accessory teeth minute or wanting.

PROTONYMPH: Only one protonymph available for study. Serrula exterior of movable cheliceral finger of 11 plates. Movable chelal finger with only one tactile seta located at the midpoint of the finger. One tactile seta of fixed finger proximal to the midpoint of the finger, all others subbasal. About 20 marginal

teeth on each chelal finger; accessory teeth absent. Body length 1.4 mm. Palp with femur 0.197 mm. long, 0.091 mm. wide; tibia 0.197 mm. long, 0.098 mm. wide; chela without pedicle 0.352 mm. long, 0.127 mm. wide; chelal hand without pedicle 0.169 mm. long, 0.141 mm. deep; movable finger 0.169 mm. long.

TYPE LOCALITY: Socorro County, New Mexico. Type collection was made from food storage of a kangaroo rat (*Dipodomys*) collected from an over-grazed grassland area near the Rio Grande not far from Lajoya, New Mexico, on July 6, 1948. The type specimens were collected by Larry Gordon and consist of the male holotype, the female allotype, one female paratype, two tritonymph paratypes, two deutonymph paratypes, and one protonymph paratype.

REMARKS: The new species *H. riograndensis* appears to be closely related to *H. laurae* Chamberlin, 1924, in general structure and size, but the two can be separated by several differences in detail. For instance, the legs are much more slender in *riograndensis*; in lateral view, the fixed chelal finger is well curved in *laurae* but nearly straight in our species; and there are slight differences in the shape of the palpal podomeres.

***Hesperochnes unicolor* (Banks, 1908)**

Chelanops unicolor BANKS, 1908, Bull. Wisconsin Nat. Hist. Soc., new ser., vol. 6, p. 39.

Hesperochnes unicolor, HOFF, 1947, Bull. Mus. Comp. Zoöl., Harvard Coll., vol. 98, p. 511.

RECORDS: A single female assigned to this species was taken from the nest of a pack rat (*Neotoma micropus* Baird) at Laguna Madre, 25 miles southeast of Harlingen, Cameron County, Texas, on August 22, 1945, by D. E. Hardy and V. L. Woolley. A single male taken from a similar nest in the same area on August 17, 1945, by D. E. Hardy has been tentatively assigned to this species.

REMARKS: The two specimens appear to agree in general with the published descriptions of this species, except that our specimens have 18 rather than 16 plates in the serrula exterior. Since the male studied was not found in the same nest as the female and has heretofore not been described, it is assigned to the species in only a tentative manner. There is a decided need for a complete description of the male, but, when such a description is given, it should be based on a series of males

that are taken in association with females. As an addition to the literature, some measurements of the female and the male are given here. Female with palpal trochanter 0.337 mm. long, 0.211 mm. wide, length 1.60 times the width; femur 0.56 mm. long, 0.21 mm. wide, length 2.65 times the width; tibia 0.51 mm. long, 0.235 mm. wide, length 2.15 times the width; chela without pedicle 0.89 mm. long, 0.34 mm. wide, length 2.6 times the width; chelal hand without pedicle 0.49 mm. long, 0.34 mm. deep; movable finger 0.45 mm. long. Male with palpal trochanter 0.337 mm. long, 0.204 mm. wide, length 1.65 times the width; femur 0.548 mm. long, 0.218 mm. wide, length 2.51 times the width; tibia 0.506 mm. long, 0.246 mm. wide, length 2.06 times the width; chela without pedicle 0.844 mm. long, 0.352 mm. wide, length 2.4 times the width; chelal hand without pedicle 0.45 mm. long, 0.337 mm. deep; movable finger 0.429 mm. long.

***Pselaphochernes becki*, new species**

Figures 13-15

MALE: Description based on one individual, the holotype. Body moderately stout; yellow in color except for light reddish brown palps; body 1.86 mm. long. Carapace with slightly convex posterior margin and with about 12 marginal setae; anterior margin bluntly rounded and flattened at the tip; anterior portion of each lateral margin convex, posterior half of lateral margins straight, but tapering so that the carapace is widest across the posterior margin; surface heavily granular, light yellowish brown in color; setae sparsely scattered and not strongly clavate; no eye spots; length of carapace 0.591 mm., greatest width 0.534 mm. Tergites moderately granular, divided except the eleventh; half tergites with as many as seven clavate setae. Sternites 4 through 10 divided, most half sternites with 10 to 12 acuminate setae; fourth sternite with but two to three setae confined to the medial portion of each half sternite. Abdomen 1.29 mm. long, 0.773 mm. wide.

