

RESULTS OF THE YALE PERUVIAN EXPEDITION OF 1911.
HYMENOPTERA, SUPERFAMILIES VESPOIDEA AND
SPHECOIDEA.

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The Hymenoptera belonging to the superfamilies Vespoidea and Sphecoidea obtained by the Yale Peruvian Expedition were collected in the following localities: Panama Canal Zone, Panama; San Miguel, Peru; Santa Ana, Peru; Ollantaytambo, Peru; Arequipa, Peru; Desert of Salavery, Peru; Cuzco, Peru. The following five southeastern Peruvian localities, Paltaybamba, Tortontoy, Huadquina, Tincochaca, and Pampaconas River can only be found in some of the most recent atlases, but the Pampaconas River is a stream lying between the Urubamba and Apurimac Rivers.

Of this lot of Hymenoptera referred to, consisting of 26 species, 14 are described as new, 11 are determined as heretofore described species, and 1 which belongs to the genus *Pepsis* has not been determined. Nearly all of those species which were determined as having been heretofore described belong to the family Vespidae, and most of these have a wide distribution throughout the entire Neotropical region. The insects belonging to the family Eumenidae are all related to insects found in the high mountains of the Andes, and more especially with the insects belonging to the Chilean fauna. Insects of the superfamily Sphecoidea show no special affinities with any region, in fact this may be said for many of them although a few of the species have their allies either in insects belonging to the Chilean fauna or insects which belong to the high mountain fauna of Guatemala, etc. But few Hymenoptera have ever been described from Peru and it is not surprising that more than half of those submitted should turn out to be new species.

In the case of the two species of Mutillids described it may be possible that they have been described by some of the older authors, but no description could be found to apply well enough to make their determination certain. The two Mutillids are referred to the genus *Sphærophthalma* Blake where they run in Andre's synopsis of the

genera of Mutillidæ, but according to the genotype of *Sphærophthalma* these insects will have to be separated into a different genus, but until it is possible to review the genera of the world they have been left in *Sphærophthalma* so as to agree with the latest revision of these insects.

Superfamily VESPOIDEA.

Family PSAMMOCHARIDÆ.

Genus PEPSIS Fabricius.

A male collected at Huadquina, Peru, at an altitude of 5,000 feet, July 25, 1911. This species may be described, although I can not make it agree with any of the numerous descriptions, and as the genus is in a chaotic state it is inadvisable to describe it at present.

Genus CRYPTOCHEILUS Panzer.

CRYPTOCHEILUS PERUVIANUS, new species.

This species closely resembles *fulvicornis*, but may easily be separated by the lateral aspect of the propodeum being striate.

Female.—Length 15 mm. Anterior margin of the clypeus broadly, arcuately emarginate, the surface closely granular; the area around the antennæ subdepressed; frontal impressed line strong, incomplete; eyes slightly converging toward the vertex; malar space obsolete; postocellar line distinctly shorter than the ocellocular line; head opaque, finely granular; antennæ normal, third joint distinctly longer than the fourth; posterior margin of the pronotum angulately emarginate; dorsal aspect of the propodeum finely granular, the posterior face and the sides strongly transversely striate; posterior face oblique, not sharply separated from the dorsal aspect; dorsal aspect of the propodeum with a few erect, black hairs; tarsal comb wanting; legs rather feebly spined, hind legs rather long, slender; abdomen normal, second ventral segment with two tubercles, the apical ventral segment broadly arcuate; transverse median of the fore wings its own length beyond the basal vein; the third cubital cell on the radius slightly shorter than the second; the second and first transverse cubiti oblique, nearly parallel, the third transverse cubitus strongly curved above the middle so the third cubital cell is not half as wide at the top as at the bottom; second recurrent vein strongly curved, received distinctly basad of the middle of the cell. Black; antennæ beyond the second joint fulvous; wings black with a faint purplish tinge at the base, slightly brownish at the apex; venation the color of the wings; head and thorax with long black hair; apex of the abdomen with long black hair.

Santa Ana, Peru. Described from one female collected August 3, 1911, at an altitude of 3,000 feet.

Type.—Cat. No. 15109, U.S.N.M.

Genus PSAMMOCHARES Latreille.

PSAMMOCHARES (PSAMMOCHARES) DICHROMORPHA, new species.

Readily distinguished by the bluish head and thorax and rufous abdomen.

