

punctures become obsolete outwardly as minute punctation becomes more noticeable; costae barely traceable through shallow, outer striae of each elytron. Scutellum smooth. Pygidium transversely, strongly convex over basal third, strongly concave over remainder; basal third closely, finely punctate, less closely over middle third, and apically with increasingly very close, minute punctures; basal third with moderately close, semi-erect yellowish hair, apical two-thirds with a very few, scattered, erect hairs. Pubescence of underside yellowish and not so closely decumbent.

Paratypes.—Paratypes differ in that one male specimen is heavier and more fully developed than holotype, frontal horn being about as long as length of head, bifurcation about one-third its total length; pronotum at anterior third bearing a sharp, median, anteriorly-directed horn or tubercle, behind this, at basal third, a small, smooth, impunctate area, and lateral margin having a slight, depressed emargination before middle. Length of this specimen 33 mm., width 19 mm. Female paratypes vary from 27 to 31 mm. long and 16 to 17 mm. wide.

Holotype, U. S. National Museum No. 61078. Santa Rita Range Reserve, Pima Co., Arizona, 4000 ft., mesquite-desert grassland, 13 Aug. 1949, at light, F. Werner & W. Nutting. Allotype female, 2 mi. SW of Patagonia, Santa Cruz Co., Arizona, rich willow-cottonwood bottom, 4050 ft., 30 July 1948, at light, F. Werner & W. Nutting. Paratypes: ARIZONA: one female same data as holotype; one female, Phoenix, Liebeck Collection, in Museum of Comparative Zoology at Harvard; one male, Tucson, H. H. Brown, in USNM; one male and one female, Baboquivari Mts., 23 July 1949, F. H. Parker, in Parker Collection.

Megasoma punctulatus is quite near *M. thersites* Lec., but averages smaller in size, lacks the upper surface pubescence of that species, the median pronotal tubercle is not bifurcate in the specimens at hand as in *thersites*, and the median pronotal tubercle of the female is not binodose.

THE CALIFORNIA SPECIES OF MITE-BEARING STENODYNERUS

(HYMENOPTERA, VESPIDAE)

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The subgenus *Parancistrocerus* was established by J. C. Bequaert in 1925 (Trans. Amer. Ent. Soc. 51: 64) for the American and African species of solitary vespids with a mite chamber under the hind margin of the first abdominal tergite. The originally designated type was the well known eastern species, *Odynerus fulvipes* Saussure. With the nine described below, thirty-five species and subspecies are now known from the United States, and some of these are among the commonest small wasps.

The acarinarium are usually packed with mites and appear to be specially constructed for their convenient transportation. The mites belong to the genus *Ensliniella* Vitzthum¹ and are similar but not identical to the type of the genus, *E. parasitica* Vitzthum which was described from the mite chamber of an "Odynerus."² The mites are in the non-feeding hypopal stage and do not seem to affect the host adversely. Infestation of the host must take place in the nest, and probably at the time the pupal skin is shed. Specimens of both sexes of *S. minimoferus* R. Bohart, newly emerged in the laboratory from renovated cells in *Sceliphron* mud nests, have been observed with a full complement of mites.

The presence of the acarinarium can usually be detected by the broad and somewhat apically prolonged shape of the first abdominal tergite. However, in doubtful cases it may be necessary to relax the specimens and bend the abdomen so as to separate the tergites and, thus, expose the normally-covered base of the second tergite.

Thirteen species and subspecies from California are included in this paper, but only four of these have been described previously unless some of Peter Cameron's unrecognized species eventually are found to fall in this subgenus. Most of the California species have a rather wide distribution, particularly in the Pacific coast and intermountain states as well as the arid southwest.

Nesting habits are unknown for the California forms except *minimoferus* as mentioned above and *acarophorus*, new species, which nests in twigs. A few of the species of eastern United States also utilize twigs, especially those used the previous year by other wasps.

Holotypes have been deposited in the California Academy of Sciences collection, and paratypes, as far as available, in the collections of the U. S. National Museum, University of California, University of Kansas, Cornell University, and Museum of Comparative Zoology at Harvard.

Collectors of the holotypes are given under each description. Paratype material of the new forms was mostly collected by the following individuals: R. H. Beamer, G. E. Bohart, J. C. Bradley, C. L. Fox, P. D. Hurd, E. G. Linsley, J. W. MacSwain, A. T. McClay, C. D. Michener, P. H. Timberlake, H. and M. Townes, E. P. Van Duzee, and E. C. Van Dyke.

The key given below to the described North American species is preliminary in nature as additional species will no

¹Information on the mites was furnished by F. M. Summers.

²"Auf Odynerus-Arten, versteckt unter den übereinander griedenden abdominalen Tergiten"—from Vitzthum, H. G., 1929, in Brohmer, P., Die Tierwelt Mitteleuropas 7: 93.

doubt be named. However, it should be useful to compare all of the known forms at this time. In addition to external features, distinguishing characters are also found in the male genitalia. These are illustrated for the California species and a key is given for their separation.