Chelicera 0.183 mm. long, 0.120 mm. wide; the laminal and interior setae acuminate, simple and much longer than the basal and subbasal setae; exterior setae acuminate; basal and subbasal setae flattened and denticulate along the distal one-third. Fixed finger with well-developed lamina exterior; the serrula interior with about five free marginal teeth, remaining teeth fused into a

velum; apical tooth with three internal denticles; internal margin of finger with six denticles in the distal one-half of the finger. Movable finger 0.183 mm. long; serrula exterior of 16 plates, the basal one or two only slightly longer than the remainder; subapical lobe close to end of finger, long and finger-like; galeal seta not extending to the tip of the galea; galea not favorable for determining distribution of rami, but apparently no more than three or four rami present.

Palpi moderately granular, except that the flexor margins of the femur, tibia, and chelal hand are more heavily granular; setae subclavate to paucidenticate except acuminate on the chelal fingers. Trochanter very coarsely granular on protuberances, length 0.267 mm., width 0.183 mm. Femur with pedicle about as wide as long; extensor margin strongly convex; and flexor margin very weakly S-shaped; length 0.455 mm., width 0.197 mm. Tibia with proximal two-thirds of extensor margin flatly convex, but distal end more convex; flexor margin strongly convex; 0.464 mm. long, 0.218 mm. wide. Chela moderately slender; hand granulate with short denticulate setae on the proximal two-thirds of the flexor margin; distal one-third of the flexor margin and the entire extensor margin with fairly long subacuminate setae, each with one or two subterminal denticulations; outer margin flatly convex, inner margin more convex; fingers fairly stout and curved; chela without pedicle 0.801 mm. long, 0.260 mm. wide; hand length without pedicle 0.323 mm., 0.260 mm. deep; finger 0.408 mm. long. Each finger with about 40 marginal teeth, contiguous, and with well-developed cusps. Each finger with a single interior accessory tooth; about four exterior accessory teeth on the movable finger and about seven on the fixed finger. From a lateral view, both the dorsal and ventral margins of the chelal hand appear flatly convex, basal margin rounded. Nodus ramosus of movable chelal finger two areolar diameters proximal to tactile seta *t*. Tactile setae as shown in figures 13 and 14.

Legs yellow in color; moderately stout; surface very weakly granular; setae varying from subclavate or paucidenticate on the extensor surfaces of proximal podomeres to acuminate on the flexor surface of the tarsus. First leg with pars basalis 0.12 mm. long, 0.113 mm. deep; pars tibialis with a weakly convex extensor margin, flexor margin less convex; length of pars tibialis 0.211 mm., depth 0.106 mm.; tibia with a weakly S-shaped extensor

margin, flexor margin weakly convex, tibia 0.239 mm. long, 0.070 mm. deep; tarsus with flexor margin very weakly convex, extensor margin nearly straight; tarsus 0.253 mm. long, 0.056 mm. deep. Fourth leg with chaetotaxy similar to first leg; pars basalis with a straight flexor margin, flexor surface with several paucidenticulate setae; extensor surface weakly convex; length 0.183 mm., depth 0.127 mm.; pars tibialis with moderately convex extensor margin, flexor margin straight and continuous with the pars basalis; pars tibialis 0.337 mm. long, 0.138 mm. deep; entire femur 0.464 mm. long; tibia with a very weak S-shaped extensor margin and a convex flexor margin, length 0.337 mm., depth 0.084 mm.; tarsus with very weakly convex extensor and flexor margins, tapering distally; tarsus 0.309 mm. long, 0.063 mm. deep; a long tactile seta on the extensor surface of the fourth tarsus located at a point about one-half of the length of the tarsus from the proximal margin.

Anterior operculum of genital complex with about 16 scattered setae; posterior operculum with eight marginal setae and four setae on the posterior lip of the genital opening.

FEMALE: Description based on a single individual, the allotype. Female much like the male; slightly larger and somewhat darker in color; body length 2.15 mm.; carapace 0.605 mm. long, 0.555 mm. in width across the posterior margin. Sternites and tergites much as in the male. Chelicera in general like that of the male but with 17 plates in the serrula exterior and with the galea bifurcated near the base and with three or four rami on each branch.

Palpi much as in the male but somewhat larger with respect to the length and width of podomeres; length-width ratios essentially as in the male; in lateral view chelal hand of female more robust than in the male; trochanter 0.302 mm. long, 0.197 mm. wide; femur 0.510 mm. long, 0.218 mm. wide; tibia 0.506 mm. long, 0.246 mm. wide; chela without pedicle 0.865 mm. long, 0.295 mm. wide; length of chelal hand without pedicle 0.436 mm., depth of hand 0.302 mm.; length of movable finger of chela 0.436 mm. Legs similar to those of male in shape, chaetotaxy, and sculpturing. First leg with pars tibialis 0.267 mm. long, 0.106 mm. deep; tibia 0.253 mm. long, 0.077 mm. deep; tarsus 0.253 mm. long, 0.056 mm. deep. Fourth leg with pars basalis 0.183 mm. long, 0.132 mm. deep; pars tibialis 0.366 mm. long, 0.147 mm. deep; entire femur 0.499 mm. long; tibia 0.380 mm. long, 0.098 mm. deep; tarsus 0.316 mm. long, 0.066 mm. deep.