Female.—Length 12 mm. Stout. Anterior margin of the clypeus very slightly incurved, the lateral angles rounded; frontal impressed line strong, complete; eyes slightly converging toward the vertex; malar space nearly obsolete; ocelli in a low triangle; postocellar line not quite twice the length of the intraocellar line; antennæ of the usual type, third joint distinctly longer than the fourth; posterior margin of the pronotum angulately emarginate; scutellum flat; dorsal aspect of the propodeum with distinct median furrow, the posterior aspect oblique and not sharply separated from the dorsal aspect; femora rather robust; tarsal comb present; legs rather strongly spined, the apical joint of the hind tarsi spinose beneath; longer calcarium of the posterior tibiæ not quite half the length of the post-basitarsis; claws not strongly curved, with an erect median tooth about the middle; transverse median vein of the fore wings nearly its own length beyond the basal; third cubital cell on the radius distinctly longer than the second on the same vein; first transverse cubitus strongly curved, second cubital cell being much narrowed above; third cubital cell receiving the second recurrent vein distinctly before the middle; the third transverse cubitus oblique so the third cubital cell is narrowed above; transverse median of the hind wings slightly before the cubitus; abdomen cylindrical, normal type; pygidium obtusely rounded apically; apical ventral segments truncate; head and thorax black, at least black in the places where the pubescence is wanting but very densely, closely clothed with an appressed dark blue pubescence which conceals the color of the thorax and its sculpture; legs and antennæ black; the femora with appressed pubescence like the thorax; abdomen entirely rufous with a fine, appressed, silvery pubescence; wings dusky hyaline; venation black.

Cuzco, Peru. Described from one female collected July 4, 1911, at an altitude of 11,500 feet.

Type.—Cat. No. 15108, U.S.N.M.

Genus ARACHNOPHROCTONUS Ashmead.

In Banks' generic synopsis for the North American Psammocharinae the genus *Arachnophroctonus* is placed in the group which has erect hair on the dorsal aspect of the propodeum. According to the type of the genus and all the species in the collection of the United States National Museum there is no erect hair on the dorsal aspect of the propodeum, and the genus, according to Banks' arrangement, will

fall near *Sericopompilus*, from which it may be separated by having the hind tarsi spined, especially the apical joint beneath; the propodeal spiracle opening posteriorly; the abdomen cylindrical, the first segment subequal in length with the second and not narrowed anteriorly; the dorsal aspect of the propodeum with a median impressed line, more distinct basally; the posterior margin of the pronotum with a longitudinal impressed median line; and the species largely ferruginous. In some of the Neotropical species of the genus *Arachnophroctonus* the dorsal lateral angles of the pronotum are strongly tuberculate. This tuberculation is much stronger in *tuberculatus* Smith.

ARACHNOPHROCTONUS XANTHOPTERUS, new species.

This species is related to *tuberculatus* (Smith), but may easily be separated by not having the wings banded with fuscous. *Rubiginosus* Taschenberg may belong to this genus, but the black on the abdomen will readily separate *xanthopterus* from Taschenberg's species. The yellow wings readily separate *xanthopterus* from the Nearctic *ferrugineus*.

Female.—Length 14 mm. Clypeus gently convex, the anterior margin nearly truncate; supraclypeal area flat; above and between the bases of the antennæ is a large rounded tubercle; impressed line line-like, complete; ocelli in a low triangle; postocellar line distinctly longer than the ocellocular line; inner margins of the eyes curved, closer together at the vertex than at the clypeus; malar space short but present; antennæ tapering apically, the third joint nearly twice as long as the fourth; posterior margin of the pronotum broadly, arcuately emarginate, well developed laterally; metanotum with rather long, dense, gray hair; dorsal, posterior lateral angles of the propodeum strongly tuberculate; dorsal middle of the propodeum strongly convex; third cubital cell on the radius subequal in length with the distance between the third transverse cubitus and the costal margin of the radius; second recurrent vein received about the middle of the third cubital cell, first recurrent vein received about the apical fifth of the second cubital cell; transverse median of the fore wings interstitial with the basal vein; transverse median of the hind wings interstitial with the cubitus; legs rather strongly spined, tarsal claws with an erect inner tooth, tarsal comb well defined; abdomen normal, the apical dorsal segment broadly rounded apically. Ferruginous; four apical joints of the antennæ, base of the first abdominal segment, narrow apical margin of the first and second tergites and most of the thoracic sutures black; wings strongly yellowish, apices dusky; venation the color of the wings; dorsal aspect of the thorax and the mesepisternum with very fine, appressed golden pubescence; head with rather sparse, erect, golden hair.

San Miguel, Peru. Described from one female collected September 1, 1911, at an altitude of 6,000 feet.

Type.—Cat. No. 15107, U.S.N.M.

Genus CEROPALES Latreille.

CEROPALES BASIRUFUS, new species.

This may easily be distinguished by the pale markings of the head and thorax and by having the basal segment of the abdomen rufous.

