NEW TAXA OF BEMBICINE SPHECIDAE (HYMENOPTERA)

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ABSTRACT

Descriptions of 7 new species and a new genus are presented to allow their incorporation into a forthcoming revision of the subtribe Stictiellina by R. M. Bohart and me and to permit publication of biological data. With the new taxa presently described, the Stictiellina will comprise 6 genera and 61 species, 40 of the species with ranges including or limited to California. Stictiellina are separable from the other subtribe of Bembicini, the Bembicina, by having the anterior ocellus recessed in a mounded area. New species: Glenostictia satan, Microstictia flavida, M. hurdi, M. texensis, M. rufescens, and M. nova. New genus and new species: Chilostictia hirsuta.

ABBREVIATIONS

f=female; m=male; F=flagellomere(s); T=tergite(s); S=sternite(s); AMNH=American Museum of Natural History, New York; ANSP=Academy of Natural Sciences, Philadelphia; CAS=California Academy of Sciences, San Francisco; CIS=California Insect Survey, Berkeley; COR=Cornell University, Ithaca, New York; COS=Colorado State University, Fort Collins; FSCA=Florida State Collection of Arthropods, Gainesville; GRF=G.R. Ferguson; HEE=Howard E. Evans; IDA=University of Idaho, Moscow; KAN=University of Kansas, Lawrence; LACM=Los Angeles County Museum; JEG=J.E. Gillaspy; MCZ=Museum of Comparative Zoology, Cambridge, Mass.; MICH=University of Michigan, Ann Arbor; OHS=Ohio State University, Columbus; ORS=Oregon State University, Corvallis; TAI=Texas A&I University, Kingsville; TAM=Texas A&M University, College Station; UAZ=University of Arizona, Tucson; UCD=University of California, Davis; UCR=University of California, Riverside; USNM=United States National Museum, Washington, D.C.

Glenostictia satan Gillaspy, new species

MALE HOLOTYPE: Length 17 mm, forewing 12 mm. Black except following small areas of whitish: scape, front, clypeus, paired discal and lateral spots of abdominal T II-VI, paired apical spots of T VII, and paired lateral lines of S II-VII. Pubescence mostly whitish, fine, legs densely clothed with close-lying fine hairs, femur III without erect hair ventrally. Punctation fine, dense, uniform. Galea 1.6X longer than labrum, .87X compound eye height; labrum length 1.1X its basal width; F I longer than F IX-X together, F IX 1.4X longer than wide, uniformly subcylindrical, slightly dorsoventrally flattened, narrowly carinate laterally, apicolateral margin not deeply emarginate; upper clypeal margin not medially peaked, well below antennal sockets; face narrowest (1/3 head width) at upper level of antennal sockets, less than 1/10 broader at vertex; flat area beneath horseshoe-shaped midocellar suture about as broad as long; segments 1-4 of tarsus I subcylindrical, basitarsus I 5.3X longer than

wide, claws =, evenly curved; femur II stout, smooth; basitarsus II obscurely curved, very weakly emarginate ventrally, emarginate surface set with a few bristles in apical half; femur III without conspicuous erect hair; abdomen with T VII basal glabrous area with a median posteriorly directed peak, lateral spiracular lobes very wide, separated by much less than the width of either medially; S II not dentate, S VII broadly sclerotized, S VIII with 3 slender prongs and a slender thornlike medioventral projection; male gonostyles broadened near outer 1/3, not hairy beneath; cuspis of male genitalia extending posteriorly beyond digitus.

FEMALE: Length 12 mm. Predominantly black, but light areas much more extensive than in male, these white except yellowish on legs and S.

Holotype male, 3 mi. N Rodeo, Hidalgo Co., N.M., 11.VIII.81 (R.M. Bohart), deposited in the University of California at Davis collection.

Paratopotypes: 106m,1f, 11.VIII.81 (R.M. Bohart, UCD, JEG, TAM, USNM)

Paratypes: ARIZONA: COCHISE CO. Apache, 2m, 13.VIII.44 (W.W. Jones, CAS); 1f, 8.IX.78 (R.C. Miller, TAI). Apache Pass, Dos Cabezos Mts., 1m, 24.VIII.54 (F. Werner, UAZ). Bisbee, 18 mi N of, on Verbesina encelioides (P.H. Timberlake, UCR). Dos Cabezos, 1f, 27.VIII.74 (R.M. Bohart, UCD). Huachuca Mts., 1m, 1.VIII.03 (Oslar, COR). Paradise, 1m,2f, 26.VIII.62 (K. Roever, UAZ). Pearce, 11 mi S of, 1m, 16.VIII.81 (R.M. Bohart, UCD). Portal, 5 mi E, 1m, 14.IX.55 (C&M Cazier, AMNH). Willcox, 1 mi E, 4100 ft, 1f, 8.IX.50 (T. Cohn, P. Boone, M. Cazier, AMNH). NEW MEXICO: HIDALGO CO. Lisbon, 4400 ft, 1m, 28.VIII.37 (Rehn, Pate & Rehn, ANSP). Rodeo 2m, 6.IX.61 (A.E. Michelbacher, UCD); 1m, 25.VIII.62 (H.V. Weems, Jr, FSCA); NNW of Rodeo, 1m,1f, pinned together, 18.VIII.81 (L.E. Elliott, UCD); 2.5 mi NNW, 2m,1f, 25.VIII.81 (J. Cane, L. Elliott, UCD, TAM); 6 mi SW, 1f, 2.IX.72 (M. Favreau, UCD); 10 mi N of, San Simon Valley, 4000 ft, 1f, 27.VIII.37 (Rehn, Pate & Rehn, ANSP). LINCOLN CO. Carrizozo, 13f, 31.VIII.38 (R.P. Allen, CAS). LUNA CO. Deming, 25 mi NW, 1m, 24.VIII.74 (R.M. Bohart, UCD). SOCORRO CO. Bernardo, 1 mi SW, Seville Nat. Wildlife Ref., 1m,1f, 17-24.VII.77, malaise trap (W. Rubink, COS). Lordsburg, 20 mi W, 1m, 23.VIII.62 (H.V. Weems, Jr, FSCA). MEXICO: CHIHUAHUA. Jiminez, 18 mi W, on Baccharis, 1m, 10.VIII.51 (P.D. Hurd, CIS). Juarez, 13 mi S, 7f, 18.VIII.52 (E.E. Gilbert, C.C. MacNeill, CIS).