Tactile seta of fourth tarsus as in the male. Anterior operculum of genital complex with 14 setae; posterior operculum with nine setae.

TYPE LOCALITY: Provo, Utah County, Utah. The holotype taken from a nest of *Rattus norvegicus* (Erxleben) on April 1, 1949; the allotype, from the nest of a species of *Microtus* at the mouth of the Provo River, on April 1, 1949. Known only from the holotype and the allotype.

REMARKS: *Pselaphochernes becki* differs from other species of the genus chiefly in size and in the length-width ratios of palpal podomeres. The present species is probably closely related to *P. scorpioides* (Hermann, 1804) from which our species differs as follows (employing for *P. scorpioides* measurements given by Beier, 1932): female of *P. becki* with femur 0.510 mm. long and tibia 0.506 mm. long, in contrast to *P. scorpioides* in which the female has a femur 0.46 mm. long and a tibia of the same length; female of our species with the length-width ratio of tibia 2.06 and of chela 2.93, while *P. scorpioides* has the length-width ratio of the tibia 2.2 and of the chela 2.7; male of *P. becki* with length-width ratio of chela 3.1, of *P. scorpioides* 2.9.

Dinocheirus texanus, new species

Figures 16-19

MALE: The description is based on four specimens, the holotype male and three paratype males. Measurements given are for the holotype, except that the range of some measurements for all four males is given in parentheses. Body ovate, fairly stout; yellowish brown to brown in color, with palps golden color to medium reddish brown; length of body 2.6 (2.2-2.6) mm. Carapace rounded anteriorly, sides gently convex; widest across the center; eyes wanting; posterior carapacial margin almost straight and with 10 to 13 setae; setae of carapace clavate; sides of carapace heavily granular, dorsal surface moderately so; length of carapace 0.773 mm., greatest width 0.675 mm., posterior width 0.605 mm. Tergites of abdomen with rather heavy granulations; all, except the terminal segment, divided; intertergal spaces wide, with tergites well differentiated; setae of tergites strongly clavate, with eight or nine setae on most of the central tergal halves. Sternites 4 to 10 inclusive divided; central sternal halves with seven to 10 setae; setae of sternites chiefly acuminate, some weakly clavate; abdomen 1.88 mm. long, 1.18 mm. wide.

Chelicera with base moderately stout, fingers moderately slender and weakly curved; subbasal seta subterminally and terminally denticulate, basal seta short and acuminate; length of chelicera 0.239 mm., width of base 0.141 mm. Fixed finger with four small teeth on the distal inner margin in addition to three denticles on the inner margin of the apical tooth. Movable finger virtually straight; subapical lobe about equal to apical tooth in length; tip of apical tooth sclerotic; galea stout, with six terminal, subterminal, and submedial rami; rami short and delicate; serrula exterior usually with 18 to 19 plates; movable finger 0.169 mm. long.

Palp fairly stout; the flexor surfaces of the trochanter, femur, tibia, and chelal hand moderately granular; other surfaces weakly granular to smooth; all podomeres with short clavate setae on flexor surfaces, setae of extensor surfaces subclavate; setae of fingers acuminate. Trochanter with flexor margin decidedly convex; 0.408 (0.394–0.422) mm. long, 0.246 (0.239–0.246) mm. wide, length 1.66 (1.65 to 1.76) times the width. Femur fairly stout, 0.591 (0.591–0.647) mm. long, 0.281 (0.267–0.281) mm. wide, length 2.10 (2.10 to 2.31) times the width; outer margin more or less evenly convex; inner margin weakly convex along the middle and slightly concave near the distal end; the pedicle as long as wide, clearly set off from the rest of the femur. Tibia with outer margin evenly convex; inner margin convex in the center, flattened to weakly concave in the distal one-third; pedicle stout, about as long as wide; 0.591 (0.562–0.591) mm. long, 0.288 (0.281–0.302) mm. wide, length 2.05 (1.96 to 2.05) times the width. Chela with outer margin evenly convex, inner margin markedly convex in the basal portion but less convex distally; pedicle moderately displaced towards the outside; fingers moderately curved; chela without pedicle 1.06 (1.02–1.06) mm. long, 0.520 (0.492–0.574) mm. wide, length 2.04 (1.79 to 2.15) times the width; chelal hand without pedicle 0.575 (0.534–0.591) mm. long, 0.548 (0.478–0.548) mm. deep; movable finger of chela 0.534 (0.485–0.591) mm. long. From the side, hand is basally swollen with a distinct basal-dorsal bulge; pedicle displaced towards the ventral margin; ventral margin of hand weakly convex; fingers moderately slender; the fixed finger nearly straight; the movable finger with exterior margin gently curved, inner margin convex in the middle portion of the finger but straight beyond. Each finger with 40 to 45 marginal teeth;

fixed finger with four to six external and six to seven internal accessory teeth; movable finger with four external and four to six internal accessory teeth. Nodus ramosus of movable finger about midway between tactile setae *t* and *st*, usually closer to *st* than to *t*. Tactile setae as shown in figures 16 and 17.