Female.—Length 7 mm. Anterior margin of the clypeus nearly truncate; eyes large, strongly converging below, separated at the clypeus by the distance which is subequal in length with the second and third antennal joints; front with strong distinct punctures on a granular surface, with a median longitudinal fovea; vertex shining with rather small, poorly defined punctures on a feebly granular surface; anterior ocellus larger than the lateral one; the postocellar line slightly shorter than the ocellocular line; antennæ very slightly thickening apically, the joints poorly defined, the third and fourth subequal in length; the anterior lateral margin of the pronotum tuberculate; pronotum, mesoscutum and scutellum with rather large distinct punctures; scutellum convex; mesepisternum finely granular; sides of the propodeum and the metapleuræ finely granular; metanotum strongly raised, its posterior face truncate; propodeum finely granular with a V-shaped fovea at the base, a faint impressed line from fovea to the ventral margin of the posterior face; legs very feebly spined; third cubital cell on the radius strongly narrowed so the distance between the second and third transverse cubiti is but little greater than the distance between the second transverse cubitus and the second recurrent vein; third cubital cell on the cubitus subequal in length with the second; first transverse cubitus strongly bent above the middle, second transverse cubitus straight; second recurrent vein in the basal third of the third cubital cell; first recurrent vein in the apical third of the second cubital cell; transverse median and basal vein interstitial; transverse median of the hind wings well before the cubitus; abdomen normal, impunctate. Black; clypeus, labrum except the median spot, head below the antennæ, inner margin of the eyes almost to the vertex, posterior margin of the eyes almost to the vertex, scape and pedicellum beneath, tubercle of the pronotum, narrow basal margin of the metanotum, spot on the scutellum, spot on the metanotum, four anterior coxæ, four anterior tibiæ beneath (that of the second not broadly), the apical margins of the second to fifth tergites inclusive, more broadly, so on the fifth, and small spots on the second to fourth sternites inclusive *yellowish white*; legs except the four anterior coxæ which are black and the basal segment of the abdomen and the venter rufous; mesepisternum, propodeum, coxæ, and face with appressed

silvery hair; abdomen with very fine, appressed pile; wings hyaline, extreme apices dusky; venation dark brown. In the paratype the markings are more yellow and the rufous of the first abdominal segment extends to the base of the second, the flagellum except the apical two joints is yellowish beneath.

Santa Ana, Peru. Two females collected August 3, 1911, at an altitude of 3,000 feet.

Type.—Cat. No. 15110, U.S.N.M.

Family CHRYSIDIDÆ.

Genus CHRYSIS Linnæus.

CHRYSIS (TETRACHRYSIS) RUGOSA, new species.

Allied to *carinata* Guérin, but the scutal furrows curve anteriorly and are not well defined, the median depression on the first abdominal segment is shallower; the conformation of the propodium is different; and it is of smaller size.

Female.—Length 9 mm. Anterior margin of the clypeus truncate medianly, the surface sparsely punctured; malar space about one and one-half times as long as the width of mandible at base; frontal carina strong, lower lateral ends of the carinæ distinctly below the middle of the eyes, the truncate median portion of the carinæ distinctly above the middle of the eyes; facial basin striato-punctate, the striation predominating and oblique; head closely punctured with very large punctures; ocelli simple, the postocellar line about one-third longer than the ocellocipital line but distinctly shorter than the ocellocular line; orbital carina strong but not extending as high as the superior orbits; antennæ rather stout, the third joint about one-third longer than the fourth; pronotum shorter than the cephal-caudad length of the head; scutal furrows diverging anteriorly, poorly defined; the thorax above with very large close punctures giving it the appearance of being reticulate; mesepisternum sculptured like the dorsal part of the thorax; posterior aspect of the propodeum with a broad, truncate V-shaped depression which is bounded by carinæ; ventrally this depression is deeper and has two spoon-like foveæ; in the middle the depression is reticulate, laterally it is striate; legs normal; radial cell open at the apex; first abdominal segment sculptured like the mesoscutum with three longitudinal depressions on the basal margin, the lateral two being deeper than the median; second and the base of the third abdominal segments with distinct, rather large, well defined punctures, the second and third segments with a median carina, third abdominal segment very like *carinata* as figured by Mocsary on plate 2, figure 43, of his monograph; supra-apical foveæ of the third segment elongate, well defined, deep, 11 in number. Metallic green; flagellum beyond the first

joint and tarsi black; wings hyaline, very faintly dusky; venation pale brown; insect rather densely clothed with long white hair.

Ollantaytambo, Peru. Two females collected July 20, 1911, at an altitude of 9,000 feet.

Type.—Cat. No. 15100, U.S.N.M.

Family EUMENIDÆ.

Genus HYPODYNERUS Saussure.

HYPODYNERUS VESTITUS Saussure.

One male collected at Cuzco, Peru, at an altitude of 11,500 feet, July 9, 1911.

HYPODYNERUS TAPIENSIS Saussure.

One female collected at Ollantaytambo, Peru, at an altitude of 9,000 feet, July 21, 1911.

HYPODYNERUS NIGRICORNIS, new species.

Related to *Hypodynerus huancabambæ* Schrottky, but that species has red tegulæ, a black pronotum, and a different clypeus.