This species is a member of Glenostictia on the basis of characters of that genus cited by Gillaspy (1963). Useful characters of the male are the black thoracic dorsum, short F XI, unmodified S II, long F I, unmodified tarsus I, weakly modified basitarsus II, and femur III without abundant erect hair. In females the all-black scutum and evenly convex clypeus lacking silvery-appressed pubescence are useful characters. The unpeaked clypeus well removed from the antennal sockets, shape of the midocellus and large size are characters common to both sexes. The pattern of markings of the female and other features would appear to relate satan to the pictifrons F. Smith species group under Glenostictia, although lacking specialized male features of pictifrons itself such as lobate foretarsi and dense spatulate hairs ventrally on the gonostyles.

Microstictia flavida Gillaspy, new species

MALE HOLOTYPE: Length 12 mm, forewing 8 mm. Black with markings entirely yellow except F II-XI reddish-yellow beneath. Yellow as follows: labrum, clypeus, front broadly except black around anterior ocellus, this incorporating a broad yellow V within which the ocellus is located, scape, F I below, posterior orbits meeting on vertex, prothorax except narrow median black, scutum laterally and broad lines medially, scutellar band narrowed medially, metanotum, propodeal enclosure except at base, propodeal angles and sides, pleura almost

entirely, continuously across venter, legs entirely except short dorsal lines on femora, broad bands of T, S except black at base of S VI and entire S VII. Pubescence short, pale, inconspicuous, some reflective on clypeus but this sparse. Punctation fine, inconspicuous. Galea 1.6X length of labrum, equal to eye height; labrum 1.4X longer than basal width; F IX without a longitudinal ridge, F XI 1.7X longer than broad; basitarsus I parallel-sided from near base to apex, 4.4X longer than broad, 3 rake setae equal to tarsomere width; femur II with basal swelling broadly rounded in profile; femur III spindle-shaped or nearly so; spiracular lobes of T VII small, separated across the venter by about 4X the width of either, and without an inner angulate projection; S VIII with a well developed, basomedian, backward projecting tooth.

FEMALE: Markings as in male but yellow slightly more extensive.

Holotype male 3 mi E. Pearce, Arizona, on Lepidium, 21.VII.61 (J.E. Gillaspy), deposited in the United States National Museum.

Paratypes: ARIZONA: COCHISE CO. Apache, 5 mi SE, 1f, 11.VIII.58 (P.D. Hurd, CIS). Cochise, R.R. Overpass, on Condalia fls, 1m, 18.VII.68 (F. Werner, UAZ). Dos Cabezas, 6.7 mi E, on Psilostrophe cooperi, 1f, 7.VIII.78 (R.W. Brooks, TAM). Elfrida, 2 mi W, 4200 ft, 1m, 30.VII.64 (J.C. Bequaert, UAZ). Pearce, 3 mi E, on Lepidium, 2m, 10.VII.55 (G. Butler and F. Werner, UAZ); 5m,2f, 21.VII.61 (J.E. Gillaspy, JEG); 6 mi N, Lepidium, 1f, 6.VIII.55 (G. Butler, Z. Noon, UAZ); 5 mi S, 2f, Acacia angustissima, 28.VII.55 (G. Butler, F. Werner, UAZ). Turner, 1f, 9.VIII.40 (E.S. Ross, CAS). Portal, 1m, on Baccharis blossoms, 30.VII.59 (M. Statham, AMNH); 2.5 mi NE, Acacia sp, 1f, 30.VII.59 (E.G. Linsley, CIS). Willcox, 1f, 1.VIII.65 (L.A. Saario, COR). Tucson, 1f, VIII (J. Bequaert, MCZ). PINAL CO. Sacaton, 1f, 8.VIII.30 (T.F. Winburn, R.H. Painter, KAN). NEW MEXICO: HIDALGO CO. near Animas, 1f, 26.VIII.79; 8 mi W, 1f, 20.VIII.79 (R.M. Bohart, UCD). Cotton City, 1m,1f, 19.VIII.79 (R.M. Bohart, UCD). Lordsburg, 19 mi E, 4000 ft, 2f, 1.VIII.46 (H.A. Scullen, ORS). Rodeo, on Asclepias subverticillata, 1f, 10.VII.60; 1W2N, 1f, 10.VII.60 (J.E. Gillaspy, JEG); 4000 ft, 1f, 5.VIII.59 (H.E. Evans, HEE); 1 mi N, on Koeberlinia spinosa, 1m,4f, 28.VII.63 (M.A. Cazier, AMNH); on milkweed, 1m, 6.VIII.74 (R. Coville, J.A. Powell, J. Sorenson, S. Szerlip, TAI). LUNA CO. Deming, 14 mi W of, 4350 ft, 2f; 4500 ft, 1f, 11.VIII.57 (H.A. Scullen, ORS). MEXICO: CHIHUAHUA. Chihuahua, 16 km S, on Acacia, 1m, 11.VIII.57 (H.A. Scullen, ORS). SONORA. Alamos, 10 mi W, 1f, 21.VII.54 (M. Cazier, W. Gertsch, Bradta, AMNH).

The male femur II characters of flavida distinguish this species from those Microstictia with unmodified femur II. Other species with modified femur II, femorata (W. Fox), minutula (Handlirsch), hurdi, and texensis, differ from flavida in having a distinct basal tooth, this being obscure in flavida. Additional male characters are the well developed backward projecting spine of S VIII, lack of a definite ridge on F IX, and the narrow basal plate of the volsella, bearing the cuspis and digitus. Females of flavida appear to be completely recognizable by failure of facial black to extend downward to the antennal sockets, along with otherwise extensive yellow markings.

Microstictia hurdi Gillaspy, new species

MALE HOLOTYPE: Length 10 mm, forewing 6 mm. Black with markings entirely yellow except F II-XI mainly reddish. Yellow as follows: labrum, clypeus, broad orbital areas of front and triangular area above antennal sockets, a "C" shaped area before and laterally around anterior ocellus, scape and F I below, posterior orbits separated on vertex, prothorax except broad median black, scutum laterally and faint lines medially, separate scutellar triangles, metanotum except narrow anterior black, 2 narrow lines in propodeal enclosure, propodeal angles, pleuron broadly but not continuously across venter between

pleurons, legs except dorsal lines on femora, complete bands of T, S narrowly at sides. Pubescence short, pale, inconspicuous, none of appressed, reflective type. Punctation rather coarse in some areas. Galea 1.7X length of labrum, .9X eye height; F XI 2.0X longer than broad; basitarsus I parallel-sided from near base to apex, 4.2X longer than broad; rake setae slightly less than tarsomere width; femur II with basoventral swelling broadly acute in profile; hindfemur only semi-spindle shaped, the lower margin slightly indented medially; spiracular lobes of T VII small, separated across the venter by about 4X the width of either, and with an inner angulate projection; S VIII with a well developed, basomedian, backward projecting tooth.

