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A REVISION OF THE LARROPSIS SUBGENUS ANCISTROMMA FOX
(HYMENOPTERA: SPHECIDAE)

R. M. BOHART¹ and G. E. BOHART²

In his revisional work, "The North American Larridae," W. J. Fox (1893) set up the subgenus *Ancistromma* for 11 species of larrid wasps. This category, as used by Fox, was synonymous with *Larropsis* Patton described in the previous year. However, *Larropsis* divides logically into two subgenera and *Ancistromma* is available for one of these since the designation of *L. distincta* as its type by Rohwer (1911).

Of the 11 species considered by Fox, only 4, one of which is sub-specific, are in *Ancistromma* as now constituted. With several species added by later workers and 6 new ones described herein, the subgenus now contains 11. Generally speaking these are the forms of *Larropsis* with the interocular distance strongly narrowed toward the vertex.

Material of *Ancistromma* made available from institutions and individual collections has totaled about 500 specimens. We are grateful to the following for their cooperation: Y. U. Amrein (Pomona College), W. E. Barr (University of Idaho), W. L. Brown, Jr. (Museum of Comparative Zoology, Harvard: MCZ), G. W. Byers (Snow Museum, University of Kansas), R. R. Dreisbach, G. R. Ferguson, H. J. Grant, Jr. (Academy of Natural Sciences, Philadelphia: ANSP), T. H. Hubbell (Museum of Zoology, University of Michigan), P. D. Hurd, Jr. (California Insect Survey, University of California, Berkeley), G. P. Knowlton (Utah State University), K. V. Krombein (U. S. National Museum: USNM), W. M. Mason (Canadian National Collection), A. T. McClay (University of California, Davis), L. W. Quate (University of Nebraska: U. Nebr.), E. S. Ross (California Academy of Sciences: CAS), H. F. Schwarz (American Museum of Natural History), H. A. Scullen (Oregon State College), P. H. Timberlake (University of California, Riverside), and F. S. Truxal (Los Angeles County Museum).

Special mention should be made of F. X. Williams who furnished the nucleus of our collection in the interest of progress in classification of the Larrinae.

Holotypes are deposited as indicated in the descriptions. Paratypes will be distributed to the collections listed above, insofar as possible.

Subgenus *Ancistromma* Fox

Ancistromma Fox, 1893. Proc. Acad. Nat. Sci. Phila. 45:487. Type, *Larrada distincta* Smith, desig. Rohwer, 1911.

Subgeneric diagnosis.—With the generic characters of "comma-shaped" upper ocellar scars; face raised somewhat along inner eye margins, especially in females; fore-tarsal comb of female composed of thorn-like setae instead of flexible ones as in *Tachysphex*; pygidium of female with stiff, appressed, setose bristles, be-

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coming longer and heavier distally; male tergite VII with stiff bristles, not silvery-pubescent. Subgenerically, epipleural sinus not limited below by strong cross ridges which occur in *Larropsis* s.s. (compare figs. 1 and 2); eyes approaching toward vertex so that least interocular distance is usually less than length of flagellar segment I and pedicel taken together; female clypeus usually sharply declivous below discal prominence, with a well defined sublateral tooth, and a well-defined anterior flange.

A study of male genitalia has revealed few specific differences other than size. In general the species of *Ancistromma* have coarser teeth on the aedeagus. There appears to be a constant subgeneric difference in the cuspis, a boomerang-shaped structure with translucent distal blade and pigmented basal "handle." In *Ancistromma* the distal part is much shorter than the base, whereas in *Larropsis* the two sections are about equal in size and length.

Systematics.—The unridged upper mesepimeron and the strongly convergent eyes are both useful characters but the former is more diagnostic.

The 11 known species of the subgenus can be separated into groups A and B on the basis of "short" versus "long" first flagellar segment in the female (compare figs. 11 and 9). Group A divides into two subgroups, (1) with female fore-femur unpolished and the first flagellar segment shorter than second (*distincta*, *platynota*), and (2) with female fore-femur extensively polished on outer surface and first two flagellar segments about equal (*portiana*, *sericifrons*). Group B is divisible into three subgroups, (1) with female clypeus strongly bulging and fore-femur extensively polished (*bradleyi*, *capax*, *corrugata*), (2) with evenly convex female clypeus, unpolished fore-femur, and densely setose median cell of the forewing (*aurantia*, *shappirioi*) and (3) with evenly convex clypeus, reduced setosity of the median cell, and unusually finely sculptured propodeal enclosure (*granulosa*, *hurdi*).

A description of the larva of *distincta* has been given by Evans (1958a).

Biology.—Cave crickets of the genus *Ceuthophilus* are known to be prey of *aurantia* and *capax*, whereas the field cricket, *Nemobius*, is utilized by *distincta* according to Evans (1958b). In Evans' paper a description of hunting behavior and nesting habits is given. He postulated a rather primitive behavior since this species of *Ancistromma* used pre-existing cavities in the soil as nesting sites, paralyzed the prey lightly, and carried the prey over the ground with the mandibles. Two species of miltogrammine flies were acting as parasites.

Distribution.—The subgenus is essentially a northern one with habitats primarily in the Canadian and Transition life zones. A few species, such as *granulosa* and *sericifrons* seem to prefer the Upper Sonoran zone. The two captures of *shappirioi* indicate that it may be

a creature of the Carolinian zone. Our records for the subgenus are plotted in figures 27-32. It seems likely that the ranges of several species will be found extending into Mexico, at least in Baja California, Sonora and Chihuahua. The European species, *punctulatus* Kohl shows definite relationship to the *distincta* group.