KEY TO THE SUBGENUS *PARANCISTROCERUS* IN NORTH AMERICA

1. Second sternite angled or sharply rounded at basal one-third to one-fourth as seen in lateral view 2
 Second sternite evenly rounded in lateral view 8
2. Second tergite with its median length about 1.5 times as great as that of second sternite, strongly reflexed apically and with a subapical transverse aciculate channel 3
 Second tergite only slightly longer than second sternite, not appreciably reflexed nor channeled 4
3. Second tergite with free spots (Calif., Ore.)
 *rectangulis frazieri*, new subspecies
 Second tergite without free spots (Ariz., N. Mex., Mex.)
 *rectangulis rectangulis* (Viereck)
4. Hind margin of pronotum yellowish or reddish (Ariz., Mex.)
 *chiricahuae* R. Bohart
 Hind margin of pronotum dark 5
5. Second tergite finely punctured toward base (Calif., Ore., Wash.) *acarophorus*, new species
 Second tergite coarsely punctured toward base 6
6. Punctures of first tergite about as large as those on pronotum (Calif., Baja Calif.) *declivatus* R. Bohart
 Punctures of first tergite much larger than those of pronotum 7
7. Markings of first tergite predominantly red (Fla., Ga., N. C., La.) *perennis anacardivora* (Rohwer)
 Markings of first tergite not predominantly red (eastern U. S.)
 *perennis perennis* (Saussure)
8. Apical outline of tergite II noticeably convex toward middle as tergite is viewed directly from above 9
 Apical outline of tergite II practically straight or somewhat concave toward middle as tergite is viewed directly from above 16
9. First tergite with a distinct shelf-like suture across its summit followed by a row of very large and shallow pits; tergite II without free spots 10
 First tergite not as above; tergite II often with free spots 11
10. Markings mostly yellow, flagellum mostly black (eastern U. S.)
 *fulvipes fulvipes* (Saussure)
 Markings mostly red, flagellum broadly red on basal one-half (southern U. S.) *fulvipes rufovestis* R. Bohart

11. Interocellar tubercles bulging and separated merely by a line; tergite II coarsely punctured throughout and reflexed apically four to five median ocellus diameters (Ariz., Utah, N. Mex., Colo., Tex.) *coronado* R. Bohart
Interocellar tubercles narrow, not strongly bulging 12
12. Costa and stigma reddish (western U. S.)
..... *acarigaster*, new species
Costa except basally, and stigma dark brown 13
13. Male flagellum dark or dull red beneath, male clypeus often black-spotted and apex usually black-rimmed, female clypeus not all black 14
Male flagellum extensively pale beneath, male clypeus not black-spotted, apex not black-rimmed, female clypeus all black or nearly so 15
14. Markings mostly yellow (eastern U. S. and midwest)
..... *pedestris pedestris* (Saussure)
Markings mostly red (Fla., Ga.) *pedestris bifurcus* (Robertson)
15. Markings yellow (eastern U. S. and midwest)
..... *pensylvanicus pensylvanicus* (Saussure)
Markings whitish (Canada, northern U. S., western mountains)
..... *pensylvanicus ignotatus* new subspecies
16. Tergites II and III conspicuously and equally thickened apically as seen in posterior view; apical outline of sternite III strongly convex, legs mostly red (western U. S.)
..... *minimoferus* R. Bohart
Tergites II and III not equally thickened apically as seen in posterior view 17
17. Interocellar tubercles bridged behind front ocellus 18
Interocellar tubercles divided all the way forward to front ocellus 20
18. Markings of thorax and abdomen orange to reddish (Fla.)
..... *bicornis bicornis* (Robertson)
Markings of thorax and abdomen yellow 19
19. Tergite II with a deep transverse subapical channel, markings ivory yellow (Tex., N. Mex., Ariz.)
..... *bicornis cushmani* R. Bohart
Tergite II without a deep transverse channel, markings deep yellow (eastern U. S.) *bicornis ceanothi* (Rohwer)
20. Acarinarium with a median entrance seen when tergite II is bent downward, male clypeus with a deep apical incision be-spine-like teeth 21
Acarinarium without a special entrance, apical teeth of male clypeus not spine-like 22
21. Markings mainly yellow (eastern U. S. and midwest)
..... *vagus vagus* (Saussure)
Markings mainly red (Fla.) *vagus slossonae* R. Bohart