Legs moderately stout; yellow in color; podomeres weakly granulated, almost smooth; setae of both legs subclavate, occasionally clavate, on the extensor margins and paucidenticulate to acuminate on the flexor margins except subclavate on the flexor margin of the femur of the first leg. First leg with pars basalis 0.134 mm. long, 0.155 mm. deep; pars tibialis with both margins evenly convex, the flexor usually a little less convex than the extensor, 0.295 mm. long, 0.124 mm. deep; tibia with most of outer margin straight but proximal one-fourth weakly convex, flexor margin convex for most of length but slightly concave near proximal end, 0.366 mm. long, 0.098 mm. deep; tarsus tapering only slightly towards distal end, 0.366 mm. long, 0.070 mm. deep. Fourth leg with pars basalis 0.239 mm. long, 0.169 mm. deep; pars tibialis with extensor margin evenly convex and flexor margin nearly straight, 0.450 mm. long, 0.183 mm. deep; entire femur 0.555 mm. long; tibia with extensor margin almost straight but slightly convex near proximal end, flexor margin convex, 0.534 mm. long, 0.120 mm. deep; tarsus tapering slightly towards the distal end, 0.422 mm. long, 0.077 mm. deep; a long tactile seta located on the extensor surface 0.31 mm. or about three-fourths of tarsal length from the proximal margin of the tarsus.

Genital complex with posterior operculum having 15 to 20 irregularly placed setae on the face of the operculum and with four to six setae on the posterior rim of the genital aperture; anterior operculum with 25 or more irregularly placed setae.

FEMALE: The description is based on five individuals, the allotype female and four paratype females. Where given, the range of measurement is for all five females and follows in parentheses the measurement of the allotype. The female is essentially like the male; body 2.7 (2.3–2.7) mm. in length. Carapace 0.773 mm. long, 0.626 mm. at greatest width, posterior width 0.605 mm. Abdomen 1.94 mm. long, 1.46 mm. wide. Chelicera much like that of the male except that the galea is much longer and stouter and the six rami are much more prominent and some are more medially placed than in the male; galeal seta not extending to tip of galea; chelicera 0.239 mm. long, base 0.141 mm. wide,

movable finger 0.169 mm. long. Palpus as in the male, except that the depth and breadth of the chela are smaller in the female and hence the chela appears much more slender. Accessory teeth of chelal fingers variable, from three to six internal and three to six external accessory teeth on each finger. Trochanter 0.401 (0.394–0.408) mm. long, 0.225 (0.225–0.232) mm. wide, length 1.8 (1.7 to 1.8) times the width; femur 0.591 (0.562–0.633) mm. long, 0.267 (0.253–0.274) mm. wide, length 2.05 (2.05 to 2.45) times the width; tibia 0.591 (0.548–0.606) mm. long, 0.274 (0.260–0.281) mm. wide, length 2.16 (2.16–2.35) times the width; chela, exclusive of the pedicle, 1.026 (0.956–1.069) mm. long, 0.408 (0.400–0.450) mm. wide, length 2.51 (2.35 to 2.67) times the width; hand of chela without pedicle 0.520 (0.492–0.562) mm. long, 0.422 (0.394–0.443) mm. deep; movable chelal finger 0.520 (0.492–0.562) mm. long. Teeth of fingers and tactile setae as in the male. Legs similar to those of the male. First leg with pars basalis 0.134 mm. long, 0.155 mm. deep; pars tibialis 0.309 mm. long, 0.127 mm. deep; tibia 0.366 mm. long, 0.091 mm. deep; tarsus 0.366 mm. long, 0.070 mm. deep. Fourth leg with pars basalis 0.239 mm. long, 0.169 mm. deep; pars tibialis 0.436 mm. long, 0.176 mm. deep; entire femur 0.548 mm. long; tibia 0.520 mm. long, 0.113 mm. deep; tarsus 0.415 mm. long, 0.077 mm. deep. Genital complex with posterior operculum with 12 to 15 setae forming a crescent; anterior operculum with 18 to 21 scattered setae.

TYPE LOCALITY: Cameron County, Texas. Types found in two collections from Laguna Madre, 25 miles southeast of Harlingen. The specimens were taken from nests of *Neotoma micropus* Baird by D. E. Hardy. One collection taken on May 9, 1945, contains the holotype male and one paratype male; the other collection taken on September 21, 1945, contains the female allotype, four female paratypes, and three male paratypes. Since the collections contain several species of chernetid pseudoscorpions, and there is some confusion over the identity of the nymphs, all immature stages have been discarded.