KEY TO MALES OF LARROPSIS (ANCISTROMMA)

1. First flagellar segment with greatest breadth less than one-half the greatest length; least interocular distance nearly always equal to or shorter than length of first flagellar segment..... 2
 First flagellar segment at least one-half as broad as long; least interocular distance always greater than length of first flagellar segment..... 5
2. Least interocular distance less than median length of clypeus and usually less than length of flagellar segment I; vertex area between ocellar scars and summit longer than broad (fig. 20); striae of propodeal side fine and even..... *bradleyi* G. & R. Bohart
 Least interocular distance subequal to median length of clypeus, or striae of propodeal side moderate to coarse..... 3
3. Propodeum laterally reticulate, scarcely striate..... *aurantia* (Fox)
 Propodeum laterally with distinct striae..... 4
4. Propodeum laterally with striae evenly graded from top to bottom; vertex area between ocellar scars and summit about as broad as long (fig. 16)..... *capax* (Fox)
 Propodeum laterally with coarse striae above and fine ones rather abruptly below; vertex area between ocellar scars and summit longer than broad (fig. 18)..... *corrugata* G. & R. Bohart
5. Propodeal enclosure with sculpture (reticulation, puncturation, or granulation) much finer than that of scutellum..... 6
 Propodeal enclosure with sculpture coarser than or about equal to that of scutellum..... 8
6. Least interocular distance much greater than first flagellar segment plus pedicel (fig. 6); abdomen black..... *granulosa* G. & R. Bohart
 Least interocular distance about equal to first flagellar segment plus pedicel (fig. 8); abdomen mostly or all red..... *hurdi* G. & R. Bohart
7. Propodeal enclosure with sculpture much coarser than that of scutellum..... 8
 Propodeal enclosure with sculpture not coarser than that of scutellum..... 9
8. First flagellar segment distinctly shorter than second (fig. 10); posterior face of propodeum not enclosed by a ridge..... *distincta* (Smith)
 First flagellar segment as long as second (fig. 14); posterior face of propodeum enclosed except at mid-dorsal point by a high, irregular ridge, the face itself with about 5 very strong transverse rugae and one or two oblique ones..... *shappirioi* G. & R. Bohart
9. Penultimate antennal segment more than twice as long as broad (fig. 12); last 4 abdominal segments black..... *aurantia* (Fox)
 Penultimate antennal segment less than twice as long as broad (figs. 22, 25); last 4 abdominal segments red or slightly darkened..... 10

10. Hind femur partly, fore and mid-tibiae red; silvery pubescence of mesonotum untarnished as viewed from above and in front.....
 **portiana** (Rohwer)
 Hind femur, fore and mid-tibiae dark; silvery pubescence of mesonotum somewhat tarnished as viewed from above and in front.....
 **sericifrons** (H. S. Smith)

KEY TO FEMALES OF THE GENUS *LARROPSIS* (*ANCISTROMMA*)

1. First flagellar segment at most twice as long as broad..... 2
 First flagellar segment $2\frac{1}{2}$ to 3 times as long as broad..... 5
2. Femora largely red **portiana** (Rohwer)
 Femora black 3
3. Propodeal enclosure coarsely granulate, or with close striae; outer surface of fore-femur highly polished; first two flagellar segments equal in length (fig. 34)..... **sericifrons** (H. S. Smith)
 Propodeal enclosure with distinct, well separated striae; outer surface of fore-femur rather evenly punctate, not highly polished; first flagellar segment shorter than second (figs. 11, 24)..... 4
4. Scutum with median punctures moderate in size and separated by less than a puncture diameter; abdomen partly or all black; pygidial setae dark coppery..... **distincta** (Smith)
 Scutum with median punctures fine, separated by more than a puncture diameter, in addition an even scattering of much stronger punctures **platynota** G. & R. Bohart
5. Front femur well punctured on outer surface for almost entire length; punctures toward middle of scutellum separated by less than a puncture diameter 6
 Front femur with outer surface polished and sparsely punctate for almost entire length; punctures toward middle of scutellum separated by more than a puncture diameter 8
6. Median cell with posterior portion much more sparsely setose than anterior portion; wings nearly hyaline (usually with milky reflection); hind femur and tibia red **hurdi** G. & R. Bohart
 Median cell rather uniformly setose; wings distinctly fumose (smoky); hind femur and tibia dark 7
7. Posterior face of propodeum with median sulcus extending to bottom of propodeum, dividing it into 2 coarsely, irregularly rugose areas, enclosed above by a high ridge **shappirioi** G. & R. Bohart
 Posterior face of propodeum with median sulcus extending about $\frac{2}{3}$ of the way to bottom of propodeum, posterior face with numerous rather fine transverse rugulae **aurantia** (Fox)
8. Hind femur largely red **bradleyi** G. & R. Bohart
 Hind femur largely black 9
9. Least interocular distance at least $1\frac{1}{2}$ times as great as length of first flagellar segment (fig. 7); mesopleural and scutal pubescence pale.....
 **granulosa** G. & R. Bohart
 Least interocular distance less than $1\frac{1}{2}$ times as great as length of first flagellar segment (figs. 17, 19); mesopleural and scutal pubescence dark 10

10. Propodeum laterally with coarse striae above and fine ones rather abruptly below; abdomen red toward apex.....*corrugata* G. & R. Bohart
 Propodeum laterally with striae evenly graded from top to bottom;
 abdomen often black toward apex, or sometimes all black.....
 -----**capax** (Fox)

Larropsis (Ancistromma) aurantia (Fox)

(Figs. 12, 13, 28)

Larra aurantia Fox, 1891. Ent. News 2:194. Montana (lectotype female, ANSP).

Ancistromma aurulenta Fox, 1893. Proc. Acad. Nat. Sci. Phila. 45:388, lapsus.

Diagnosis. *Female*.—Body length about 12 mm. Abdomen all red (all black in specimen from Kansas); wings brown-stained. Pubescence brownish on head and thorax, golden on abdomen, median cell of forewing with dense microsetae. Punctuation of head and thorax fairly coarse and close, fore-femur with a shiny spot on distal one-half; abdomen punctuation obscure but more definite than usual; pygidial punctures close and fairly coarse. Clypeus moderately convex; flange with a median notch and 2 lateral ones. Least interocular distance about as long as flagellar segment I which is about 3 times its greatest breadth (fig. 13). Propodeal side and enclosure granulate and scarcely striate, posterior face weakly cross-striate, not enclosed by ridges, median sulcus incomplete below. Pygidial setae dense toward apex and golden.

Male.—Body length about 9 mm. Abdomen usually with last four segments black. Fore-femur well punctured. Clypeal flange convex, indented medially and laterally; flagellar segment I a trace longer than II, about 2.1 times as long as broad, a little shorter than least interocular distance (fig. 12).