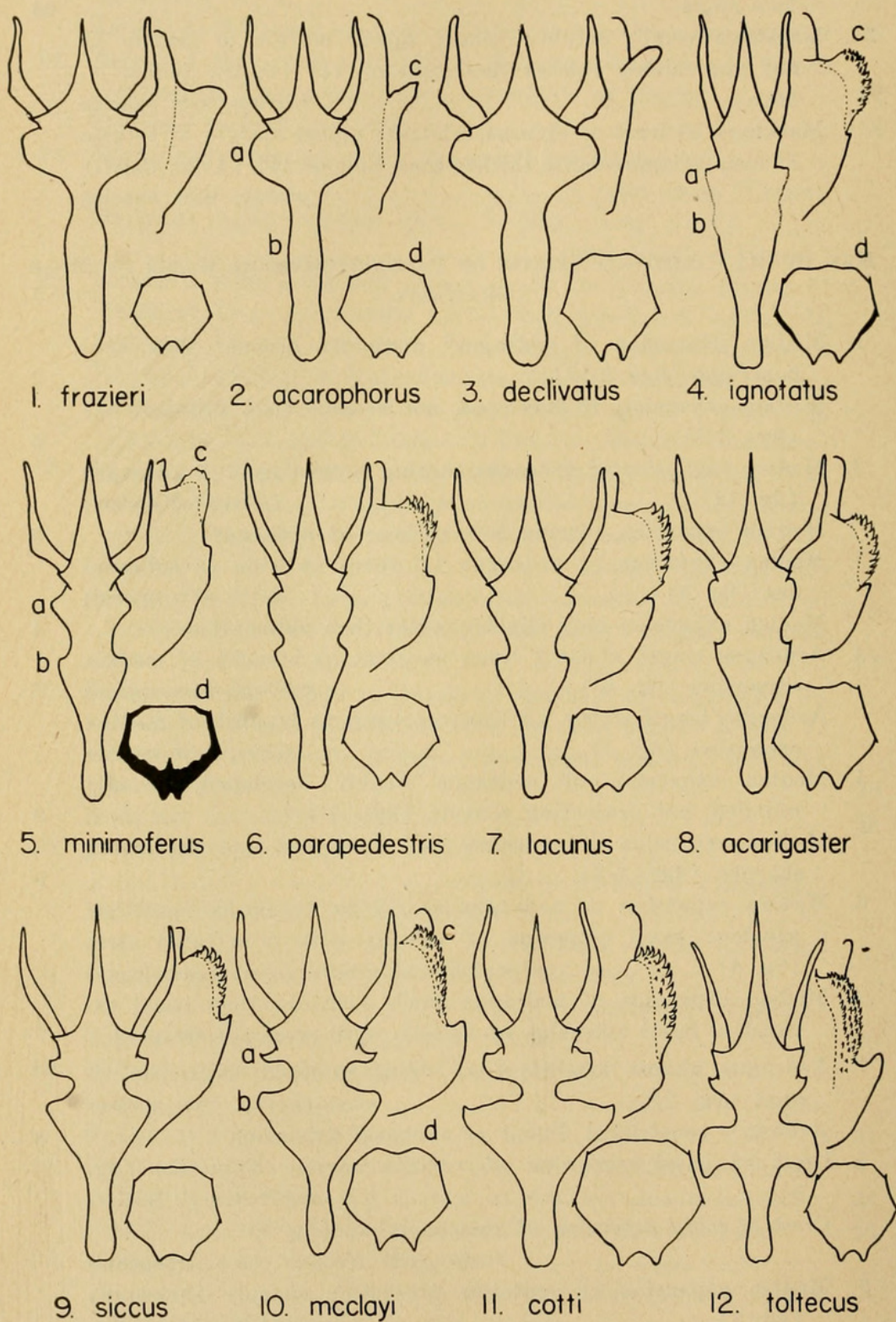
22. Tergite II thickened apically more than one median ocellus diameter 23
 Tergite II thickened apically not more than one ocellus diameter 26
23. Tergite I with erect hair of 1 to 3 ocellus diameters in length extending from summit about to middle of tergite 24
 Tergite I without such hair 25
24. Markings mainly yellow (U. S. except Pacific coast)
 *colon colon* (Cresson)
 Markings mainly whitish (Tex., N. Mex., Ariz., Colo.)
 *colon yumus* (Viereck)
25. Tergite I with a distinct suture across its summit, tergite II without free spots, male vertex well punctured (Ariz., N. Mex.) *polingi* R. Bohart
 Tergite I without a distinct suture across its summit, tergite II usually with free spots, male vertex sparsely punctured (western U. S. east to Idaho and Tex.) *toltecus* (Saussure)
26. As seen in dorsal view, postscutellum sharply separated from vertical surface of propodeum at middle by a rough horizontal area; wing membrane almost unicolorous brown (Va. to Fla., La.) *histrion* (Lepeletier)
 As seen in dorsal view, postscutellum separated from vertical surface of propodeum at middle by at most a roughly rounded area 27
27. Body unusually hairy, erect hair of one-half to one ocellus diameter in length usually thick on posterior half of tergite I; interocellar area not strongly raised, shiny and with scattered large punctures 28
 Body not unusually hairy 29
28. Markings yellow (eastern U. S.)
 *saecularis saecularis* (Saussure)
 Markings extensively reddish (Fla.)
 *saecularis rufulus* R. Bohart
29. Legs mostly red (Tex., Okla., Kans., N. Mex.)
 *austrinus* (Cresson)
 Legs mostly brown and yellow or whitish 30
30. Radius of forewing reddish (northern Calif., Ore.)
 *cotti*, new species
 Radius of forewing brown 31
31. Tergite I distinctly narrower than II, abdomen moderately slender with tergite III all dark or with a broken pale band 32
 Tergite I almost as broad as II, abdomen moderately stout 33
32. Markings yellow (Calif.)
 *parapedestris parapedestris*, new species
 Markings whitish (Calif., Nev., Ariz.)
 *parapedestris arenosus*, new subspecies
33. Tergite III all dark, tergite II rarely with free spots (Calif., Ariz., N. Mex., Tex.) *lacunus* (Fox)

- Tergite III with apical pale spots or a band, tergite II with free spots 34
34. Markings usually sulphur yellow, apical margin of tergite II not appreciably thicker than that of III (Calif., Idaho, N. Mex.) *mcclayi*, new species
- Markings, at least of clypeus, whitish; apical margin of tergite II usually appreciably thicker than that of III (Ariz., Calif.) *siccus*, new species