Female.—Length 15 mm. Anterior margin of the clypeus very broadly, arcuately emarginate, the surface finely granular; supra-clypeal area convex, broader above; head above the antennæ closely, sometimes confluent, punctured; ocelli in a curved line; postocellar line longer than the ocellocular line; antennæ stout, the third joint thickening apically and longer than the fourth and fifth combined; anterior margin of the pronotum carinate; thorax closely, confluent punctured; posterior margin of the metanotum gently rounding; the posterior face of the propodeum with heptagonal area defined by weak carinæ; this area is striato-reticulate with a strong median carina, sides of propodeum finely, transversely striato-reticulate; legs slender, normal; abdomen shining, very finely punctured, the basal segment in the apical middle with a longitudinal depression, the second ventral segment truncate anteriorly. Black; anterior margin of the pronotum, narrow apical margin of the first and second tergites and the second sternite yellow; legs below the bases of the femora rufous; head and thorax clothed with long black hair; wings uniformly dark brown with a purplish tinge; venation black.

Cuzco, Peru. Described from three females, two collected July 7 (one type) and one collected July 4, 1911, at an altitude of 11,500 feet.

Type.—Cat. No. 15105, U.S.N.M.

Genus ODYNERUS Latreille.

ODYNERUS (STENODYNERUS) HIRSUTULUS, new species.

This species runs in Saussure's Synopsis of the North American Vespidae to *similis* Smith, but that species has different colored wings and is otherwise different.

Female.—Length 9 mm. Anterior margin of the clypeus broadly, gently, arcuately emarginate, the lobes subdentate, obtuse; the surface of the clypeus confluent punctured; head with rather large, uniform, distinct punctures; ocelli in a low triangle; postocellar line distinctly shorter than the ocellocular line; posterior orbits simple; flagellum thickening apically, the basal joint subequal in length with the third and fourth beneath, but shorter above; anterior margin of the pronotum rounded, not divided laterally; thorax punctured like the head except that the mesepisternum is more closely so; metanotum rounded; propodeum with a defined area, posteriorly with a strong median carina, which is divided above, leaving a fovea just below the metanotum; abdomen opaque, finely reticulate, the first segment fully three times as wide as long, the second segment slightly wider than long; second ventral segment truncate anteriorly; legs normal. Black; spot on the apex of the clypeus, a small spot between the antennæ and eye, a small spot on the vertex behind the eye, a narrow line on the pronotum, narrow margin of the tegula, tergites, one to five inclusive, margins of sternites, two to six inclusive, yellow; head, thorax, and first abdominal segment clothed with long, sparse, yellowish hair; wings strongly dusky; venation black.

Tincochaca, Peru. Female collected August 8, 1911, at an altitude of 7,000 feet.

Type.—Cat. No. 15106, U.S.N.M.

Family VESPIDÆ.

Genus POLISTES Latreille.

POLISTES CANADENSIS Linnæus.

One worker collected at Panama.

POLISTES CANADENSIS variety INFUSCATUS Lepeletier.

Three workers collected at Huadquina, Peru, at an altitude of 5,000 feet. Collected July 26, 30, 1911.

POLISTES VERSICOLOR (Olivier).

Three workers collected at Arequipa, Peru, at an altitude of 7,600 feet, June 28, 1911. These represent a variety with the ferruginous replaced by black.

Genus POLYBIA Lepeletier.

POLYBIA OCCIDENTALIS Olivier.

One male collected at San Miguel, Peru, at an altitude of 6,000 feet, September 1, 1911.

POLYBIA BELIZENSIS Cameron.

Two workers collected at Santa Ana, Peru, at an altitude of 3,000 feet, August 3, 1911. Two workers collected at Huadquina at an altitude of 5,000 feet, August 1, 1911.

Genus STELOPOLYBIA Ducke.

STELOPOLYBIA MERIDIONALIS (von Ihering).

One worker collected at the Pampaconas River, Peru, August, 1911.

STELOPOLYBIA SULFUREOFASCIATA Ducke.

One worker collected at San Miguel, Peru, at an altitude of 6,000 feet, September 1, 1911. Four workers collected at Tincochaca, Peru, at an altitude of 7,000 feet, August 8-10, 1911. Two workers from Paltaybamba, Peru, at an altitude of 5,000 feet, August 6, 7, 1911. One worker collected at Tontontoy, Peru, at an altitude of 7,000 feet, July 23, 1911.

Genus NECTARINA Shuckard.

NECTARINA BILINEOLATA variety MÆBIANA Saussure.

Two workers collected at the Pampaconos River, Peru, August, 1911.

Family THYNNIDÆ.

Genus PSEUDELAPHROPTERA Ashmead.

PSEUDELAPHROPTERA (?) MAURA, new species.

This species runs in Turner's table to the genera of Thynnidæ to the genus *Pseudelaphroptera* Ashmead, but there are a number of differences between this species and the genotype of the genus in question, so it is doubtful whether it belongs to this genus. It may when its female is known be a new genus. The following species is easily separated from all other species of the genus *Pseudelaphroptera* by its black color. Superficially it resembles closely *Elaphroptera atrata*.