FEMALE: Markings as in male, yellow only slightly more extensive.

Holotype male 3 mi E Pearce, Arizona, on Lepidium, 21.VII.61 (J.E. Gillaspy) deposited in the United States National Museum.

Paratypes: ARIZONA: COCHISE CO. Apache, 14f, 19.VIII.79 (R.M. Bohart, FSCA, UCD); 5 mi S, 1f, 3.IX.77; 5 mi SE, 1f, 11.VIII.58 (R.M. Bohart, UCD); 3-5 mi SW, 4300 ft, on Baccharis glutinosa, 8.VIII.59 (H.E. Evans, HEE); 7 mi SW, 1f, 21.VIII.66 (J.G.&B.L. Rozen, AMNH). Cochise, RR overpass, on Baccharis blossoms, 1m, 30.VII.59 (M. Statham, AMNH). Dos Cabezas, 1f, 27.VIII.74 (R.M. Bohart, UCD); Douglas, 1f, 27.VIII.79 (R.M. Bohart, UCD); 1 mi E, on Verbesina encelioides, 2m, 19.VIII.62; on Baileya multiradiata, 1m, 20.VII.62 (M.A. Cazier, AMNH); 3990 ft, 1f, 9.VIII.62 (H.A. Scullen, ORS); 3 mi N, on Lepidium thurberi, 1f, 4.VIII.61 (J.G. Rozen, AMNH); 8 mi NE, on fls Erigeron, 1m,3f, 11.VIII.40 (Timberlake, UCR); 10 mi E, 2m, 11.VIII.40 (E.S. Ross, CAS); 9 mi E, 1f, 28.VIII.81 (R.M. Bohart, UCD); 40 mi NE, 1f, 21.VIII.65 (C.A. Saario, TAM). Pearce, 1m, 27.VII.54 (Butler-Werner, UAZ). Portal, 1f, 5.VIII.67 (F.G. Andrews, TAM); 2 mi NE, 4600 ft, 2f, 17.VIII.62 (H.A. Scullen, ORS); 4.7 mi SE, 4250 ft, 1f, 4.IX.78 (F.L. Coville, TAI). Ramsey Canyon, Mth., 1f, 10.VIII.40 (Timberlake, UCR). Turner, 1f, 9.VIII.40 (E.S. Ross, CAS); fls Baileya, 1m, 1.VIII.40 (Timberlake, UCR). Willcox, 1m, 25.VIII.67 (E.I. Schlinger, UCR). MARICOPA CO. Theba, 12 mi W, 10.IV.61 (R.H.&E.M. Painter, UAZ). SANTA CRUZ CO. Nogales, 1f, 7.VII.03 (Oslar, COR). Sonoita, 10 mi E, 1f, 9.VIII.40 (E.S. Ross, CAS); fls Sphaeralcia, (P.D. Hurd, CIS). Patagonia M., 3m, 2-4.VIII.53 (D.J.&J.N. Knull, OHS). YAVAPAI CO. Dewey, swept alfalfa, 1f, 28.VII.56 (Butler-Gerhardt, UAZ). NEW MEXICO: HIDALGO CO. Lordsburg, 19 mi E, 4600 ft, 2f, 1.VIII.46 (H.A. Scullen, ORS). Rodeo, 1 mi N, on Koeberlinia spinosa, 1m,4f, 28.VII.63 (M.A. Cazier, AMNH); el 4100 ft, at light, 1f, 5.VIII.65 (G.W. Forister, AMNH); 1 mi NW, 2m, 6.VIII.74 (R. Coville, TAI). MEXICO: OAXACA. Tehuantepec, 1m, 18.VII.52 (E.E. Gilbert, C.D. MacNeill, CIS). SINALOA. Mazatlan, 1f, 15-20.VIII.62 (H.E. Evans, HEE). SONORA. Estacion Llano, 19.4 mi S, 1f, 25.VIII.64 (M.E. Irwin, TAI).

This species is closely related to flavida, but in the male differs from that species in having F IX bearing a longitudinal ridge on the surface inward to the curvature; in characters of femur II, which is distinctly emarginate rather than faintly so, and the process basal to the emargination distinct, unlike the very slight development in flavida, but rounded rather than sharply angulate as in texensis; in basitarsus II, which is slightly thickened and rounded; in femur III, which is slightly narrowed medially rather than spindle shaped as in flavida; in the more widely sclerotized volsellar base and somewhat less slender gonostyle; and in the reduced yellow coloration. Females that appear assignable to hurdi all have the facial black extending downward to the antennal sockets.

Microstictia texensis Gillaspy, new species

MALE HOLOTYPE: Length 12 mm, forewing 6.5 mm. Black with light markings

(whitish on upper surfaces and most of abdomen; yellow on scape, face, sides, and upper surface of thorax and abdomen below at base; reddish-yellow on F below) as follows: wide but separate frontal orbits, midocellar V, posterior orbits onto vertex but separate, prothorax except narrow band from collar to pronotal lobes, scutum narrowly at sides, triangular scutellar marks, majority of metanotum, separate lining marks in propodeal enclosure, narrow angles and sides of legs except femora above and spot behind on tibia III, rather narrow bands of T, narrowly interrupted or nearly so medially, and bands of S, reduced on posterior S. Pubescence pale, very short and inconspicuous, sparse reflective type on clypeus, visible only at certain angles. Punctation fine and inconspicuous. Galea 1.6X labrum length, .8X eye height, F XI length 1.4X width, basitarsus I 3.6X longer than broad, widening apically, rake setae 5, none as long as segment width, femur II with posteroventral emarginations of a flangelike margin leaving toothlike processes, the basal process acute, femur III concave at base to a little less than 2/3 of femur length, basitarsus II very little widening in apical half, S III and S IV with swellings similar to the 2 processes on S II, but progressively further apart than those processes in a posterior direction and set with short, dense hairs, T VII spiracular lobe with an inner angle, S VIII with a ridgelike medioventral swelling but no tooth.

FEMALE: Length 8-11 mm. Markings as in male but somewhat more extensive, particularly in presence of a scutal U, this rarely present in males but seldom absent in females.

Holotype male, 8 mi E Falfurrias, Brooks Co., Texas, 2.VIII.65 (J.E. Gillaspy), deposited in the United States National Museum.