KEY TO THE CALIFORNIA SPECIES OF PARANCISTROCERUS BASED ON MALE GENITALIA

1. Median expansion of aedeagus³ distinctly broader than sub-basal one (figs. 9-12) 2
 - Median expansion, if developed, not broader than subbasal one (figs. 1-8) 5
2. Median expansion of aedeagus curving toward apex of aedeagus (fig. 12) *toltecus* Saussure
 - Median expansion curving toward base of aedeagus 3
3. Median expansion of aedeagus 1.5 times as wide as subbasal one (fig. 11) *cotti*, new species
 - Median expansion only slightly wider than subbasal one 4
4. Aedeagus length about 3 times as great as breadth of median expansion (fig. 10) *mcclayi*, new species
 - Aedeagus length about 3.5 times as great as breadth of median expansion (fig. 9) *siccus*, new species
5. Median expansion of aedeagus weakly developed, broadly rounded, not projecting sharply (figs. 1-4) 6
 - Median expansion of aedeagus well developed and projecting sharply (figs. 5-8) 9
6. Median expansion of aedeagus nearly as broad as basal expansion; basal extension of volsella with a serrated crest (fig. 4) *pensylvanicus ignotatus*, new subspecies
 - Median expansion of aedeagus much narrower than basal expansion, basal extension of volsella with crest not serrated 7
7. Aedeagus almost straight-sided from subbasal expansion to apex (fig. 2) *acarophorus*, new species
 - Aedeagus constricted distad of subbasal expansion 8
8. Crest of basal expansion of volsella narrow, fingerlike (fig. 3) *declivatus* R. Bohart
 - Crest of basal extension of volsella broad (fig. 1) *rectangulis frazieri*, new subspecies
9. Median expansion of aedeagus projecting sharply backwards (fig. 8) *acarigaster*, new species
 - Median expansion of aedeagus not projecting sharply backwards 10

³Mounted in a dorso-ventrally flattened position.



Male characters of *Parancistrocerus*: a, b—aedeagus; c—volsella; d—
clypeus.

- | | | |
|-----|---|----|
| 10. | Subbasal expansion of aedeagus broadly rounded (fig. 6)..... | |
| | <i>parapedestris</i> , new species | |
| | Subbasal expansion of aedeagus narrowly rounded (figs. 5, 7).... | 11 |
| 11. | Basal extension of volsella with a strongly serrated crest (fig.
7)..... | |
| | <i>lacunus</i> Fox | |
| | Basal extension of volsella with a weakly serrated crest (fig.
5)..... | |
| | <i>minimiferus</i> R. Bohart | |

Stenodynerus (Parancistrocerus) rectangulis frazieri, new subspecies

Similar to *rectangulis Viereck* (1908, Trans. Amer. Ent. Soc. 33: 393) but with a free lateral spot on tergite II and a lateral widening of the apical yellow band on tergite I. Size slightly smaller, length to apex of tergite II, male 6.5 mm., female 7.0 to 7.5 mm. Details of male genitalia and clypeus shown in figure 1.

Holotype, male (Calif. Acad. Sci.), Panamint Mountains, Inyo Co., California, May 30, 1937 (N. W. Frazier). Paratypes, 8 males and 14 females from the following CALIFORNIA counties: Eldorado (Camino, Snowline), Mono (Benton Station), Inyo (Carroll Canyon, Big Pine), Contra Costa (Mt. Diablo), San Mateo (Mountain View), Madera (Bass Lake), Los Angeles (Tanbark Flat), San Bernardino (Mill Creek), Riverside (San Jacinto Mountains, San Geronio Pass). I have also seen a female specimen from Medford, Oregon. Recorded dates of capture are from May to September.

Stenodynerus (Parancistrocerus) acarophorus, new species

Male.—Black marked with sulfur yellow as follows: mandible mostly, clypeus except narrowly at base, interantennal and ocular dots, scape in front, postocular dot, spots on humeral angles, tegula mostly, spots beneath, 2 spots on postscutellum, legs partly, apical margins of tergites I to V and sternites II to IV (free lateral spot on tergite II in some paratypes). Flagellum light brownish within almost to apex. Wings rather evenly brown stained. Pubescence fulvous, inconspicuous. Punctuation fine to moderate, punctures of clypeus very fine, small and close on front, farther apart on mesonotum, rather coarse toward summit of tergite I, fine over most of tergite II but moderate and well separated in apical band. Shape of clypeus and genitalia as in figure 2. Last antennal segment slender, flattened beneath, reaching base of eleventh segment, interocellar area punctured, not raised; humeral angles moderate; parategula narrow apically, posterior edge incurved; propodeum not shelf-like below postscutellum; mid femur not depressed toward base beneath; tergite I shallowly depressed above, somewhat narrower than II which is reflexed apically about $\frac{1}{2}$ ocellus diameter; sternite II bent near base and without a median crease (in most paratypes). Length to apex of second tergite 7.0 mm.

Female.—Clypeus moderately incised at apex, rather finely punctured, with a basal crescent of yellow, flagellum all dark, postscutellum mostly yellow, parategula sometimes yellow, lateral free or attached spot some-

times present on tergite I, apex of clypeus and angle of propodeum sometimes yellow spotted. Vertex depression about equal in size to an ocellus. Length to apex of second tergite 8.0 mm.