Male.—Length 12 mm. Antennæ, length 6 mm. Clypeus strongly convex, apically carinate; the anterior margin raised with very slight shallow median notch; dorsal surface of the clypeus finely punctured; inner margins of the eyes slightly diverging toward the clypeus; malar space obsolete; front with rather large sparse punctures, the vertex has the punctures finer and closer; ocellin nearly an equilateral triangle; lateral of each lateral ocellus is a shallow fovea; antennæ slender, filiform, the apical joints crenulate, third and fourth joints subequal in length; anterior margin of the pronotum carinate but not divided longitudinally; scutal furrows deep, slightly converging posteriorly; mesoscutum shining with sparse, distinct punctures;

scutellum depressed anteriorly, the depression foveolate, the larger and basal portion of the scutellum convex, shining, at the top with a median fovea; mesepisternum sculptured like the mescutellum, anteriorly the mesepisternum is very strongly depressed; propodeum oblique, depressed, shining, sparsely punctured; propodeal spiracle elongate, oval in outline; legs normal; third cubital cell on the radius distinctly longer than the first and second combined, on the cubitus its length is but little shorter than that of the first and second cubital cells; second recurrent vein received distinctly basad of the middle of the third cubital cell; first recurrent vein received apicad of the middle of the second cubital cell; transverse median and basal veins interstitial; abdomen slender, depressed, flat ventrally, segments not constricted, shining, impunctate; hypopygidium tridentate apically, the median tooth broad, pointed apically, triangulate, lateral teeth very broad and obtusely rounded apically. Black; head, thorax, legs and sternum densely clothed with long white hair which on the thorax is slightly reddish; wings yellowish, hyaline; venation pale brown.

Tincochaca, Peru. One male collected August 9, 1911, at an altitude of 7,000 feet.

Type.—Cat. No. 15102, U.S.N.M.

Family SCOLIIDÆ.

Genus CAMPSOMERIS Lepeletier.

CAMPSOMERIS (CAMPSOMERIS) SIMILARIS, new species.

Readily separated from *argenteopilosa* Cameron, described from the same region, by the absence of black hair. This species resembles the Nearctic *fossulana* but the abdomen lacks the bluish tinge, the bands on the first and second tergites are broader and the pronotum is yellow posteriorly. In Saussure and Sichel's Catalogue of the species of this genus, this species seems to fall in Group 5, Division 3, and is apparently closely to *servillei* Guérin but it does not agree with the description of that insect.

Male.—Length 14 mm. Anterior margin of the clypeus truncate, the distance between the eyes at the clypeus less than the length of the third and fourth antennal joints; supraclypeal area convex, punctured dorsally; front with close distinct punctures; the emargination of the eyes and the head above shining, with a few widely scattered, distinct punctures; postocellar line distinctly longer than the ocellular line; antennæ nearly filiform, the third and fourth joints subequal; mesoscutum dull with a few large, well separated punctures; scutellum and metanotum similar; just inside each tegula is a deep furrow which extends almost to a line drawn tangent to the anterior margin of the tegulæ; mesepisternum sculptured like the mesoscutum;

metapleuræ and sides of the propodeum shining, practically impunctate dorsal aspect of the propodeum short, not sharply separated from the posterior aspect, surface with a number of large, distinct, close punctures; legs normal; the distance between the two recurrent veins subequal in length with the distance between the first and second transverse cubiti on the radius, transverse median almost its own length beyond the basal vein; abdomen normal; pygidium broadly rounded apically, the lateral spines a little shorter than the median; narrow apical margins of the genitalia stipes broadly, rounded more strongly so laterally, the inner margin of the stipes concave, the outer margin convex. Black; mandibles except apices, clypeus except large median spot, spot on the proepisternum, the inner posterior margins of the pronotum, spot on the tegula, a band on the scutellum and metanotum, the ventral apices of the four anterior femora, the dorsal margin of the four anterior tibiæ, the ventral margin of the posterior femora, an incomplete line on the dorsal margin of the posterior tibiæ, a broad band on the first and second tergites, on the second broadly narrowed laterally and slightly edentate in the middle, a narrow band on the third and fourth tergites, that on the third with a broad median truncate portion anteriorly, and lateral apical spots on the second and third sternites yellow; calcaria and spines, pallid; insect densely clothed with long white hair; wings hyaline, slightly milky; venation dark brown with a pale brown shadow.

Santa Ana, Peru. One male collected August 3, 1911, at an altitude of 3,000 feet.

Type.—Cat. No. 15101, U.S.N.M.

Family MUTILLIDÆ.

Genus SPHAEROPHTHALMA Blake.

SPHAEROPHTHALMA SALAVERENSIS, new species.