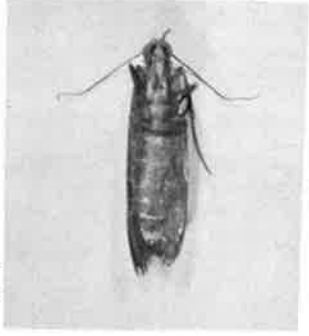
Paratypes: TEXAS: BROOKS CO. Encino, 1m,1f, 16.VI.66. Falfurrias, 1 mi E, 1m,3f, 30.VII.65. 6 mi E, 7f, 27.VI.68 (all J.E. Gillaspy, UCD, CAS, TAI, TAM). CAMERON CO. Brownsville, 2m, V (USNM). DUVAL CO. Premont, 9 mi W, 1m, 16.V.81 (J.E. Gillaspy, JEG). San Diego, 1m, 2.V (USNM). FRIO CO. 4m, 20.V.48 (D.J.&J.N. Knull, OHS). HALL CO. Memphis, 16 mi S, 1f, 22.VI.59 (R.R&M.D. Snelling, LACM). HOWARD CO. Stanton, 11 mi E, 1f, 10.VII.56 (E.G. Matthews, TAI). JIM WELLS CO. Ben Bolt, 2f, 12.V.52 (M. Cazier, W. Gertsch, R. Schrammel, AMNH). KLEBERG CO. Baffin Bay, 8m, 30-31.VII.65. Kingsville, 1f, 22.IV.60; 1m, 5.VI.67; 9m,7f, 9.VI.67; 2m,2f, 29.VI.67; 7m,14f, 6.VII.67; 1m, 5.IX.66 (J.E. Gillaspy, FSCA,, JEG). La Paloma Ranch, 2m, 23.V.75 (J.E. Gillaspy, AMNH, CIS, UCD, JEG). Riviera, 7m,4f, 27.VI.66 (J.E. Gillaspy, JEG, TAM). Site 55, 6 mi E Riviera, 2m,5f, 11.VII.69; 1f, 7.IX.80 (J.E. Gillaspy, ANSP, COR, JEG). LA SALLE CO. Cotulla, 2m,1f, 15.IV.06 (F.C. Pratt, USNM). LLANO CO. 1f, 11.VI.41 (J.E. Gillaspy, JEG). MCLENNAN CO. Waco, 1m, 10.VI.35 (P.A. Glick, JEG). NOLAN CO. Sweetwater, on aster, 1f, 15.VI.06 (F.C. Bishopp, USNM). STARR CO. Rio Grande, 5 mi E, 1m, 31.V.39 (L.K. Gloyd, MICH). Rio Grande City, 1m, 2.VIII.75 (J.E. Gillaspy, JEG). UVALDE CO. Sabinal, 1f, 26.VI.10 (F.C. Pratt, USNM). WEBB CO. 1m,2f, 26.IV.81. Laredo, 15 mi SE, 1f, 12.VI.81;1m,11f, 11.X.80; 2f, 17.X.80; 4f, 9.XI.80 (J.E. Gillaspy, IDA, KAN, JEG). ZAPATA CO. 1f, 21.V.48 (D.J.&J.N. Knull, OHS). MEXICO: COAHUILA. Paila, 32 mi E, 1f, 17.VIII.63 (G.W. Byers and Party, KAN). TAMAULIPAS. Ciudad Mante, 18 mi. E, 2m,1f, 13.VIII.59 (L.S. Stange, A.S. Menke, UCD). Matamoros, 13S,18SE, 2m,4f, 21.V.79 (L.Delgado, J.E. Gillaspy, JEG, TAM); 1f, 30.V.79 (Gillaspy & Party, JEG); 10m,1f, 7.VI.80 (J.E. Gillaspy, CAS, JEG). Playa Altamira, 2m,2f, 3-5.VII.68 (M.S. Wasbauer, UCD). Presa del Azucar, 2f, 2.VIII.75 (J.E. Gillaspy, JEG).

Five members of the genus Microstictia, femorata (W. Fox), texensis, minutula (Handlirsch), flavida, and hurdi, have femur II longitudinally emarginate. The first 3 have the tooth at the base of the emarginate surface sharp and acute in profile and also hirsute swellings of S III and S IV, while the first 2 have the spiracular lobes with an inner angulate projection. In

hurdi the femoral tooth is rounded in profile but well developed, unlike the very weak condition in flavida. Texensis differs from femorata in the emargination of femur III extending a little less than 2/3 the length of the femur rather than slightly more than 2/3 and also in having basitarsus II widened apically by less than in femorata, where widening is by 1.5X. Females of texensis differ from members of the genus other than rufescens and femorata in having whitish dorsal bands on T III-IV, but lack the distinct reddish areas and clypeal black of rufescens. Females of texensis are not separable from femorata females except by association with males.

M. texensis was observed at Kingsville in summers of 1967-69, nesting on the banks of an intermittent stream in an area of brush comprising huisache, granjeno, mesquite, and prickly pear. Burrows were in well drained soil and not occupied at night. Earliest flight activity noted was at 9:55 AM, CST although return to burrows of the previous day did not occur until 10:31-11:40 AM CST in 5 observed cases. Whining, hovering, and occasionally even backing flight was characteristic. Provisioning wasps approaching their nest with prey threaded their way noisily and rather slowly through any vegetation that was present, but departed the nest entrance abruptly at high speed, with a burst of sound, toward open areas. Adaptivity of this would appear obvious in view of the many robber flies (Asilidae) in the vicinity. Wasps were timed during 77 trips away from the nest, which averaged 12 minutes (range 3-47). Five returns were without prey. Time in nest between trips (n=28) averaged 24 seconds (range 15-45). Tumulus mounds were not dispersed, and while temporary closures were often made, they were usually omitted during the more active periods of provisioning.

Burrows curved downward to an angle of slightly less than 45 degrees with the surface, then were straight and terminated in slightly widened cells 6-17 cm from the surface, measuring 4-7 mm in diameter and with 1-7 cells per nest. Two fully stored cells contained 10 and 11 prey, respectively. 31 adult moth prey either intercepted or removed from cells included Gelechiidae, Geometridae (Narraga fimetaria, Idaea sp.), Oleuthreutidae, Pterophoridae Oidaematophorus sp.) and Pyralidae (Crambinae, Phycitinae, Pyraustinae =Blepharomastix magualis). Identifications were mostly provided by specialists of the Systematic Entomology Laboratory (USDA), United States National Museum. Prey moths had the forewing base and scutum notably denuded of scales evidently through carrying action of the wasp, but were otherwise intact, and 1 taken from a cell exhibited vigorous heart action when viewed by stereoscopic microscope. Paralysis otherwise appeared complete. 1 closed cell had 11 prey. The 2.3 mm long egg in another cell was glued to the hindwing of the 1st moth stored, near the base of the left hind leg, and is visible in the accompanying photograph. Flowers visited: Phyla incisa (very much), Heliotropium curassavicum, Ratibida columnaris, Aster ericoides, Borrichia frutescens, Croton sp. Field assistance was provided part of the time by R. Worden and J.A. Marquer.