Holotype, male (Calif. Acad. Sci.), Berkeley, Alameda Co., California, June 27, 1933 (R. M. Bohart). Paratypes, 31 males and 36 females from the following CALIFORNIA counties: Siskiyou (Finley Camp), Trinity, Plumas (Quincy), Mendocino (Ryan Creek), Eldorado (Snowline Camp, Kyburz), Placer (Alta), Mono (Virginia Lakes, 9,000 ft.), Inyo (Independence, Lone Pine), Mariposa (El Portal, Briceburg, Fish Camp), Lake (Blue Lake), Solano (Vallejo), Contra Costa (Antioch), Marin (Mill Valley), Alameda (Berkeley, Oakland), Santa Clara (Stanford), Santa Cruz (Felton), Los Angeles (Eagle Rock Hills, Camp Baldy), Orange (Silverado Canyon), and Riverside (Gavilan, Riverside). I have also seen specimens from Oregon (Klamath Lake, 20 miles N. of Grants Pass, Gold Hill) and Washington (Almota). Collection dates are from March to September. Some of the paratypes from Berkeley were reared from nests in twigs.

The species is related to *declivatus*, *rectangulis*, *perennis*, and *chiricahuae* as indicated by the distinctive type of genitalia and the angled profile of abdominal sternite II. It differs from all of these by a combination of characters: second tergite of normal length and finely punctured toward the base, hind pronotal margin dark.

***Stenodynerus (Parancistrocerus) declivatus* R. Bohart**

Stenodynerus declivatus R. Bohart, 1948. Proc. Calif. Acad. Sci. (4)24: 331.

The type locality is La Laguna, Sierra Laguna, Baja California. Specimens have also been seen from other Baja California localities and in California from San Diego Co. (San Diego, La Jolla), Orange Co. (Costa Mesa), and Los Angeles Co. (Puente Hills).

***Stenodynerus pensylvanicus ignotatus*, new subspecies**

Markings white to yellowish white, otherwise similar to typical *pensylvanicus* Saussure (Etudes sur la famille des Vespides 3: 257) in somewhat narrowed body form, sharp and well punctured male clypeus, pale male flagellum beneath, moderate interocellar tubercles, narrow parategula, obtusely reflexed apex of tergite II, and mostly or entirely black female clypeus. Also, the male clypeus is edged with black along posterolateral edge, reflex of tergite II varies in width from 1.0 ocellus diameter or less in females to 1.5 or even 2.0 ocellus diameters in males (1.5 in holotype), and apex of tergite III may be banded, spotted or all dark. Free lateral spot on tergite II sometimes present (as in holotype).

Details of male genitalia and clypeus as in figure 4; margin of aedeagus between subbasal and median expansions composed of fine, close-set teeth as seen under high magnification.

Holotype, male (Calif. Acad. Sci.), Meadow Valley, Plumas Co., California, 4,000 ft., June 21, 1924 (E. C. Van Dyke). Paratypes, 6 males and 6 females from the following CALIFORNIA counties: Modoc (Buck Creek), Trinity (Big Flat), Lassen (Bridge Creek Camp), Plumas (Quincy), Sierra (Gold Lake), Eldorado (Lake Tahoe, Strawberry Valley, Echo Lake), San Bernardino (Cajon Pass). I have also seen specimens from Oregon (Bend, Lake of the Woods, Mt. Hood), Washington (Seattle, American River), Idaho (Coolin, Emmett), Minnesota (Beltrami Co., Polk Co., Ramsey Co., Sedan, Itasca Park), Michigan (Muskegon Co., Alger Co., Constantine), New Brunswick (Nerepsis). The distribution picture appears to be similar to that of other Canadian Zone species; that is, transcontinental in Canada reaching southward in the Great Lakes region and along the mountains of the Pacific Coast states. The typical subspecies has a more southerly range, extending from Ontario to Texas and from the Atlantic Coast to Colorado. Both subspecies occur in Minnesota and Michigan. Collecting dates are from June to August in California and as late as September in Minnesota and Michigan.

***Stenodynerus (Parancistrocerus) minimoferus* R. Bohart**

Stenodynerus minimoferus R. Bohart, 1949. Proc. Ent. Soc. Wash. 51: 256.

The type locality is Davis, Yolo Co., California, and the species ranges over much of western United States as far east as Texas and Wyoming. In California it is known from the following counties: Yolo (Davis), Inyo (Independence), Los Angeles (Camp Baldy, Glendale), and Imperial (Coyote Wells). Collecting dates are from March to July.

This is the only species in the subgenus in which the third tergite is thickened apically in the same degree as the second. It has been reared several times from old *Sceliphron* nests, the mud cells of which it remodels. A previously unreported nesting site was discovered by E. Schlinger who reared three specimens from a mud-plastered, empty pupal case of a swallowtail butterfly which had been parasitized by tachinids.

***Stenodynerus (Parancistrocerus) parapedestris*, new species**

Male.—Black with sulfur-yellow markings as follows: clypeus, scape in front, mandible mostly, squarish interantennal dot, ocular dot, post-ocular dot, front margin of pronotum (disconnected medially), anterior

spot on tegula, parategula, pleural spot, postscutellum mostly, legs partly, apices of abdominal tergite I, segment II, sternite III broken laterally, tergites IV to VI, free laterobasal spot on tergite II. Wings brown stained, especially along costal margin. Pubescence grayish, inconspicuous. Puncturation moderate, rather fine and sparse on clypeus, coarse subapically on tergite II, shallow pit-like across summit of tergite I. Shape of clypeus and genitalia as in figure 6. Interocellar area with very broad low tubercles separated by a barely perceptible crease; humeral angle slightly obtuse seen from above; parategula blunt apically, somewhat incurved posteriorly; propodeum not forming a ridge behind postscutellum; middle femur not appreciably depressed beneath; tergite I narrower than II, without a definite carina across summit, tergite II with apical margin sharp, about $\frac{2}{3}$ an ocellus diameter thick in posterior view. Length to apex of second tergite 7 mm.