Female.—Length 15 mm. Mandibles edentate with a faint tooth on the inner margin; antennal foveæ deep, sharply defined above by carinæ; malar space much shorter than the eye which is round and convex; scape curved; third antennal joint subequal with the fourth and fifth; posterior margin of the head without a carina; head and thorax with close, large punctures; thorax not dentate laterally; anterior margin of the pronotum truncate; posterior margin of the propodeum truncate, propodeal spiracle elongate; legs normal; first abdominal segment subnodose, surface punctured like the thorax; second tergite with large, irregular, shallow punctures; second sternite sculptured like the thorax; pygidium poorly defined,

at apex surface punctato-granular; first sternite without a carina. Black; second tergite with four circular, ferruginous spots; antennæ, clypeus, vertex, metapleuræ, legs, first tergite, all the sternites, and apical tergite with long, yellowish white hair; thorax above and second tergite with long black hair; sides of the head, posterior face of the propodeum and the third to fifth tergites with a mixture of black and white hair.

The Desert of Salavery on the coast of Peru. Described from one female collected June 25, 1911.

Type.—Cat. No. 15115, U.S.N.M.

SPHAEROPHTHALMA PERUVIANUS, new species.

Female.—Length 18 mm. Mandibles edentate; antennal foveæ strongly defined by carinæ; malar space as large as the eye which is circular and strongly convex; head and thorax with large, close punctures; scape curved; flagellum with the first joint longer than the second and third; the posterior margin of the head with a sharp carina; pronotum laterally bidentate, the basal angles and the lateral angles being edentate; the basal lateral angle of the mesoscutum edentate; spiracle of the propodeum elongate, in a depression; the concavities of the pleuræ polished, impunctate; propodeum very narrow, sharply truncate posteriorly; legs of the normal type; first sternite without a carina; first tergite very short, sharply perpendicular anteriorly, depressed before the anterior margin which is ridged, sessile with the second; the second much broader than third, subnodose; surface with short incomplete longitudinal carinæ; pygidium not defined, the apex finely granular. Black; the second tergite with two, large, circular, ferruginous spots; antennæ, clypeus, vertex, mesoscutum, two lines on the propodeum, lateral margin of the first tergite and the lateral margins of the three following tergites, meso- and metapleuræ, and the sides of the first sternite with dense yellowish hair; scattered hairs on the legs and venter yellowish.

Santa Ana, Peru. Described from one female collected at an altitude of 3,000 feet August 3, 1911.

Type.—Cat. No. 15114, U.S.N.M.

Superfamily SPHECOIDEA.

Family SPHECIDÆ

Genus CALLOSPHEX Kohl.

CALLOSPHEX ERYTHROGASTRA, new species.

Superficially this species looks very like *Palmodes rufiventris* (Cresson), but it differs from this widely in the structure of the clypeus. This species is placed in the genus *CallospheX* because it runs there in

Ashmead's generic synopsis and because no important characters are known to separate it from this genus. In Fernald's generic table, using the first character as more important one, it would run to *Palmodes* but will not agree with the description of *Palmodes* in the character of the clypeus. *Harpactopus edwardsi* Cameron which is described from this region has the tarsal claws with four teeth and the second recurrent veins interstitial with the second transverse cubitus, and there are other differences which will separate *edwardsi* from *erythrogastra*.

Female.—Length 12 mm. Inner margins of the eyes very slightly converging toward the clypeus; clypeus with apical margin depressed, truncate except a narrow, shallow median notched; clypeus finely granular except the median area which is shining with a few large, scattered punctures; supraclypeal area triangular in outline, slightly convex; head finely granular with a few scattered punctures; median impressed line incomplete; ocelli inclosed by a faint linelike furrow; the postocellar line subequal with the ocellocular line; intra-ocellar line about three-fourths the length of the postocellar line; antennæ filiform, third joint about one-third longer than the fourth; mesoscutum granular laterally, the disk shiny, sparsely punctured; scutellum shiny, sparsely punctured with a faint impressed, median line; propodeum finely, closely granular; a linelike furrow separating off the dorsal aspect into a U-shaped area similar to that found in the subfamily Sceliphroninæ with the exception that this area is not raised; anterior femora slightly swollen basally; tarsal comb present but not uniform; tarsi normal, rather feebly spined; claws with two inner teeth near the base; second cubital cell narrower on the cubitus; first recurrent vein nearly interstitial with the first transverse cubitus, second recurrent vein received well into the third cubital cell; petiole a little longer than the hind coxa; abdomen shiny, the apical ventral segment subcompressed. Black; abdomen from the petiole rufous; head and thorax clothed with long black hair; the inner margins of the eyes below the antennæ with sparse appressed silvery pubescence; wings bluish, dusky apically; venation dark brown.

Cuzco, Peru. Described from one female collected July 4, 1911, at an altitude of 11,500 feet.

Type.—Cat. No. 15091, U.S.N.M.

Genus AMMOBIA Billberg.

AMMOBIA SPINIGRA (Kohl).

A male of this species was collected in the Panama Canal Zone June 12, 1911.

Genus ISODONTIA Patton.