Microstictia rufescens Gillaspy, new species

MALE HOLOTYPE: Length 11 mm, forewing 8 mm. Dark coloration primarily black, replaced by reddish in some areas bordering the light markings which are creamy or yellowish-white, except F light brownish-red below. Light markings as follows: labrum, clypeus except small area near tentorial pits, anterior orbits, spot before and 1 either side of anterior ocellus, narrow posterior orbits ending before eye angles, pronotum narrowly behind, small lateral areas of

scutum, lateral spots of scutellum, metanotum mostly, spot at propodeal angles, femora at least below, tibiae except narrow line, tarsi except spot on distitarsi III above, bands of T narrowly interrupted on anterior T, bands of S all complete, lateral prongs of S VIII black. Pubescence pale, well developed silvery-appressed type on clypeus, frontal orbits and pleurae. Punctation very fine, inconspicuous. Galea 1.0X length of labrum, .5X eye height, T VII spiracular lobes narrow, S VII with longitudinal apodemes separated from 1 another by almost the width of the spiracular lobes.

FEMALE: Length 9-12 mm. Markings very similar to those of the male but reddish much more extensive, white areas equal to male except on the clypeus, where black is more extensive at the base, occupying most of the basal 1/3. Basitarsus I 2.9X longer than broad.

Holotype male, 1 mi W of Lajitas, Brewster Co., Texas, on Acacia greggii, 20-23.IV.63 (J.E. Gillaspy) deposited in the United States National Museum.

Paratypes: ARIZONA: MARICOPA CO. Mesa, about 25 mi E, 1m, 11.VI.42 (H.A. Scullen, ORS). PIMA CO. Ajo, 12 mi SSW, on Condalia lycioides, 2m, 26.VII.61 (J.E. Gillaspy, JEG). PINAL CO. Boyce Thompson Arb., Superior, 1m, 4.VI.62 (F. Werner, J. Bequaert, UAZ). CALIFORNIA: RIVERSIDE CO. Magnesia Cyn., 1m, 2.VII.52 (D.E. Barcus, JEG). NEW MEXICO: HIDALGO CO. Granite Pass, on Croton, 1m, 25.VIII.58 (P.D. Hurd, CIS). LUNA CO. Deming, 22 mi E, 4300 ft, 1f, 2.VIII.58 (P.D. Hurd, CIS). SOCORRO CO. Rio Salado, 5 mi W of Interstate 25, 1m, 7-12.VI.77 (W. Rubink, COS). TEXAS: BREWSTER CO. Alpine, 57 mi S, on Lepidium, 1f, 12.VI.61 (J.E. Gillaspy, JEG); Hwy 118, 60 km S Alpine, 1m,1f, 22.V.78 (C. Porter & A. Cerbonne, TAM). Lajitas, 1 mi W, 4m, Tamarix pentandra, 6m; Acacia greggii, 12m,2f, 23-30.IV.63 (J.E. Gillaspy, ANSP, AMNH, UCD, TAI). Santa Elena Cyn, Big Bend Park, 3m, 21-22.IV.531 (M. Wasbauer, CIS). CULBERSON CO. 31° 52' N, 104° 31' W, 2m, 14.VIII.65 (J.C. Schaffner, TAM). HUDSPETH CO. Dell City, 9 mi SW, 1f, 31.VII.50 (R.F. Smith, CIS). PECOS CO. Fort Stockton, 1f, 6.VI.37 (R.H. Crandall, UAZ); 18 mi SW, 3250 ft, 1m, 27.VIII.62 (H.A. Scullen, ORS). PRESIDIO CO. Plata, 7 mi E, 1m, 30.IV.61 (J.E. Gillaspy, JEG). TERRELL CO. Dryden, 7 mi SE, 1m, 7.VII.58 (W.F. Barr, IDA). WARD CO. Monahans, 3 mi S Jct US 80 & FM 1053, 1f, 10.VI.61 (J.E. Gillaspy, JEG); 12 mi E, 1f, 14.VI.61 (Williamson, JEG). MEXICO: BAJA CALIFORNIA SUR. La Paz, 10 mi SE, on Colubrina glabra, 1m, 3.VIII.66 (P.D. Hurd, JEG). NUEVO LEON. Vallecillo, 2m,1f, 2-5.VI.51 (P.D. Hurd, CIS, JEG).

Specific characters of M. rufescens are the white markings, often bordered by reddish which appears to be largely in replacement of black; a relatively short galea; and well developed basal black of the clypeus, remainder of clypeus whitish and with appressed reflective pubescence well developed. Male characters are the unmodified femur II, single process of S II, divided apically to some degree; short F XI; narrow spiracular lobes of T VII; apodemes of S VII well separated, by almost width of the spiracular lobes; and a blunt medioventral process of S VIII. The reddish markings of this species are unique in the genus and well developed in all females seen, but weaker or absent in males, particularly in the western part of the range. These western males also have no clypeal black and there is some increase in yellowish in the light markings. However, all structural characters cited above appear constant. No western females have been seen for comparison with these males.

Microstictia nova Gillaspy, new species

FEMALE HOLOTYPE: Length 10 mm, forewing 8 mm. Black with markings entirely yellow except F reddish above, reddish-yellow beneath. Yellow as follows: labrum, clypeus, anterior orbits reaching antennal sockets, intersocketal triangle extending upward almost width of sockets, C-shaped area before and

around anterior ocellus laterally, posterior orbits extending to behind posterior ocelli but not meeting, pronotum except median band extending side to side, scutum laterally and median lines, scutellar triangles narrowly separated medially, metanotum except narrow anterior crescent, pleuron except narrow anterior band, continuing across venter to pleuron of other side, legs except dorsal area of femora extending to near apex, complete tergal bands, sterna entirely except base of S VI. Pubescence short, pale, inconspicuous, some appressed reflective type on anterior orbital areas. Punctation generally fine, inconspicuous but scattered coarse punctures on labrum and clypeus. Galea blades broad, tapering abruptly to an obtuse point, unlike the slender blades of flavida and hurdi, which taper gradually to an acute point; galea 1.4X labrum length, .7X compound eye height, labrum length 1.1X basal width.

Holotype female 8 mi N of Stewart Mtn Dam, Maricopa County, Arizona, on Canotia holocantha, 25.VII.60 (J.E. Gillaspy), deposited in the United States National Museum.

Paratypes: ARIZONA: MARICOPA CO. Same data as holotype, 1f (JEG). PIMA CO. Ajo, 1f, 23.VII.38 (R.M. Beamer, KAN). Tucson, on Olneya tesota, 1f, 7.VI.73 (P.D. Hurd, E.G.&J.M. Linsley, Michelbachers, CIS).