Female.—Clypeus black with a basal yellow crescent, broader than long. Markings in general as in male but somewhat more extensive. Tegula mostly yellow, tergite I with an attached or nearly attached oblique lateral spot. Clypeal emargination shallow and rounded, vertex depression well defined, extending laterally to inside margin of ocelli.

Holotype, male (Calif. Acad. Sci.), Newhall, Los Angeles Co., California, April 20, 1940 (R. M. Bohart). Paratypes (all from Riverside Co., CALIFORNIA), 2 males and 3 females, The Gavilan, May 17, 1951 (R. Bechtel and E. Schlinger), 1 male, 1.5 miles north of Perris, on *Salvia mellifera*, May 4, 1938 (P. H. Timberlake); 1 female. Riverside, on *Encilia farinosa*, April 27, 1927 (P. H. Timberlake); 1 female, Murrieta, April 18, 1950 (J. W. MacSwain).

This species is similar in conformation of the male genitalia and many other respects to the eastern *pedestris*. However, the latter has the second tergite somewhat drawn out apically as viewed from above. *S. parapedestris* occurs in a yellow-marked form and in the white-marked desert race described below.

***Stenodynerus (Parancistrocerus) parapedestris arenosus*, new subspecies**

Male.—Markings white, agreeing almost exactly in extent with description of *parapedestris* s.s. except that interantennal spot is broadly Y-shaped and touches clypeus, ocular spot extends along lower orbit to clypeus, tegula is mostly white, and tergite I has a free lateral spot.

Female.—Agreeing in general with description of *parapedestris* s.s. except for white markings. Clypeus usually with a pair of basal pale spots or all black; pronotal spots sometimes reduced, lateral spot on tergite I usually free.

Holotype, male (Calif. Acad. Sci.), Big Pine Creek, 4,500 ft., Inyo Co., California, May 19, 1947 (R. M. Bohart). Para-

types, 7 males and 21 females from the following CALIFORNIA counties: Inyo (Big Pine Creek, Mazourka Canyon, Keeler to Darwin), Kern (Willow Springs), San Bernardino (Victorville, Adelanto), Los Angeles (Westwood Hills, Lovejoy Butte), Riverside (Indio, Whitewater, Palm Desert, Palm Springs, Andreas Canyon, Taquitz Canyon), San Diego (Borego). Also, 4 males from Nevada (Charleston Mountains, Mt. Montgomery), and a pair from Arizona (Wickenburg, Roosevelt Lake). Recorded dates of capture are from March to July.

***Stenodynerus (Parancistrocerus) lacunus* (Fox)**

Odynerus lacunus Fox, 1894. Proc. Calif. Acad. Sci. (2)4: 111.

The type locality is San Jose del Cabo, Lower California, and the species ranges over most of the arid southwest as far east as Texas. In California I have seen specimens from San Bernardino Co. (Needles), Riverside Co. (Idyllwild, Aguanaga), San Diego Co. (Borego), and Imperial Co. (San Felipe Creek). Collecting dates in California are in April and August.

***Stenodynerus (Parancistrocerus) acarigaster*, new species**

Male.—Black, marked with sulfur yellow as follows: mandible mostly, clypeus and adjoining Y-shaped interantennal spot, lower orbit, scape in front, postocular spot, front half of pronotum; pleural spot, tegula mostly, parategula, mesonotal dot, postscutellum mostly, propodeal dots above and below, legs partly, apical margins of tergites I to VI, I with large attached lateral spot, II with free lateral spot, apical margins of sternites II to VI, II with free lateral spot. Wings reddish brown, costa and stigma reddish, tarsi partly reddish. Pubescence obscure, fulvous. Punctuation moderate, rather fine on clypeus, coarse at summit of tergite I and subapically on II. Shape of clypeus and genitalia as in figure 8. Last antennal segment slender, flattened beneath, reaching base of eleventh segment; interocellar area with moderate, narrow tubercles, not bridged across median ocellus; humeral angle about 90° seen from above; parategula blunt apically, slightly incurved posteriorly; propodeum not forming a ridge behind postscutellum; middle femur depressed beneath toward base; tergite I nearly as broad as II, summit irregular but with a definite carina, tergite II decidedly reflexed so that apical margin is nearly 2 ocellus diameters thick in posterior view, apical outline convex as seen from above. Length to apex of second tergite 7 mm.

Female.—Markings about as in male except as follows: clypeus sometimes with a median black dot, usually with a yellow dot behind lateral ocellus, with 2 pleural spots, spots on scutellum sometimes present, a large spot on propodeal angle, tergites I and II and sternite II with attached lateral spots which may form a continuous transverse band.

Clypeus shallowly incised apically, moderately punctured. Vertex depression as broad as distance between lateral ocelli. Apical margin of tergite II about 1.5 ocellus diameters thick. Length to apex of second tergite 8-10 mm.