REMARKS: *Dinocheirus texanus* is differentiated from other species of the genus *Dinocheirus* chiefly by size and in the length-width ratios of the palpal podomeres. The present species appears related to *Dinocheirus validus* (Banks, 1895) but differs in having the ventral margin of the chela less flattened in lateral view and the flexor surface of the palpal femur much more regularly

convex in dorsal view. There are other slight differences in the shape of palpal podomeres.

***Dinocheirus venustus*, new species**

Figures 20-23

MALE: The description of the male is based on five mounted individuals, the holotype and four paratypes. Where given, the range of measurement is for all five males and follows in parentheses the measurements of the holotype. Body ovate, moderately stout; yellow to reddish brown in color, with palps a deeper reddish brown; length of body 2.62 (2.40-2.85) mm. Carapace rounded anteriorly, sides flatly convex; widest across the center; posterior carapacial margin with 12 setae; setae of carapace weakly to strongly clavate; carapace moderately granular; length of carapace 0.839 mm., greatest width 0.647 mm., posterior width 0.619 mm. Tergites of abdomen moderately granular, with scale-like markings, all divided except the last; intertergal spaces fairly narrow; setae of tergites clavate with as many as eight to 10 setae on some of the central tergal halves. Sternites 4 to 10 inclusive divided; fourth sternal halves each with four or five setae, central sternal halves with as many as 10 setae; most of the setae of the sternites acuminate, a few denticulate; sternites with scale-like sculpturing; pleural membranes striated and rugose; abdomen 1.73 mm. long, 1.21 mm. wide.

Chelicera with base moderately stout, fingers fairly slender and slightly curved; subbasal seta subterminally and terminally denticulate, basal seta acuminate; length of chelicera 0.267 mm., width of base 0.141 mm. Fixed finger slightly curved, with four weakly developed teeth on the distal inner margin in addition to three denticles on the inner margin of the apical tooth. Movable finger almost straight; subapical lobe rather pointed; apical tooth terminally sclerotic and bicuspid or blunt; galea rather stout with six medial and subterminal rami; serrula exterior of 17 or 18 plates; movable finger 0.183 mm. long.

Palpi stout; the flexor and extensor surfaces of the trochanter, femur, and tibia moderately granular; other surfaces weakly granular to smooth; setae of trochanter, femur, and tibia stout and clavate to subclavate; setae of chelal hand chiefly multi-denticulate to subclavate; setae of fingers acuminate. Trochanter with flexor margin moderately and evenly convex; 0.464 (0.436-0.471) mm. long, 0.253 (0.253-0.281) mm. wide, length

1.78 (1.68 to 1.78) times the width. Femur moderately stout, 0.690 (0.654–0.710) mm. long, 0.295 (0.281–0.309) mm. wide, length 2.34 (2.28 to 2.34) times the width; outer margin evenly convex; inner margin flatly convex in the basal two-thirds but slightly concave in the distal one-third; the pedicle about as long as wide, well separated from the rest of the segment. Tibia with outer margin weakly but evenly convex; inner margin convex in the proximal two-thirds, but slightly concave in the distal one-third; pedicle stout; 0.647 (0.619–0.654) mm. long, 0.309 (0.295–0.337) mm. wide, length 2.09 (1.94 to 2.19) times the width. Chela with outer and inner margins more or less evenly convex; greatly swollen in the basal-flexor corner; pedicle displaced slightly to conspicuously towards the outside; fingers moderately slender, curved, well separated from hand; chela without pedicle 1.167 (1.06–1.20) mm. long, 0.548 (0.499–0.591) mm. wide, length 2.13 (2.03 to 2.13) times the width; chelal hand without pedicle 0.577 (0.506–0.618) mm. long, 0.548 (0.527–0.626) mm. deep; movable finger of chela 0.612 (0.548–0.619) mm. long. From the side, hand greatly swollen in the dorsal-basal portion; basal margin centrally concave; pedicle displaced far towards the ventral side; ventral margin weakly convex, dorsal margin more convex; fingers fairly stout, the fixed finger nearly straight, the movable finger strongly curved. Each finger with 40 to 45 marginal teeth; fixed finger with four to six external and five internal accessory teeth; movable finger with four to five internal and usually five to six external accessory teeth. Nodus ramosus of movable finger located midway between tactile setae *t* and *st*. Tactile setae as shown in figures 20 and 21.