This species differs from females of both flavida and hurdi in the blunt tongue and in the labrum, the latter 2 species both having the galea .9X compound eye height vs .7X in nova, and they also both have the 1st segment of the maxillary palps longer than the 2nd segment, whereas both nova and rufescens have the 2nd segment longer. The labrum is 1.3X its basal width in hurdi and 1.4X in flavida, as compared to 1.1X in nova. Although dorsal markings of nova somewhat resemble hurdi, including divided orbital bands, the ventral yellow, broadly connecting the pleura and extensive on abdominal sternites, resembles flavida. Coarse punctation of the labrum and clypeus is a character of hurdi, but appears slightly more developed in nova.

Chilostictia Gillaspy, new genus

Genotype: Chilostictia hirsuta Gillaspy, original designation.

This monotypic genus is known only from a series of specimens collected in Baja California Sur, June 7-10, 1975, by H.E. Evans, W. Rubink, and D. Gwynne.

Morphological features are: (1) palpal formula 5-3, (2) labrum 1.7 times as long as broad, not swollen in basal third, (3) mandibles of female slender, not strongly curved, (4) arolium well developed and nearly half as long as claws in dorsal view, (5) flat area subtending midocellar suture almost as broad as long, (6) clypeus with a median peak above, but well separated from the antennal sockets although medially reaching the imaginary line tangent to lower limit of both sockets, (7) clypeus distinctly flattened above either side of middle in female, (8) male F 2-11 narrowly carinate, subterminal segments not deeply emarginate apically, (9) body generally with much long, erect hair and femur III with abundant hair beneath, (10) male femur II weakly ridged beneath but not carinate or serrate, (11) male basitarsus II straight, (12) male S II bidentate, (13) male S VI convex posteriorly, (14) male S VIII with a spiniform medioventral projection, (15) male T VII ventral spiracular lobes narrow, being separated medially by almost their own width, (16) male F II-XI carinate but not fossulate, (17) male genitalic cuspis exceeding digitus. Characters 4 and following occur within various members of the genus Glenostictia, which I regard as having 3 subgroups of species, those associated with G. pictifrons, G. pulla (Handlirsch), and G. tenuicornis (W. Fox). If it were not for the reduced palpi and long labrum, Chilostictia hirsuta could be put in Glenostictia, although

assignment to a species group might be uncertain since it shares characters with all 3 subgroups, especially the last 2.

Chilostictia hirsuta Gillaspy, new species

MALE HOLOTYPE: Length 13 mm, forewing 12 mm. Color black and yellow except outer F reddish below; dorsal surfaces of body predominantly black, ventral surfaces predominantly yellow. Yellow as follows: scape and basal F below, labrum, clypeus except narrowly above, broad anterior and posterior orbits, pronotum mostly, tegulae anteriorly, scutum narrowly at sides, triangular lateral spots of scutellum, metanotal band, narrow lines in upper propodeal enclosure, sides of propodeum broadly including spiracular shields, mesepisterna continuously across venter except large spot including subpleural signum, T I-VI transversely except black at base and apex, T VII at apex, S I-VI mainly yellow, all with some basal black; distitarsi blackened above, dusky below. Erect pubescence conspicuous, long, whitish except brownish on vertex; appressed pubescence very weakly developed. Punctation rather coarse except fine and dense on clypeus, genae and legs. Galea 1.7X labrum length, 1.2X eye height; maxillary palps 5-segmented, labial palps 3-segmented; labrum elongate, 1.7X longer than basal width; intersocketal carina obsolete above clypeus; F IX 1.35X longer than wide, slightly dorsoventrally narrowed, narrowly carinate laterally, apex beyond carina weakly emarginate; clypeus with a median peak at lower level of antennal sockets, laterally distant from sockets by 1/7 of intersocketal distance; face narrowest (.4 of head width) at level of antennal sockets, broadening to vertex, where distance between eyes is 1/10 greater; flat area delimited by midocellar suture about as broad as long; basitarsus I 6.8X longer than wide, claws = in size, evenly curved; femur II smooth, basitarsus II cylindrical, straight; abdomen with T VII spiracular lobes of medium width, separated by slightly less than width of each; basal glabrous area of T VII with a posteromedan peak; S II bidentate; S VI rounded apically; S VII broadly sclerotized; S VIII wih 3 slender prongs and a slender medioventral projection.

FEMALES: Length 12 mm. Erect pubescence less developed than in male, appressed silvery type well developed and reflective on clypeus, anterior orbits, frons and mesopleurae. Color pattern similar to male; hind tibiae marked with black on posterior surface. Clypeus beveled, upper 1/3 on either side flattened, set off from remainder of clypeus by a distinct angulation of the surface.

Holotype male, San Carlos, Baja California Sur, 7-9.VI.75 (H. Evans, W. Rubink, & D. Gwynne), deposited in the United States National Museum.

Paratypes: BAJA CALIFORNIA SUR: Puerto Chale, 60 km S of San Carlos, 3m,1f, 10.VI.75; San Carlos, 6m,1f, 7-9.VI.75 (H. Evans, W. Rubink, & D. Gwynne, HEE, JEG, UCD, FSCA).

Chilostictia hirsuta is separable from other Stictiellina by characters cited under the genus. By adding a 5-3 palpal formula to the 1st option of couplet 2 of the key to Bembicini by Bohart and Menke (1976), Chilostictia would fall with Xerostictia in couplet 3 except for the shorter labrum (1.7X rather than about 2X basal width).

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Gillaspy, J.E. 1963. Two new genera and a new species of Bembicini (Sphecidae) from North America, with a key to the genera having recessed ocelli. Entomol. News 74:187-199.