Holotype, male (Calif. Acad. Sci.), Big Pine Creek, 4,500 ft., Inyo Co., California, June 13, 1942 (R. M. Bohart). Paratypes, 68 males and 37 females from the following CALIFORNIA counties: Plumas (Quincy), Inyo (Big Pine Creek), Los Angeles (Tanbark Flat). In addition I have seen specimens from most of the other counties in California from Modoc to Riverside as well as from Nevada, Arizona (northern), Utah, Oregon, Washington, and Idaho. It occurs in California at elevations from 2,500 to 7,000 ft. but is most common in the foothill areas. Dates of capture are from April to August. It is related to *coronado* but is not so heavily sculptured and has only moderately developed interocellar tubercles.

***Stenodynerus (Parancistrocerus) siccus*, new species**

Male.—Black with ivory-yellow markings as follows: clypeus, mandible mostly, scape in front, lower orbit, interantennal “Y” reaching clypeus, postocular and mesonotal dots, tegula mostly, pleural spot, parategula, postscutellum mostly, legs partly, apical band on tergites I to VI and sternite II, lateral spot on sternites III to V, free lateral spot on tergites I and II. Wings lightly brown stained, veins mostly dark brown. Pubescence pale grey, as long as one ocellus diameter on summit of tergite I, pollinose in some lights on dorsum of abdomen. Puncturation moderate, fine on clypeus, coarse at summit of tergite I where it outlines an irregular and indistinct transverse shelf-like carina, moderately coarse toward apex of tergite II but punctures spaced much more than a puncture diameter apart. Shape of clypeus and genitalia as in figure 9. Last antennal segment slender, flattened beneath, reaching base of eleventh segment; interantennal area with two low tubercles not bridged over front ocellus; parategula narrowed apically, posterior edge slightly incurved; propodeum not forming a shelf behind postscutellum; mid femur somewhat depressed at base beneath, apex of tergite II not so thick as one ocellus diameter but appreciably thicker than that of III. Length to apex of second tergite 6.5 mm.

Female.—Clypeus weakly incised apically, rather finely punctured, with a basal curved pale spot or nearly all black; mandible mostly dark; interantennal spot V-shaped; orbital spot present; a pair of vertex spots sometimes present; large propodeal spots; tergite I with lateral spot attached to apical band, tergite III rarely all dark. Vertex pit larger than an ocellus, as broad as interocellar distance. Length to apex of second tergite 8.0 mm.

Holotype, male (Calif. Acad. Sci.), Yuma, Arizona, May 6, 1939 (R. M. Bohart). Paratypes, 3 males and 5 females from

Yuma, Welton, and Tempe, ARIZONA. Also, 10 male and 6 female paratypes from the following CALIFORNIA counties: Riverside (Indio, Salton Sea, Mecca, Blythe), Imperial (Westmoreland, Harpers Well, Brawley, Palo Verde). In addition I have seen females apparently of this species from Baja California (El Mayor), Utah (Neola), Colorado (Delta), and Washington (Toppenish).

This species is closely related to *mcclayi* but averages smaller in size and paler in markings. Also, the callous along the summit of tergite I is not so strong and the aedeagus is more slender.

***Stenodynerus (Parancistrocerus) mcclayi*, new species**

Male.—Black with sulfur-yellow markings as follows: clypeus, scape in front, prominent Y-shaped interantennal mark, lower orbit, postocular spot, 2 large humeral spots, tegula mostly, spot beneath, parategula, mesonotal dot, postscutellum mostly, spot on upper propodeal angle, legs partly, broad apical margin of tergites I to VI and sternites II to IV, attached spot on tergite I extending along summit nearly to middle, large free lateral spot on tergite II, free lateral spot on sternite II. Wings lightly stained, veins brown. Pubescence grayish, inconspicuous. Puncturation moderate, rather fine on clypeus, fine toward base of tergite II, coarse toward summit of tergite I where there is a smooth callous-like area on each side but no ridge, punctures near apex of tergite II rather coarse but well spaced. Shape of clypeus and genitalia as in figure 10. Last antennal segment slender, flattened beneath, reaching base of eleventh segment. Interocellar area with low tubercles not bridged over front ocellus; raised area present between ocelli and compound eye; humeral angle upturned, parategula somewhat narrowed apically and incurved posteriorly; propodeum not forming a ridge behind postscutellum; middle femur with a small but definite depression at base beneath; tergite I slightly depressed between summit and belt-like apical portion, about as wide as tergite II which has the apical thickness only about one-third of an ocellus diameter. Length to apex of second tergite 7.0 mm.

Female.—Clypeus usually yellow with apical black margin and 2 or 3 small black dots across middle, but sometimes more blotched with black; interantennal spot V-shaped; yellow vertex spots sometimes present; scutellum sometimes spotted; propodeal spots large; tarsi brown. Vertex pit somewhat larger than an ocellus. Length to apex of second tergite 9.0 mm.