Legs moderately stout; yellow to very light yellowish brown in color; granulation of podomeres very weak; setae of extensor surface of most segments subclavate to clavate; setae of flexor surface of basal segments subclavate to multidenticulate; setae of flexor surface of tarsus acuminate. First leg with pars basalis 0.155 mm. long, 0.155 mm. deep; pars tibialis with margins evenly convex, 0.337 mm. long, 0.141 mm. deep; tibia weakly S-shaped, 0.366 mm. long, 0.106 mm. deep; tarsus tapering slightly towards the distal end, 0.352 mm. long, 0.070 mm. deep. Fourth leg with pars basalis 0.253 mm. long, 0.169 mm. deep; pars tibialis 0.492 mm. long, 0.183 mm. deep; entire femur with flexor margin nearly straight, extensor margin evenly convex; 0.605 mm. long, 0.183 mm. deep; tibia moderately stout, extensor margin very

weakly S-shaped, flexor margin weakly convex, 0.591 mm. long, 0.120 mm. deep; tarsus moderately stout, tapering only slightly towards the distal end, 0.422 mm. long, 0.084 mm. deep; a short tactile seta located on the extensor surface 0.27 mm. or about seven-tenths of the length of the tarsus from the proximal margin of the tarsus.

Genital complex with about 25 irregularly placed setae on the face of the posterior operculum and along the posterior margin and with about six setae on the posterior rim of the genital aperture; anterior operculum with about 35 irregularly placed setae.

FEMALE: The description of the female is based on five mounted individuals, the allotype and four paratypes. Where measurements are given for all five females, those of the allotype are followed in parentheses by the range of variation for all five females. Female essentially like the male; body 2.84 (2.62–2.98) mm. in length. Carapace 0.839 mm. long, greatest width 0.717 mm., posterior width a little less than the greatest width. Abdomen 2.0 mm. long, 1.46 mm. wide. Chelicera chiefly as in the male except that the galea is stouter and the rami are much more prominent than in the male; galeal seta not extending to the tip of the galea; serrula exterior of 18 plates; chelicera 0.267 mm. long, base 0.134 mm. wide, movable finger 0.183 mm. long. Palpus very similar to that of the male except for the sexual dimorphism exhibited by the chela; base of the hand of the female more symmetrical and evenly rounded, with the length-width ratio considerably greater. Trochanter 0.464 (0.436–0.464) mm. long, 0.260 (0.239–0.260) mm. wide, length 1.78 (1.78 to 1.82) times the width; femur 0.690 (0.648–0.690) mm. long, 0.302 (0.281–0.302) mm. wide, length 2.28 (2.28 to 2.35) times the width; tibia 0.647 (0.626–0.647) mm. long, 0.309 (0.281–0.309) mm. wide, length 2.09 (2.09 to 2.19) times the width; chela without pedicle 1.167 (1.097–1.167) mm. long, 0.478 (0.450–0.492) mm. wide, length 2.44 (2.30 to 2.50) times the width; hand of chela without pedicle 0.577 (0.562–0.591) mm. long, 0.492 (0.450–0.492) mm. deep; movable chelal finger 0.605 (0.548–0.612) mm. in length. Teeth of chelal fingers and tactile setae as in the male except for slightly greater variation in numbers of accessory teeth. Legs as in the male. First leg with pars basalis 0.155 mm. long, 0.155 mm. deep; pars tibialis 0.337 mm. long, 0.141 mm. deep; tibia 0.366 mm. long, 0.098 mm. deep; tarsus 0.366 mm. long, 0.070 mm. deep. Fourth leg with pars basalis 0.260 mm. long, 0.176

mm. deep; pars tibialis 0.492 mm. long, 0.197 mm. deep; entire femur 0.619 mm. long; tibia 0.591 mm. long, 0.120 mm. deep; tarsus 0.436 mm. long, 0.077 mm. deep. Tactile seta 0.30 mm. from proximal margin of the tarsus. Genital complex with 12 to 16 setae in a crescent-like row on the posterior operculum; anterior operculum with 19 to 22 scattered setae. Seminal receptacles paired, each in the form of very long slender tube of uniform diameter and apparently without a terminal enlargement.

TRITONYMPH: The description is based on two paratype tritonymphs mounted in balsam. Measurements of one are followed in parentheses by those of the other. General characteristics much like the adult but smaller and lighter in color, with palpal podomeres somewhat stouter. Serrula exterior of chelicera with 16 plates. Movable finger of chela with three tactile setae, *t* about one-third of finger length from tip, medial seta very slightly nearer to basal seta than to *t*; nodus ramosus proximad of *t* by one areolar diameter; fixed finger with *it* proximad to *et* by a distance equal to the distance of *et* from the tip. Body 2.0 (2.1) mm. long; palpal femur 0.40 (0.48) mm. long, 0.197 (0.211) mm. wide; tibia 0.422 (0.450) mm. long, 0.211 (0.218) mm. wide; chela without pedicle 0.787 (0.851) mm. long, 0.309 (0.330) mm. wide; chelal hand without pedicle 0.394 (0.422) mm. long, 0.316 (0.345) mm. deep; movable finger 0.422 (0.439) mm. long.