ISODONTIA BIPUNCTATA, new species.

This may be *Sphex robusta* Cameron, but judging from his description it would seem that he had a specimen which was punctured like *azteca* Fernald or *macrocephala* Fox. He says "vertex shining," in the species here described the vertex is opaque. His specimen is also said to have gray hair on the metapleuræ, in *bipunctata* the hair on the metapleuræ is black.

Female.—Length 20 mm. Head slightly broader than the thorax, opaque, very finely, closely punctured, the vertex with large, distinct punctures interspread; frontal impressed line strong, complete, dividing at the anterior ocellus and extending to the slightly depressed area latrad of each posterior ocellus; ocelli in a low triangle, the distance between one of the lateral ones and the anterior one subequal with the width of the anterior ocellus; supraclypeal area sharply carinate; clypeus finely granular with a number of large punctures laterally, the anterior margin depressed in the middle with two short, obtuse, broad lobes which are separated from each other by an emargination which in width is equal to about half the width of the lobe; mandibles very broad, stout, bidentate apically, the inner and outer teeth subequal in length (see fig. 1); antennæ slightly thickening apically, the joints subnodose, third joint one-third longer than the fourth, the fourth slightly shorter than the fifth; mesoscutum opaque, finely, closely punctured with a number of larger punctures interspread; scutellum shiny, sparsely punctured; mesepisternum punctured like mesoscutum; dorsal aspect of the propodeum finely, transversely aciculate with many rather close, medium-sized punctures, in appearance opaque; legs rather feebly spined; petiole about twice the length of the posterior coxæ; venation of the normal type. Metallic blue-green; mandibles, anterior margin of the clypeus and palpi rufous; legs, except the four posterior femora beneath which are piceous, scutellum and pronotum black; antennæ black, the basal joints of the flagellum slightly piceous beneath; lower inner margins of the eyes, superior posterior orbits, tubercles, prepectus, spot above the intermediate coxa, spot above the posterior coxa, and the abdomen with short, appressed silvery pubescence; face, clypeus, pronotum, anterior part of the mesoscutum, mesepisternum, propodeum and femora with black hair; the vertex of the posterior orbits with long gray hair or a mixture of black and gray; posterior part of the mesoscutum with short gray hair; wings purplish, slightly paler apically; venation dark brown.

Panama, Canal Zone. One female collected June 17, 1911.

Type.—Cat. No. 15090, U.S.N.M.

Kohl's idea of *azteca*, judging from his descriptions and a letter to Fernald,¹ is the same as Fernald's if we add the variety *cinerea* to Fernald's description, but as neither of these descriptions describes as accurately as desired the dentation of the mandibles, and inasmuch as we have names which will agree with all the forms of the museum, it has been considered best to leave *azteca* out of the following table. Judging from the original description of *azteca* which says "*cinerea-hirtus*," the variety *cinerea* Fernald will have to be considered as the same as *azteca*, and the name *macrocephala* will be used for *azteca* Fernald. According to Fernald these two would well be considered the same, as there seems, by the study of additional material, to be a variation in the amount of black pubescence on *cinerea*. From the standpoint of the types *macrocephala*, *cinerea*, and *bipunctata* may be separated by the following table (see fig. 1):