Systematics.—Belonging in the long antenna group of *Ancistromma*, it seems to form a reasonable subgroup with *shappirioi* which also has dense notal punctuation and even more completely punctate fore-femur.

Biology.—A female from Yellowstone Co., Montana, was taken with a paralyzed *Ceuthophilus fusiformis* Scudder.

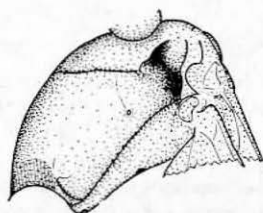
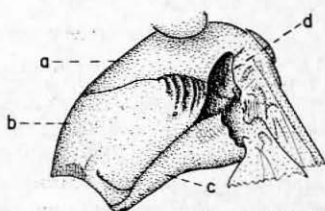
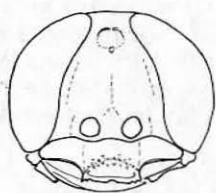
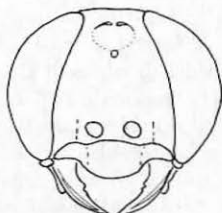
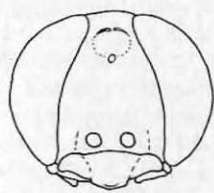
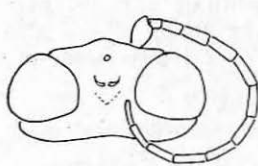
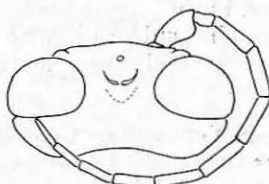
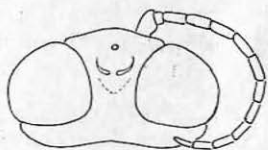
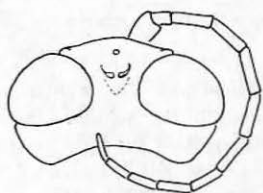
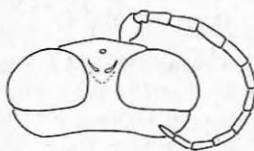
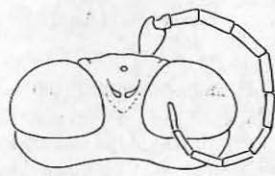
Distribution.—It ranges generally throughout the midwest as indicated in fig. 28.

Larropsis (Ancistromma) bradleyi G. and R. Bohart, new species

(Figs. 20, 21, 31)

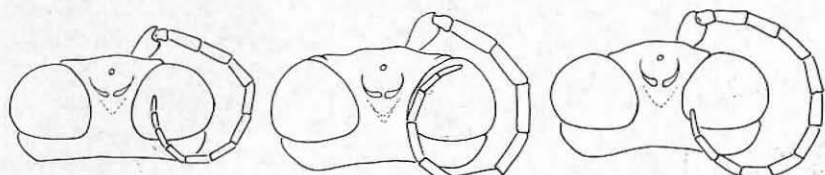
Female.—Length 10.0 mm., forewing length 7.5 mm. Head and thorax black, abdomen red; third and following flagellar segments, mandible tip, tegula, fore- and mid-legs, hind coxa and trochanter mahogany to black; rest of hind leg red; forewing dark stained, hind wing nearly clear. Pubescence pale, restricted, inconspicuous; microsetae of median cell of forewing moderately dense, thinner toward middle. Punctuation generally moderate to fine, coarse but well spaced on clypeus, moderate and close but distinct on frons, fine and very close on vertex and in addition a scattering of larger punctures, rather fine and 1-3 puncture widths apart on central area of scutum, finer and more widely separated on scutellum, fine and very close on postscutellum and propodeal enclosure,

moderately coarse and close on pleuron and propodeum laterally, widely scattered on shiny outer surface of fore-femur, extremely fine and well-spaced or obsolete on abdomen, large and widely spaced on pygidium. Clypeus strongly bulging, flange, with a median notch and a lateral one, proportions of flagellar segments

1. *distincta* ♀2. *tenuicornis* ♀3. *corrugata* ♀4. *granulosa* ♂5. *hurdi* ♂6. *granulosa* ♂7. *granulosa* ♀8. *hurdi* ♂9. *hurdi* ♀10. *distincta* ♂11. *distincta* ♀

Larropsis (Ancistromma) spp. Figs. 1 and 2, left pleural areas of female (a, mesepisternum; b, mesepimeron; c, metepisternum; d, epipleural sinus); figs. 3, 4 and 5, front view of head, minus antennae; figs. 6 through 11, top view of head and right antenna.

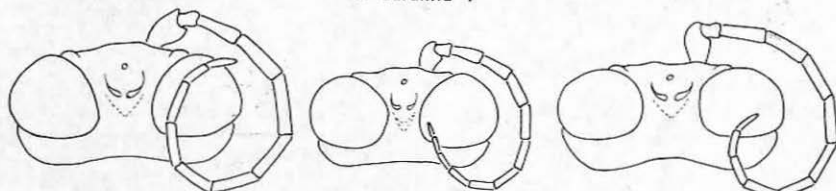
and least interocular distances as in fig. 21. Propodeum very distinctly, finely, and obliquely striate in enclosure which is hardly margined and has a faint median groove; striae of propodeum laterally a little coarser, even, distinct; posterior propodeal surface with indistinct but moderately coarse cross-striae,