DEUTONYMPH: Measurements based on three mounted paratypes and given as the range of variation for the three individuals. Smaller than the tritonymph but similar in general characteristics. Serrula exterior apparently of 13 to 15 plates. Movable finger of chela with two tactile setae, one located a little distad of midpoint of finger, the other about one-fifth of the finger length from the base; nodus ramosus located at distal edge of areole of anterior tactile seta; fixed finger with six tactile setae, *it* midway between *et* and *est*. Body 1.62–1.75 mm. long; palp with femur 0.309–0.323 mm. long, 0.169 mm. deep; tibia 0.309–0.323 mm. long, 0.169 mm. deep; chela without pedicle 0.619 mm. long, 0.246 mm. wide; chelal hand without pedicle 0.295 mm. long, 0.239–0.253 mm. deep; movable finger 0.337 mm. long. Marginal teeth as in the adult but fewer in number; accessory teeth wanting.

PROTONYMPH: The description is based on three mounted paratypes. Measurements are given as the ranges of variation for

the three individuals. Body slender, light in color. Setae of body, legs, and palps as in the adult but fewer in number. Serrula exterior of movable cheliceral finger with 11 or 12 plates. Movable finger with one tactile seta located near the midpoint of finger, nodus ramosus distad of tactile seta by one areolar diameter or less; fixed finger with tactile seta *et* one-third of finger length from tip and one internal and one external tactile seta near finger base. Body length 0.97–1.26 mm.; palpal femur 0.225–0.239 mm. long, 0.113 mm. wide; tibia 0.197–0.211 mm. long, 0.113–0.127 mm. wide; chela without pedicle 0.450–0.456 mm. long, 0.155–0.162 mm. wide; chelal hand without pedicle 0.211–0.225 mm. long, 0.162–0.169 mm. wide; movable finger 0.239 mm. long.

TYPE LOCALITY: The holotype male, the allotype female, seven paratype males, 32 paratype females, and 20 paratype nymphs are from a collection made from a pack-rat (*Neotoma*) nest at Lawrence, Kansas, in October, 1945, by Beamer and Jameson. The species is known only from the type collection.

REMARKS: *Dinocheirus venustus* appears to show considerable resemblance not to a single species but to a number of species of the genus *Dinocheirus*. Our species can be differentiated, however, by the sizes and shapes of the palpal podomeres.

FAMILY **CHELIFERIDAE** HAGEN

SUBFAMILY **CHELIFERINAE** SIMON

TRIBE **CHELIFERINI** CHAMBERLIN

Chelifer cancroides (Linnaeus, 1758)

Acarus cancroides LINNAEUS, 1758, Systema naturae, ed. 10, vol. 1, p. 616.

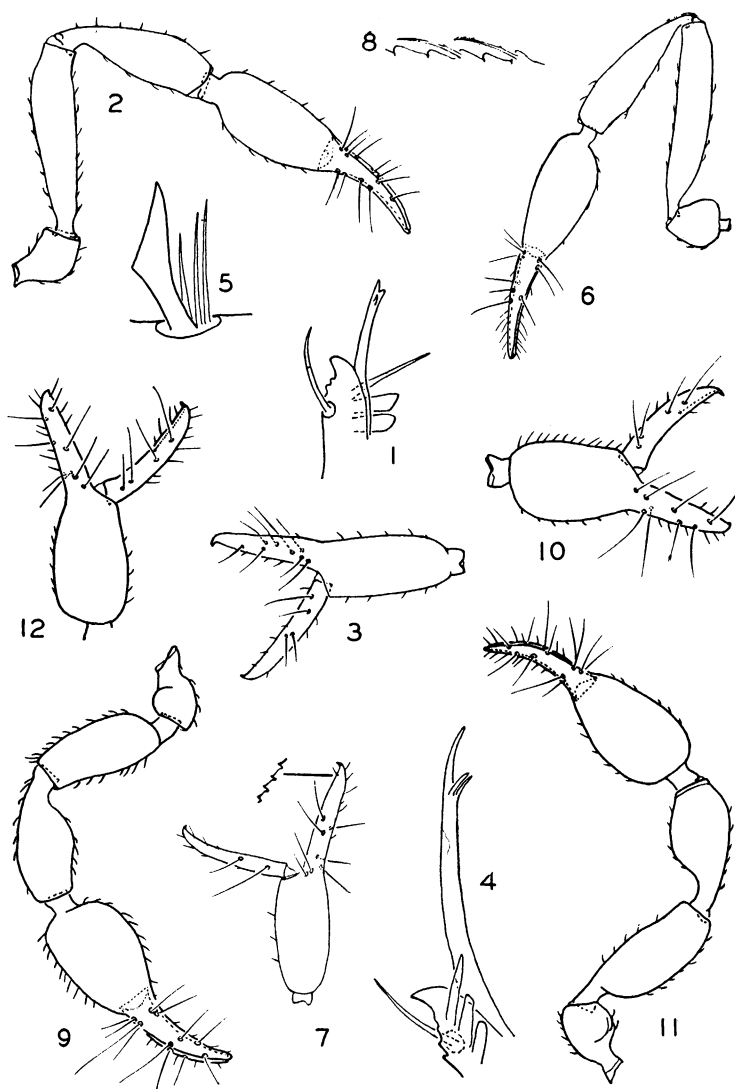
RECORDS: A single female from a nest of *Mus musculus* Linnaeus by Allred and Beck at Spanish Fork, Utah County, Utah, on December 9, 1950. A note is also made here of the occurrence of a single male in a collection made by D. E. Beck from beneath a board in an abandoned trash dump at the ghost town of Paria, Kane County, Utah, on June 21, 1951.