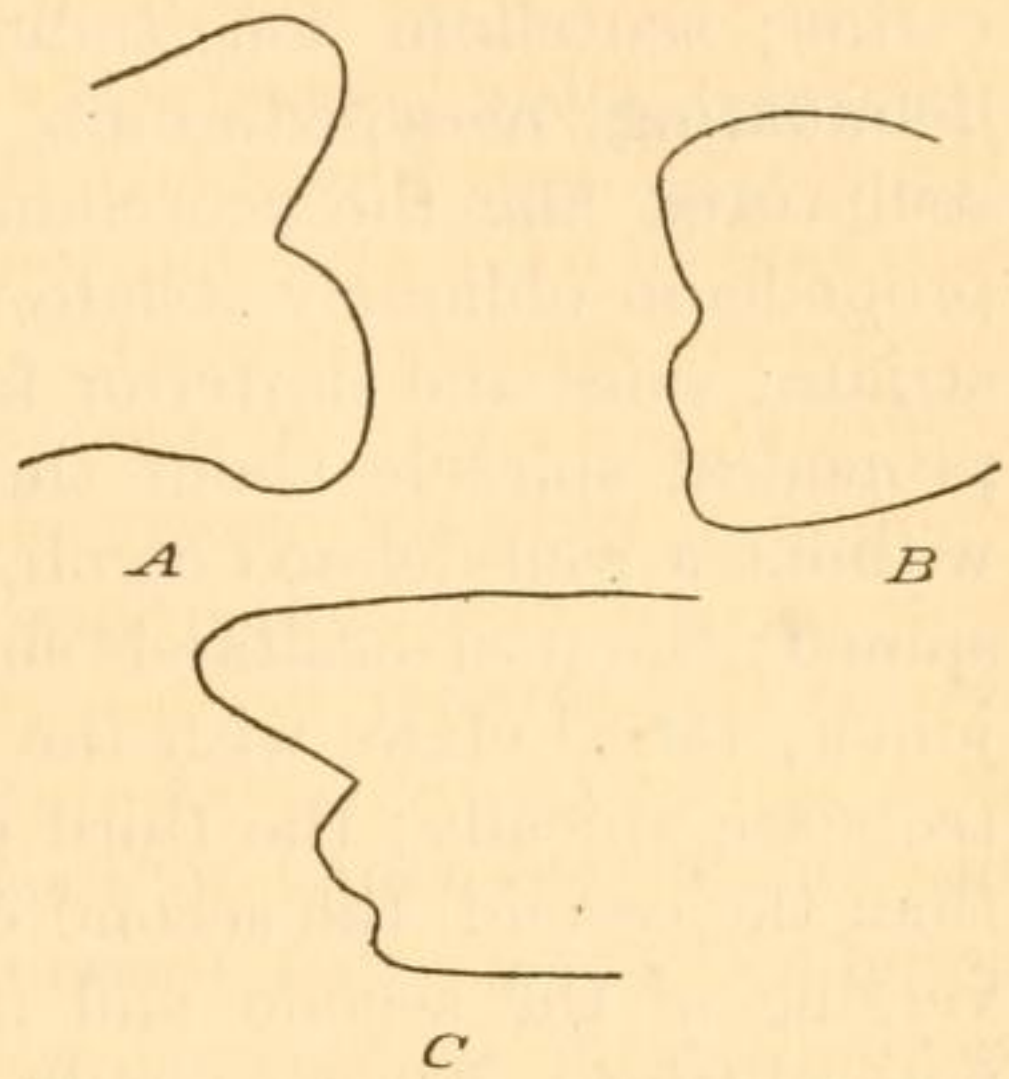


FIG. 1.—APICES OF MANDIBLES IN ISODONTIA. A, CINERA FERNALD (COTYPE); B, BIPUNCTATA ROHWER (TYPE); C, MACROCEPHALA FOX (TYPE).

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|--|---|
| Outer tooth of mandibles much longer than the inner; (head and thorax black, with black hair)..... | <i>macrocephala</i> Fox (= <i>aztecum</i> Fernald). |
| Outer and inner teeth of mandibles of equal length..... | 1. |
| 1. Head and thorax unipunctate, black, clothed with whitish hair, | |
| <i>cinerea</i> Fernald (= <i>aztecum</i> var. <i>cinerum</i> Fernald). | |
| Head and thorax bipunctate, metallic, clothed with black hair, | |
| | <i>bipunctata</i> Rohwer. |

Genus SPHEX Linnaeus.

SPHEX (SPHEX) PERUVIANUS, new species.

Apparently most closely allied to *Sphex* [*Ammophila*] *volcanica* (Cameron), but lacks the pubescence and has the third antennal joint not more than twice the length of the fourth and the propodeum is obliquely striate.

Female.—Length 18 mm. Head broader than the thorax, opaque, finely granular with a few widely separated, incompletely defined punctures; frontal impressed line strong but not complete; ocelli in a low triangle; intraocellar line about two-thirds the length of the postocellar line; postocellar line shorter than either the ocellocular or the ocelloccipital line; anterior margin of the clypeus truncate, surface punctured like the head; supraclypeal area broad, flat; antennæ rather stout, filiform, third antennal joint subequal in length with the fourth and fifth; pronotum sculptured like the head;

¹ See Proc. U. S. Nat. Mus., vol. 31, 1906, p. 356.

mesoscutum finely, transversely or obliquely aciculate with a number of large, incompletely defined punctures; the median impressed line of the mesoscutum is strong and complete; just inside of each tegula is a broad depressed furrow which ends anteriorly in a sharp, short carina; scutellum longitudinally striato-punctate, the striæ predominating; mesepisternum coarsely striato-reticulate; metanotum sculptured like the scutellum; disk on the posterior aspect of the propodeum obliquely striato-reticulate, area bounding this obliquely striate; sides and posterior face of the propodeum striato-reticulate, propodeal spiracle about the middle of the segment; anterior tarsi without a well-defined comb, intermediate and posterior tarsi feebly spined; the post-basitarsis subequal in length with the two following joints; tarsal claws with the usual basal bristle; radial cell obtusely truncate apically; the third cubital cell on the radius much shorter than the second, the second cubital cell narrowed above by the converging of the second and first transverse cubiti; abdomen of the normal type. Black; tegulæ, abdomen, except the base of the first segment rufous; head, thorax, and legs clothed with sparse white hair; wings hyaline, faintly yellowish; venation pale brown.

Cuzco, Peru. Described from one female collected July 6, 1911, at an altitude of 11,500 feet.

Type.—Cat. No. 15099, U.S.N.M.