12. *aurantia* ♂

13. *aurantia* ♀

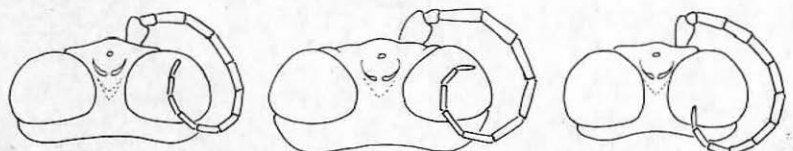
14. *shappirioi* ♂



15. *shappirioi* ♀

16. *capax* ♂

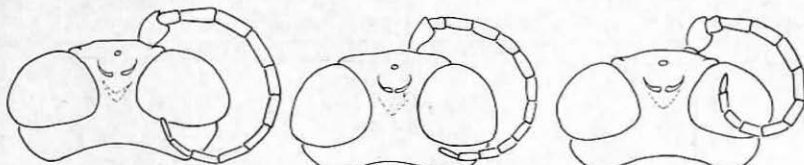
17. *capax* ♀



18. *corrugata* ♂

19. *corrugata* ♀

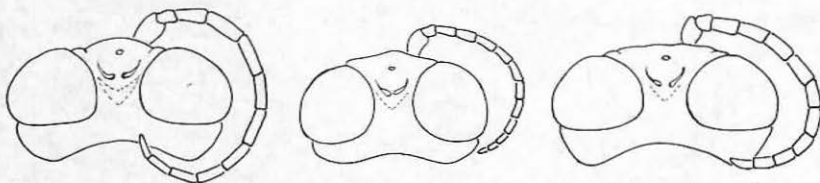
20. *bradleyi* ♂



21. *bradleyi* ♀

22. *sericifrons* ♂

23. *sericifrons* ♀



24. *platynota* ♀

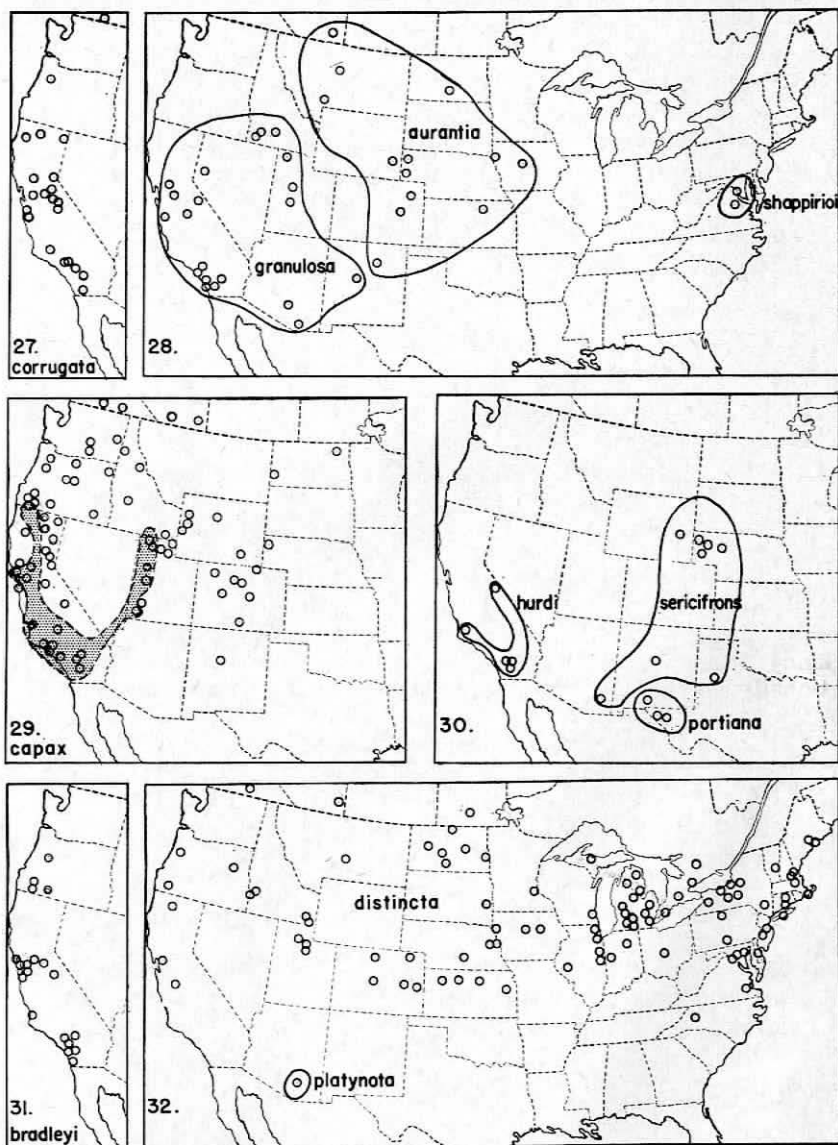
25. *portiana* ♂

26. *portiana* ♀

Larropsis (Ancistromma) spp. Figs. 12 through 26, top view of head and right antenna.

median sulcus fading below. Pygidium with sides converging at an angle of about 40 degrees, several rows of long golden setae near apex.

Male.—Differing from description of female primarily as follows: a little



Larropsis (Ancistromma) spp. Figs. 27 through 32, distribution of specimens studied; stippled area represents approximate range of *capax* with all-red abdomen.

smaller, antennae and legs except for tarsi, black. Sides of face and clypeus with appressed silvery pubescence. Punctuation in general coarser and closer, dorsum of thorax completely punctured and dull, abdominal tergites finely and closely punctured basally, a little less closely toward apex, punctures of sternites close laterally but becoming sparse medially; outer surface of fore-femur well punctate. Clypeal flange indented medially and sublaterally, antennal proportions as in fig. 20, least interocular distance less than length of flagellar segment I.

Holotype, female (CAS), San Rafael, Marin Co., California, July 16, 1922 (F. X. Williams). Paratypes, 25 males, 21 females, all from California, July to September as follows: San Rafael and Mill Valley, Marin Co. (F. X. Williams); Berkeley (J. C. Bridwell) and Livermore, 20 miles south (M. Wasbauer), Alameda Co.; Danville (F. X. Williams) and Orinda (M. Wasbauer), Contra Costa Co.; Davis, Yolo Co. (S. F. Bailey); Redwood City, San Mateo Co. (F. X. Williams); San Antonio Valley, Santa Clara Co. (P. D. Hurd); Santa Cruz, Santa Cruz Co. (S. M. Fidel); Mokelumne Hill, Calaveras Co. (F. E. Blaisdell); Yosemite Park, 5000 ft., Tuolumne Co. (A. L. Olson); Lone Pine, Inyo Co. (E. I. Schlinger); Black Lake Canyon, San Luis Obispo Co. (R. M. Bohart); Tanbark Flat, Los Angeles Co. (R. Schuster); Mountain Home, San Bernardino Co. (E. I. Schlinger); Peters Canyon, Orange Co. (R. M. Bohart); Temecula, Riverside Co. (J. W. MacSwain); San Diego, San Diego Co. (F. E. Blaisdell). Metatypes (all from Oregon); 1 female, Pinehurst (J. Schuh); 1 female, Klamath Falls (G. R. Ferguson); 1 female, Macdonald Forest near Corvallis (G. R. Ferguson).