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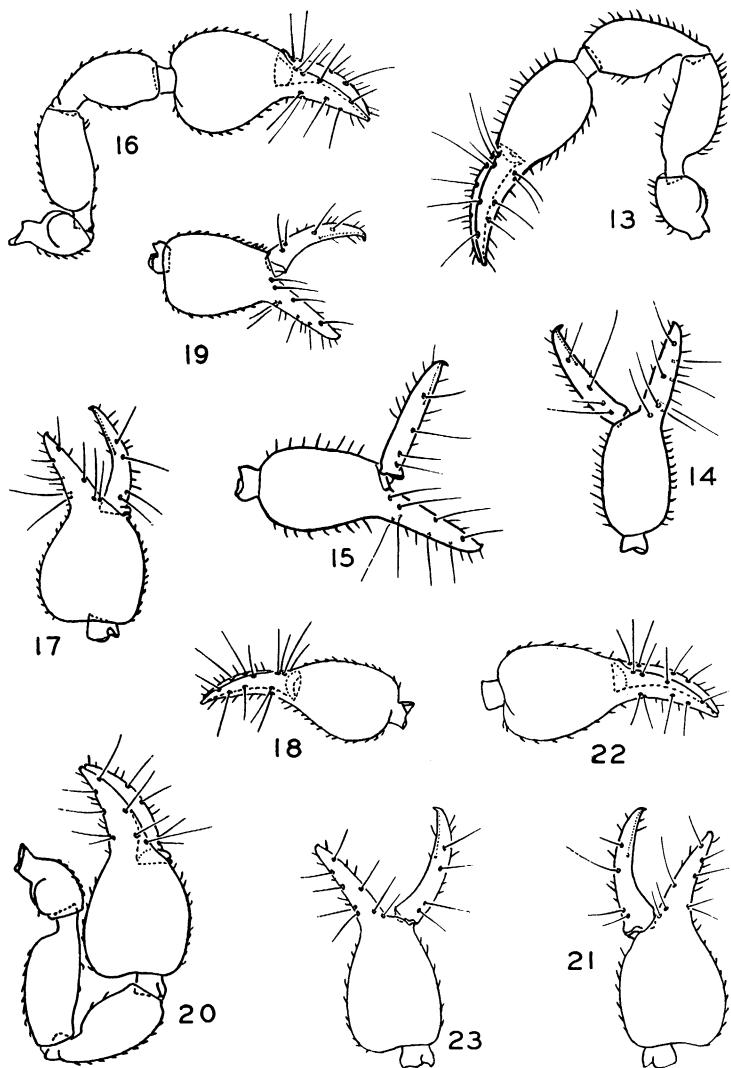


FIGS. 1-4. *Archeolarca rotunda*, new species. 1. Galea and distal end of movable cheliceral finger, male holotype. 2. Dorsal view of palp, male holotype. 3. Lateral view of chela, male holotype. 4. Galea and distal end of movable cheliceral finger, female allotype.

FIGS. 5-8. *Cheiridium insperatum*, new species. 5. Flagellum of chelicera, male paratype. 6. Dorsal view of palpus, male holotype. 7. Lateral view of chela, male holotype. 8. Investing setae of femur, male holotype.

FIGS. 9-10. *Hesperochnes utahensis*, new species. 9. Dorsal view of palp, male holotype. 10. Lateral view of chela, male holotype.

FIGS. 11-12. *Hesperochnes riograndensis*, new species. 11. Dorsal view of palp, male holotype. 12. Lateral view of chela, female allotype.



FIGS. 13-15. *Pselaphochernes becki*, new species. 13. Dorsal view of palp, male holotype. 14. Lateral view of chela, male holotype. 15. Lateral view of chela, female allotype.

FIGS. 16-19. *Dinocheirus texanus*, new species. 16. Dorsal view of palp, male holotype. 17. Sublateral view of chela, male holotype. 18. Dorsal view of chela, female allotype. 19. Sublateral view of chela, female allotype.

FIGS. 20-23. *Dinocheirus venustus*, new species. 20. Dorsal view of palp, male holotype. 21. Sublateral view of chela, male holotype. 22. Dorsal view of chela, female allotype. 23. Sublateral view of chela, female allotype.