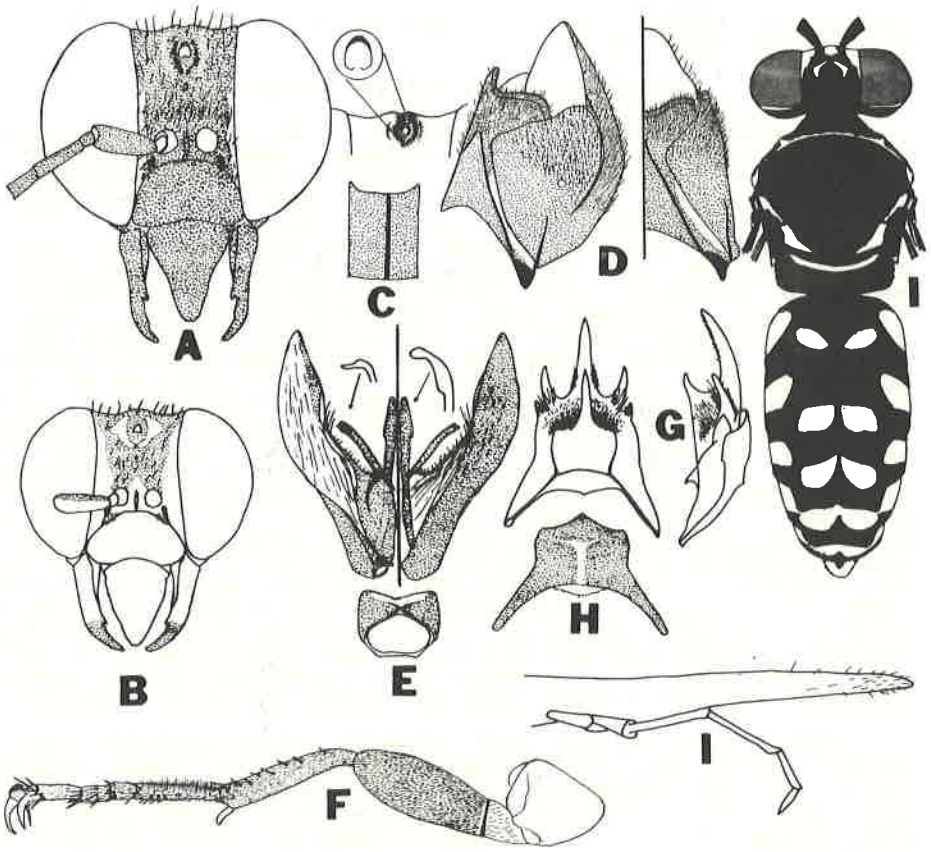

FIG. 1. Glenostictia satan. Stippling=dark color or heavy sclerotization. A. Front of head, male. B. Same, female. C. Flagellomere IX, male, lateral (inward to curvature) surface. D. Abdominal segment VII, lateral (left); ventral (right). E. Genitalia, male, ventral (left); dorsal (right); gonobase, dorsal (below). F. Leg II of male, posterior. G. Abdominal segment VIII, male; sternite VIII, ventral (left); tergite and sternite VIII, lateral (right). H. Tergite VIII, dorsal. I. Galea (proboscis), female.

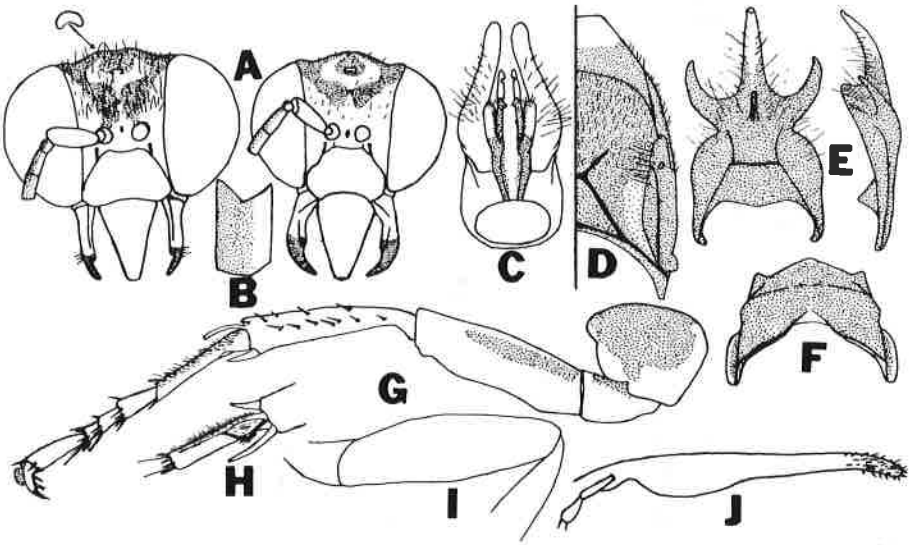

FIG. 2. Microstictia flavida. A. Front of head, male (left); female, (right). B. Flagellomere IX, male, lateral surface. C. Male genitalia, ventral. D. Segment VII, male, ventral. E. Sternite VIII, male, ventral (left); lateral (right). F. Tergite VIII, dorsal. G. Leg II of male, posterior. H. Basitarsus II, male, ventral. I. Femur III, male, posterior. J. Galea, female.

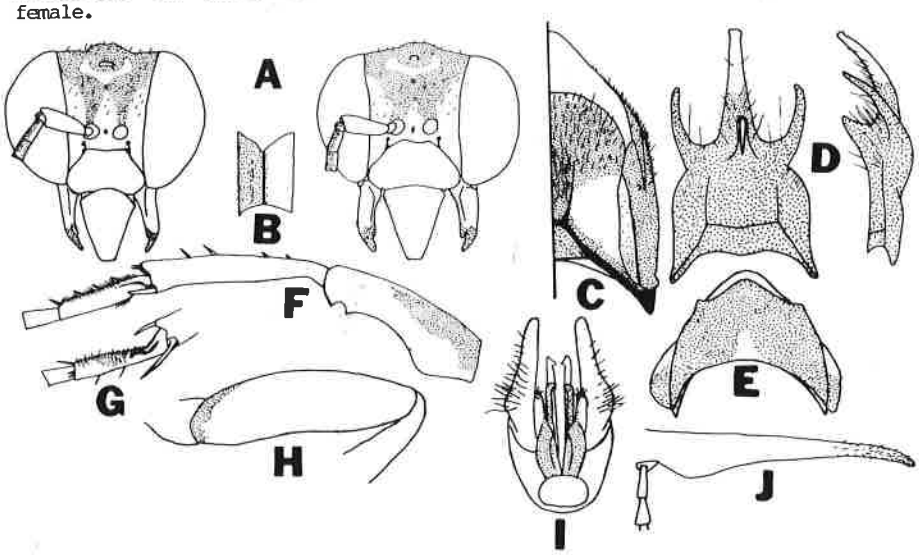

FIG. 3. Microstictia hurdi. A. Front of head, male (left); female (right). B. Flagellomere IX, male, outer surface. C. Segment VII, male, ventral. D. Sternite VIII, male, ventral (left); lateral (right). E. Tergite VIII, male, dorsal. F. Leg II, male, posterior. G. Basitarsus II, male, ventral. H. Femur III, male, posterior. I. Genitalia, male, ventral. J. Galea, female.