Systematics.—The red hind legs of the female are distinctive among the *copax*-like species with moderately long flagellar segments and shiny front femur (see systematics under *corrugata*). The exceptionally narrow least interocular distance of the male combined with the regularly striate propodeal side are characteristics. It is known only from California and western Oregon (fig. 31). We take pleasure in naming the species for the well-known Hymenopterist, Professor J. C. Bradley.

Larropsis (Ancistromma) capax (Fox)

(Figs. 16, 17, 29)

Ancistromma capax Fox, 1893. Proc. Acad. Nat. Sci. Phila. 45:490, Colorado (lectotype female, ANSP).

Ancistromma dolosa Fox, 1893. Proc. Acad. Nat. Sci. Phila. 45:492, California (lectotype female, ANSP).

Larropsis dolosana Rohwer, 1915. Proc. U. S. Natl. Mus. 49:245, Washington (holotype female, USNM).

Larropsis picina Mickel, 1916. Trans. Amer. Ent. Soc. 42:418, Nebraska (holotype female, U. Nebr.).

Diagnosis. *Female.*—Body length about 14 mm. Abdomen often with last 3 segments black, sometimes all black or all red; wings dark brown. Median cell of forewing with dense microsetae. Punctuation of head and thorax mostly

moderate and close except on scutum and scutellum where punctures are rather widely spaced; outer surface of fore and mid-femur shiny for entire length; abdominal punctation obscure, pygidium with coarse punctures, dense distally. Clypeus strongly bulging, flange with median notch and 2 lateral ones. Least interocular distance a little more than length of flagellar segment I which is nearly three times its greatest breadth (fig. 17). Propodeal side coarsely striate, enclosure finely or obscurely, posterior face cross-striate, not enclosed by ridges, median sulcus incomplete below. Pygidial setae dense on distal one-half, reddish golden.

Male.—Body length about 10-12 mm. Abdominal coloration as in female. Femora fairly well punctate. Clypeal flange convex, indented medially and laterally. Flagellar segment I a trace longer than II, about 2.1 times as long as broad, about as long as least interocular distance (fig. 16).

Systematics.—The three color forms have given rise to a number of synonyms. The all-black variety, called *dolosana* by Fox and *picina* by Mickel is most common in the Rockies, the northwest and north central area. We have seen this form from Albany Co. and Worland, Wyoming; Colorado-Wyoming line on Highway 287; Steamboat Springs, Cascade, Fort Garland, and Boulder, Colorado; Wallace and Moscow, Idaho; Yakima, Washington; Okanagan Falls and Robson, British Columbia; Garden City, Utah; Beach, North Dakota; Harrison, Nebraska; and Crook Co., Enterprise, and Antelope Mt., Oregon. The typical red and black abdomen form frequents the Sierra and Rocky Mountain ranges, intermingling with the all-black variety to the north and at lower elevations in the mountains. The all-red abdomen form, called *dolosa* by Fox, is characteristic of the Upper Sonoran life zone in southern Oregon (Gold Hill), California (Davis, Antioch, Tomales Bay, Oso Flaco Lake, Oxnard, Saticoy, Claremont, Camp Baldy, Los Angeles, Walker Pass, Big Bear Lake, Idyllwild, Anza, Warner Springs) and Utah (Kelton, Park Valley, Iosepa, Delta, Topaz, Zion National Park). The approximate range of this form is indicated by the stippled area on figure 29. Because of the rather indefinite limits it does not seem advisable to recognize subspecies on the basis of color. Geographical variation is also expressed in scutal punctation, that of the Pacific States forms being relatively fine and sparse, whereas specimens from east of the Continental Divide have it coarser and denser. Material from the eastern Great Basin is generally intermediate in this respect. The separation of *capax* from *bradleyi* and *corrugata* is discussed under *corrugata*.

Biology.—A typically marked female from Clio, Plumas Co., California, was collected by R. C. Bechtel in possession of a nymphal *Ceuthophilus*.

Distribution.—As illustrated in figure 29, *capax* occurs generally from the Rocky Mountains westward. It favors the Transition and Canadian life zones but occurs also in the Upper Sonoran. To the east its range overlaps slightly that of *aurantia*, the dominant Great Plains species.

Larropsis (Ancistromma) corrugata G. and R. Bohart, new species

(Figs. 3, 18, 19, 27)

Female.—Length 16.0 mm., forewing length 13.0 mm. Head and thorax black, abdomen red; forewing dark-stained, hind wing nearly clear. Pubescence mostly pale, inconspicuous; microsetae of median cell of forewing moderately dense, thinner toward middle. Punctuation generally moderate to fine, coarse but well spaced on clypeus, moderate and close but distinct on frons, vertex punctures about a puncture width apart, large scattered punctures prominent here and on scutum and scutellum, scutal punctuation rather sparse, scutellum mostly polished, punctures fine and very close on postscutellum and propodeal enclosure, moderately coarse and close on pleuron and propodeum laterally, widely scattered on shiny outer surface of fore- and mid-femora, extremely fine and well-spaced or obsolete on abdomen, large as well as fairly thick and striatiform on pygidium. Clypeus strongly bulging, flange with a median notch and 2 lateral ones (fig. 3), proportions of flagellar segments and least interocular distance as in fig. 19. Propodeal enclosure finely but distinctly striate, propodeum laterally with fine close striae below but becoming much coarser and widely spaced in upper one-half, posterior surface with fairly coarse cross-striae, median sulcus fading to a carina below. Pygidium with sides converging at an angle of about 40 degrees, distal setae reddish to black.

Males.—About as in female but smaller (8-10 mm. long), tergites IV-VII and sternites V-VII black. Sides of face and clypeus silvery, scutal pubescence with bronzy reflections, narrow silvery apical bands on tergites II-III. General punctuation coarser and closer, notum closely punctate, outer surface of front femur a little more closely punctate but still shiny, abdomen with fine and rather close punctures, a little more widely spaced toward middle of venter. Clypeal flange indented medially and laterally, antennal proportions as in fig. 18, least interocular distance a little less than length of flagellar segment I.