Holotype, male (Calif. Acad. Sci.), Davis, Yolo Co., California, August 24, 1939 (G. E. Bohart). Paratypes, 55 males and 49 females from the following CALIFORNIA counties: Modoc (Alturas, Davis Creek), Siskiyou (Walker), Lake (Pillsbury Lake), Butte (Richardsons Springs), Sacramento (Sacramento), Yolo (Davis), Contra Costa (Antioch, Marsh

Creek), Alameda (Arroyo Mucho), Calaveras (Mokelumme Hill), San Joaquin (Stockton, Tracy, Weston), Santa Clara (San Antonio Valley), Inyo (Bishop, Shoshone, Westgard Pass, Lone Pine, Big Pine, Independence), Merced (Dos Palos), Fresno (Fresno), Monterey (Priest Valley), Tulare (Sequoia National Park, Three Rivers, Lemon Cove, Wood Lake), Los Angeles (Whittier, Los Angeles, Santa Monica), Riverside (Blythe, Riverside), San Diego (Ramona). I have also seen female specimens apparently of this species from Idaho (Notus) and New Mexico (Albuquerque). Collecting dates are from May to October.

The general body structure shows a relationship to *colon* but the reduced pubescence on tergite I and the practically unthickened apical margin of tergite II are separating characters. The species is named for Mr. A. T. McClay who collected some of the type series as well as many of the other specimens reported in this paper.

***Stenodynerus (Parancistrocerus) cotti*, new species**

Male.—Black, marked with sulfur yellow as follows: mandible mostly, clypeus, Y-shaped interantennal spot reaching clypeus, scape in front, lower orbital margin, postocular dot, transverse humeral band narrowly broken medially, pleural spot, tegula mostly, parategula, postscutellum mostly, a small propodeal spot lateral to it, legs mainly, apical bands on tergites I to VI and sternites II to IV, large lateral spots on tergites I and II, and on II extending inward along summit. Wings light reddish brown, veins reddish. Pubescence obscure, fulvous, that of tergite I with hairs of one to three ocellus diameters extending about to middle of tergite. Puncturation moderately heavy and close, punctures rather coarse on clypeus, coarse on tergite I from summit to near apex, and coarse in a subapical band on tergite II. Structure of clypeus and genitalia as in figure 11. Last antennal segment slender, flattened beneath, reaching base of eleventh segment; parategula narrowed apically, posterior edge incurved; interocellar area with tubercles narrow but well developed, not bridged in front, separated by a punctured area; humeral angle obtuse as seen from above, propodeum not forming a shelf behind postscutellum, mid femur strongly depressed beneath on basal one-third; abdominal tergite I nearly as broad as II, without a definite ridge across summit, II not reflexed apically, edge as seen in posterior view about one-third an ocellus diameter thick. Length to apex of second tergite 8.0 mm.

Female.—Clypeus striatopunctate, slightly incised apically, with a basal crescent and one or two subapical yellow marks. Interantennal and orbital spots shortened, propodeal spot lengthened. Vertex depression shallow, almost as wide as interocellar distance. Length to apex of second tergite 8.5 to 9.5 mm.

Holotype, male (Calif. Acad. Sci.), Sugar Hill, Modoc Co., California, July 5, 1950 (H. E. Cott). Paratypes, CALIFORNIA: 1 female, Buck Creek, Modoc Co., July 25, 1922 (C. L. Fox); 1 female, Davis Creek, Modoc Co., July 12, 1922 (C. L. Fox); and 1 female, Truckee, Nevada Co., June 20, 1927 (E. P. Van Duzee). I have also seen a female specimen from Baker, Oregon (E. C. Van Dyke) which agrees structurally but has the yellow markings more restricted, especially on the clypeus and pronotum.

The species is generally similar to *colon* and has very much the same form of aedeagus in the male. However, the second tergite is not at all channeled subapically and not appreciably thickened apically. The species is named for the collector of the holotype, Mr. H. E. Cott.

***Stenodynerus (Parancistrocerus) toltecus* (Saussure)**

Odynerus toltecus Saussure, 1857. Rev. Mag. Zool. (2)9: 277.

The type locality is Mextitlan, Mexico. The species ranges over the more arid parts of the Pacific Coast and Great Basin States and extends to western Texas in the southwest. In California I have seen it from the following counties: Inyo (Big Pine, Lone Pine, Argus Mountains), San Bernardino (Morongo Valley, Twentynine Palms), Riverside (Idyllwild, Box Canyon, Pinon Flat, Indio, Palm Springs, Whitewater, San Jacinto, La Quinta, Cathedral City, Oasis), San Diego (Borego) and Imperial (Potholes). Collecting dates in California are April to September.

EXPLANATION OF FIGURES

Drawings were made with a camera lucida and corrected for bilateral asymmetry. Each figure includes the flattened aedeagus (a, subbasal expansion and b, median expansion), the basal extension of the volsella with its crest (c), and the male clypeus (d).

**ENTOMOLOGICAL SOCIETY OF WASHINGTON
611TH REGULAR MEETING, OCTOBER 4, 1951**

The 611th regular meeting of the Entomological Society of Washington, Thursday, October 4, 1951, was called to order by President Alan Stone at 8:05 PM, in the Auditorium of the U. S. National Museum. There were 77 members and 45 visitors present. The minutes of the previous meeting were read and approved.

The Society elected the following to membership:

Yale S. Sedman, Department of Invertebrate Zoology and Entomology,
203 Biology Building, University of Utah, Salt Lake City 1, Utah.
Allan R. Barr, Department of Parasitology, Johns Hopkins School of



1952. "The California species of mite-bearing *Stenodynerus* (Hymenoptera, Vespidae)." *Proceedings of the Entomological Society of Washington* 54, 38–53.

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