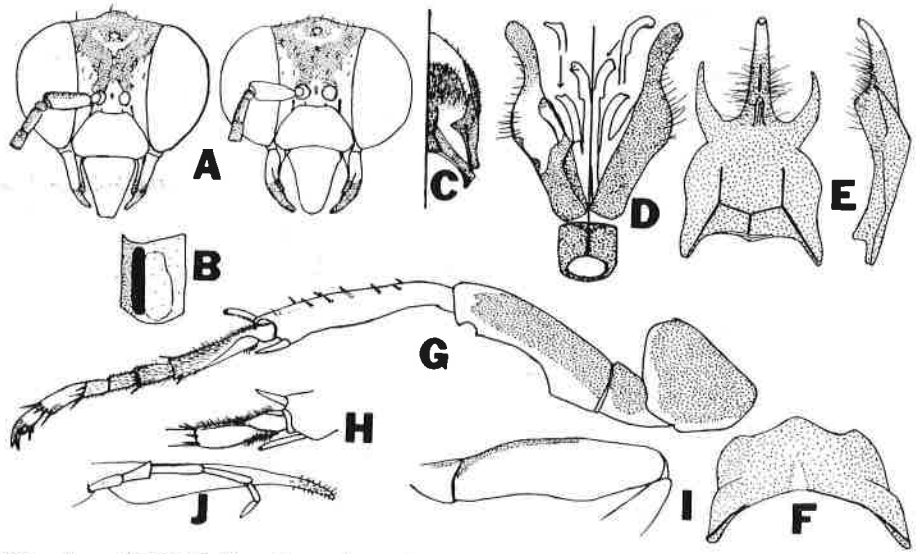

FIG. 4. Microstictia texensis. A. Frontal view of head, male (left); female (right). B. Flagellomere IX, male, outward surface. C. Segment VII, male, ventral. D. Genitalia, male, ventral (left); dorsal (right); gonobase, dorsal (below). E. Sternite VIII, male, ventral (left); lateral (right). F. Tergite VIII, male, dorsal. G. Leg II, male, posterior. H. Basitarsus II, male, ventral. I. Femur III, male, posterior. J. Galea, female.

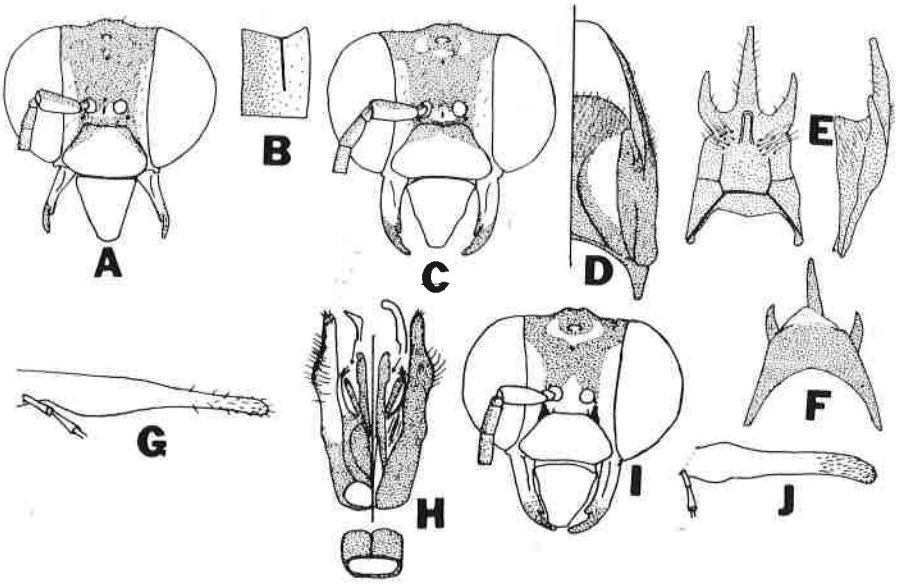

FIG. 5. Microstictia rufescens, A-H. A. Front of head, male. B. Flagellomere IX, male, outward surface. C. Front of head, female. D. Segment VII, male, ventral. E. Sternite VIII, male, ventral (left); lateral (right). F. Tergite VIII, male, dorsal. G. Galea, female. H. Genitalia, male, ventral (left); dorsal (right); gonobase, dorsal (below). Microstictia nova. I. Front of head, female. J. Galea, female.

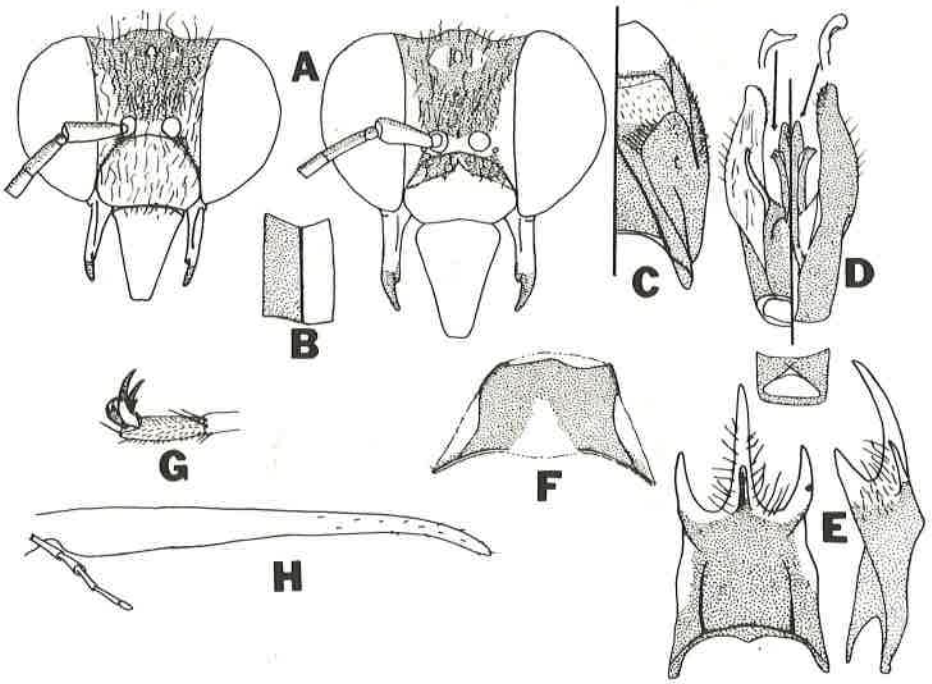

FIG. 6. Chilostictia hirsuta. A. Front of head, male (left); female (right). B. Flagellomere IX, male, outward surface. C. Segment VII, male, ventral. D. Genitalia, male, ventral (left); dorsal (right) and gonobase, dorsal (below). E. Sternite VIII, ventral (left); lateral (right). F. Tergite VIII, dorsal. G. Distitarsus I, male. H. Galea, male.