Holotype, female (CAS), Strawberry, Tuolumne Co., California, July 17, 1951 (J. W. MacSwain). Paratypes, 11 males, 24 females, all from California, June to September, as follows: Lake City, Modoc Co. (C. L. Fox); McCloud, Siskiyou Co. (E. P. Van Duzee); Trinity Co. (G. E. Bohart); Sagehen Creek, Sierra Co. (R. M. Bohart); Lake Tahoe (R. M. Bohart) and Thompson's Creek (F. X. Williams), Placer Co.; Colusa, Colusa Co. (R. O. Schuster); China Flat and Pyramid Ranger Station, El Dorado Co. (J. W. MacSwain); Jackson, Amador Co. (R. and G. Bohart); Yosemite, Mariposa Co. (P. Hurd, J. MacSwain); Mt. Herman (W. E. Hazeltine) and Laurel (D. J. Burdick), Santa Cruz Co.; Rio Vista, Solano Co. (R. P. Allen); Jamesburg, Monterey Co. (R. I. Sailer); Paradise Valley (E. C. Van Dyke) and Huntington Lake (E. P. Van Duzee), Fresno Co.; Frazier Park, Kern Co. (F. A. Ehrenford); Tanbark Flat (D. E. Barcus) and Mt. San Antonio (W. E. Kelson), Los Angeles Co.; Snowcrest Camp, San Bernardino Co. (D. S. Thompson); Idyllwild, Riverside Co. (E. C. Van Dyke); Mt. Laguna, San Diego Co. (E. P. Van Duzee). Metatypes, 1 female, 5 miles west of Lewisburg, Benton

Co., Oregon (G. R. Ferguson); 4 females, Okanagan Falls, and 1 female Keremeos, British Columbia (Sladen).

Systematics.—The subgenus *Ancistromma* divides into 2 groups on the basis of the antennal length. The long antenna group contains 3 subdivisions, the *aurantia* subgroup, the *granulosa* subgroup, and the *capax* subgroup. The last-named group contains 3 closely related species, *bradleyi*, *capax*, and *corrugata*. These are characterized in the female by a bulging clypeus, extensively polished fore- and mid-femora, and well separated punctation on the scutum and scutellum. The females of the 3 species are not difficult to distinguish since *bradleyi* has red hind legs and *corrugata* has an all red abdomen in addition to its peculiar propodeal striation. The vertex is a little broader in *capax* than in the other two as seen by comparing figures 17, 19 and 21. Males are somewhat less distinctive and special attention must be paid to least interocular distance and propodeal striation as indicated in the key.

Distribution.—The known range covers much of California, north to southern British Columbia (fig. 27). Except for a few Upper Sonoran records, it is found mostly in the Transition and Canadian life zones.

Larropsis (*Ancistromma*) *distincta* (Smith)

(Figs. 1, 10, 11, 32)

Larropa distincta Smith, 1856. Cat. Hym. Brit. Mus. 4:292, New York (holotype female, Brit. Mus. Nat. Hist.).

Larropsis distincta semirufa Banks, 1921. Ann. Ent. Soc. Amer. 14:19, Massachusetts (syntype males and females, Mus. Comp. Zool.).

Diagnosis. Female.—Body length about 11 mm. Abdomen usually red with last 3 segments black, but sometimes all black (Michigan), wings lightly smoky. Median cell of forewing with dense microsetae. Punctation rather fine and close, including fore- and mid-femora; abdominal punctation very fine, mostly obscure, pygidium with large and fairly close punctures. Clypeus moderately convex, flange with a weak median notch and 2 lateral ones. Least interocular distance about 1.3 times length of flagellar segment I which is a little shorter than II and less than twice as long as broad (fig. 11). Propodeal side finely striato-granulose; enclosure with distinct and well separated striae; posterior face cross-striate, not enclosed by ridges, median sulcus fading to a line below. Pygidial setae dense on distal one third, dark coppery.

Male.—Body length about 9 mm. Abdomen with last 4 segments black or rarely all-black. Clypeal flange truncate medially, indented laterally. Flagellar segment I distinctly shorter than II, 1.3 to 1.5 times as long as broad, 0.6 to 0.8 times as long as least interocular distance (fig. 10).

Systematics.—Except for some all-black Michigan specimens, the color pattern is remarkably constant in the material before us. This species, the type of the subgenus, is one of the short antenna forms and is readily distinguished from its somewhat distant relatives by

the close punctation of both scutum and fore-femur. The rather coarse striation of the propodeal enclosure as well as the unusually short flagellar segment I in the male are additional recognition characters.

Biology.—Evans (1958) described the nesting habits and recorded *Nemobius faciatus* (DeGeer) as the prey. Nests were made from the bottoms of pre-existing depressions in the ground, particularly the caved-in parts of mole burrows. Cells were located 4 to 8 inches below the surface, and varied in number from 1 to 9, radiating from a common point. Most cells contained 2 crickets, the wasp egg located between the front and middle coxae of the first cricket in the cell. Miltogrammine parasites reared from the nests were *Metopia argyrocephala* (Meigen) and *Senotainia trilineata* (Wulp).

Distribution.—As shown in fig. 32, *distincta* is well represented in North America between latitudes of 37° N. and 50° N.

***Larropsis (Ancistromma) granulosa* G. and R. Bohart, new species**
(Figs. 4, 6, 7, 28)

Female.—Length 10.0 mm., forewing length 8.0 mm. Head and thorax black, variegated with reddish brown on mandible and legs, abdomen red. Forewing rather evenly smoky, hind wing nearly clear, pubescence mostly pale, inconspicuous; microsetae of median cell of forewing absent over most of basal two-thirds, small and irregular elsewhere. Punctuation fine and close on head and thorax, microscopic on abdomen which has a satiny sheen; punctures of frons, vertex, scutum mostly less than a puncture width apart, those on scutellum somewhat more spaced, on propodeal enclosure very fine and granulate, on pleuron fine and dense, widely scattered on smooth but shagreened outer surface of fore- and mid-femora, large and widely spaced on pygidium. Clypeal flange practically entire medially, with a small sublateral notch, median clypeal area rather evenly convex, proportions of flagellar segments and least interocular distance as in fig. 7. Striae obsolescent on propodeal enclosure, fine and close on side of propodeum; posterior face not bounded by ridges, with fine, widely spaced cross-striae, median sulcus fading to a carina below. Pygidium with sides converging at an angle of about 40 degrees, distal setae reddish.

Male.—About as in female but smaller (6-8 mm. long), abdomen black. Sides of face and clypeus silvery, narrow silvery apical bands on tergites I-III. General punctuation a little coarser, notum closely punctate throughout. Clypeal flange evenly convex (fig. 4). Antennal proportions as in fig. 6. Least interocular distance about 2.3 times length of flagellar segment I.

Holotype, female (CAS), Anza 2 miles east, Riverside Co., California, July 5, 1956 (R. M. Bohart). Paratypes, 64 males, 12 females, all from California, May to August, as follows: Riverside Co.: Anza 2 miles east, on *Eriogonum* and *Asclepias* (E. Linsley, M. Wasbauer, L. Stange, P. Hurd, R. Bechtel, R. Bohart), Temecula (J. W. MacSwain), Gavilan (P. H. Timberlake), Banning (S. Miyagawa); Los Angeles Co.: Huntington Park (A. Bauman), Claremont (C. F. Baker), Tanbark Flat (R. Bechtel, P. Hurd, H. Mathis), San Francisco Canyon (L. A. Stange); Yolo Co.: Davis (A. McClay, E. Shlin-

ger, R. Whitzel, R. Bohart); Inyo Co.: Mazourka Canyon and Antelope Springs (J. W. MacSwain); Lassen Co.: Hallelujah Junction (R. M. Bohart). Metatypes, 25 males, 2 females from CALIFORNIA: Beaumont, Perris, Warner Springs, Corona, La Jolla, Three Rivers, Paraiso Springs, Hospital Canyon (San Joaquin Co.); NEVADA: Sky Ranch near Reno; IDAHO: Bliss, Hot Creek Falls, Strike Dam Rock; UTAH: Delta, Skull Valley, Iosepa, Park Valley; ARIZONA: Toltec, Patagonia; NEW MEXICO. Albuquerque.

Systematics.—The unusually broad least interocular distance suggests the possibility that *granulosa* may be a link with the typical subgenus *Larropsis*. It seems to be related to *hurdi* on the basis of the long female antennae and shorter male antennae as well as the fine sculpture of the propodeal enclosure.

Distribution.—Its range over 6 western states is plotted in figure 28.

***Larropsis (Ancistromma) hurdi* G. and R. Bohart, new species**
(Figs. 5, 8, 9, 30)

Female.—Length 9.0 mm., forewing length 7.0 mm. Head and thorax mostly black, antenna, mouthparts, and legs partly reddish brown, hind leg red beyond base of femur, abdomen red, wings faintly yellowed. Pubescence silvery, conspicuous on face, gena, fore-femur, mesopleuron and side of propodeum; silvery apical bands on all but last tergite; microsetae of median cell of forewing present only around edge. Punctuation very fine and close on head and thorax, microscopic on rather satiny abdomen; outer surface of fore- and mid-femur closely punctate; punctures of pygidium fine and numerous basally, thicker and coarser distally. Clypeus moderately convex, flange with a weak broad emargination medially, lateral notches indistinct, proportions of flagellar segments and least interocular distance as in fig. 9. Striae of propodeum fine, close and inconspicuous on sides and rear, even finer and closer on satiny enclosure; posterior face finely and indistinctly cross-striate, median sulcus fading to a fine carina below. Pygidium with sides converging at an angle of about 40 degrees, distal setae pale golden.

Male.—About as in female but smaller (6-8 mm. long), hind femur mostly black except toward apex, hind tibia sometimes mostly dark. Face more densely silvery. Clypeal flange somewhat narrowly rounded or angled out (fig. 5). Antennal proportions as in fig. 8. Least interocular distance about 1.8 times length of flagellar segment I.

Holotype, female (CAS), Palm Springs, Riverside Co., California, May 22, 1917 (E. P. Van Duzee). Paratypes, 1 male, same data as type but collected May 23; 7 males, Borego, San Diego Co., Calif., April 24-27, 1954-55, on *Croton californicus* (P. D. Hurd, M. Wasbauer); 1 female, San Jacinto, Riverside Co., Calif.; 1 female, Santa Margarita, San Luis Obispo Co., Calif., June 10, 1958 (J. W. MacSwain); 2 males, 1 female, Fish Creek Mts., Imperial Co., April 20, 1955 (W. R. Richards). Metatype, 1 male (headless), Mazourka Canyon, Inyo Co., Calif., July 2, 1953 (J. W. MacSwain).

Systematics.—Because the female has rather long antennae and the

male has them fairly short, *hurdi* seems to bridge the two groups of *Ancistromma*. This condition occurs also in *granulosa* which, however, has a much broader least interocular distance.

Distribution.—The Upper and Lower Sonoran areas from which this species is known are plotted in figure 30.

Larropsis (Ancistromma) platynota G. and R. Bohart, new species
(Figs. 24, 32)

Female.—Length 10.0 mm., forewing length 8.0 mm. Head and thorax black (hind legs missing beyond coxae), abdomen red, wings lightly yellowed. Pubescence pale, inconspicuous; microsetae of median cell of forewing rather long, scattered, fewer toward middle. Punctuation very fine and fairly close on head and thorax except scutum and scutellum where fine punctures are several puncture widths apart and overlaid with a scattering of large punctures, abdomen with inconspicuous punctuation, satiny; outer surface of fore- and mid-femur completely covered with somewhat separated fine punctures; pygidium with dense and rather coarse, striatiform punctures. Clypeus moderately convex, flange broadly and weakly emarginate medially, lateral notches minute, proportions of flagellar segments and least interocular distance as in fig. 24. Scutum and scutellum unusually flattened; striae of propodeum coarse laterally, fine but distinct and well separated in enclosure, posterior area enclosed by carinae and weakly areolate, median sulcus fading below. Pygidium with sides converging at an angle of about 40 degrees, densely covered with reddish golden setae, largest distally.

Male.—Unknown.

Holotype, female (CAS), Tucson, Arizona, October 10, 1939 (Richard Grant).

Systematics.—The flattened notum is an unusual feature in the subgenus. A relationship with *distincta* is indicated by the similar antennae, propodeal enclosure and punctate fore-femur.

Larropsis (Ancistromma) portiana Rohwer
(Figs. 25, 26, 30)

Larropsis portianus Rohwer, 1911. Proc. U. S. Natl. Mus. 40:583, New Mexico (holotype female, USNM).

Diagnosis. Female.—Body length about 9 mm. Abdomen red, legs mostly so, wings faintly yellowed. Median cell of forewing with uniform dense microsetae. Punctuation fine and mostly close on head, coarse and slightly separated on scutum and scutellum, coarse and close elsewhere on thorax; fore- and mid-femora extensively polished, abdomen with fine but distinct and well separated punctures, pygidial punctures scattered. Clypeus moderately convex, flange with a weak median emargination and 2 notches laterally. Least interocular distance about 1.6 times length of flagellar segment I which is equal to II and less than twice as long as broad (fig. 26). Propodeal side with moderate, close striae; enclosure with fine striae; posterior face cross-striate, not enclosed by ridges; median sulcus fading to a ridge below. Pygidium with sides converging at an angle of about 45 degrees, setae few, distal, pale reddish.

Male.—Body length about 7 mm. Face densely silvery, thorax a little less so. Tibiae and tarsi red, femora partly so, including distal one-half of hind femur. Fore-femur well punctate, silvery. Clypeal flange indented medially and laterally. Flagellar segment I about as long as II, about 1.6 times as long as broad, about 0.55 times as long as least interocular distance (fig. 25).

Systematics.—Its closest relative of the short antenna species is *sericifrons* from which it differs as discussed under that species. The red legs are striking in appearance, but the broad pygidium in both sexes, punctate abdomen, and densely setose median cell are more fundamental characters. As we have seen only 2 males and 4 females, the color pattern may be more variable than we have indicated.

Biology.—The type female was collected on *Croton neomexicanum* and one of the males on *Gutierrezia sarothrae* by T. D. A. Cockerell.

Distribution.—Known only from west Texas and New Mexico as indicated in fig. 30. The material we have seen is as follows: 1 male, Las Cruces, New Mexico, September 27 (T. D. Cockerell); 1 pair, Las Cruces, New Mexico (female holotype); 1 female, Barstow, Texas, October 12, 1905; 1 female, El Paso, Texas, October.

***Larropsis (Ancistromma) sericifrons* (H. S. Smith)**

(Figs. 22, 23, 30)

Ancistromma sericifrons H. S. Smith, 1906. Ent. News 17:247, Nebraska (holotype male, U. Nebr.).

Larropsis rubens Mickel, 1917. Nebr. Univ. Studies 17:329, Nebraska (holotype female, U. Nebr.), **new synonymy**.

Diagnosis. Female.—Body length about 9 mm. Abdomen red, wings faintly smoky or yellowed. Median cell of forewing with dense microsetae. Punctuation fine to moderate on head and thorax, and very close; fore- and mid-femora extensively polished; abdominal punctuation fine, somewhat obscure, most evident on last few tergites and ventrally; pygidium with scattered punctures. Clypeus moderately convex, flange with a median notch and 2 lateral ones. Least interocular distance about 1.4 times length of flagellar segment I which is about as long as II, and about twice as long as broad (fig. 23). Propodeal side striato-granulose; enclosure usually granulose, sometimes with fine and close striae; posterior face cross-striate, not enclosed by ridges, median sulcus fading below. Pygidial setae thick distally, reddish coppery.

Male.—Body length 7 mm., last 3 or 4 segments sometimes black. Face extensively silvery. Abdomen with rather uniform, fine to moderate punctuation. Clypeal flange indented medially and laterally. Flagellar segment I about as long as II, about 1.4 times as long as broad, about 0.6 times as long as least interocular distance (fig. 22).

Systematics.—The short antennae and generally dense punctuation place *sericifrons* in the *distincta* group and evidently closest to *portiana*. The latter's red legs are distinctive as well as its female characters of separated scutal punctures and broad pygidium. The male of *sericifrons* has a much less silvery thorax.

Distribution.—As indicated in fig. 30, *sericifrons* appears to be primarily a Great Plains species. We have seen about 35 specimens from the following localities: NEBRASKA: Sioux Co. (P. R. Jones, H. S. Smith), Grant Co. (L. W. Quate), Mitchell (*rubens* type); WYOMING: Glendo (D. R. Tysdale); TEXAS: Buffalo Lakes, Lubbock Co.; NEW MEXICO: Moriarty (M. F. McClay); ARIZONA: Willcox, on *Eriogonum thomasi* (P. D. Hurd, D. D. Linsdale, R. M. Bohart). All specimens were taken in August and September.

Larropsis (Ancistromma) shappirioi G. and R. Bohart, new species
(Figs. 14, 15, 28)

Female.—Length 11.0 mm., forewing length 9.0 mm. Black, wings rather evenly brownish. Pubescence fulvous, light brownish on scutum, inconspicuous; microsetae of median cell of forewing small, numerous, a little sparser medially. Punctuation of head and thorax fine to moderate, very dense, even on scutellum and fore-femur, sparse and inconspicuous on satiny abdomen; pygidial punctures coarse, sparse basally. Clypeus moderately convex, flange with a weak median emargination and 2 small lateral notches, proportions of flagellar segments and least interocular distance as in fig. 15. Propodeum very coarsely and rather irregularly striate in well defined enclosure, striae well separated but ill-defined laterally, posterior surface outlined by ridges, coarsely areolate, median sulcus

Male.—About as in female but smaller (9 mm. long). Pubescence off-silvery, a little more conspicuous, especially on face, mesopleuron and propodeum, tergites I-III with obscure silvery apical bands. Clypeal flange convex in outline, indented medially and sublaterally. Antennal proportions as in fig. 14. Least interocular distance about 1.3 times length of flagellar segment I.

Holotype, female (USNM), Washington, D. C., July 22, 1944 (D. Shappirio). Paratype, 1 male, Dunn Loring, Virginia, July 24, 1949 (K. V. Krombein).

Systematics.—The long antennae, extensively punctate fore-femur, and thickly setose median cell are possessed in common with *aurantia*. However, the rugose propodeum of *shappirioi* is distinctive. The species is named in honor of the collector, David Shappirio.

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