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Descriptions and Records of Bees - XXXVII

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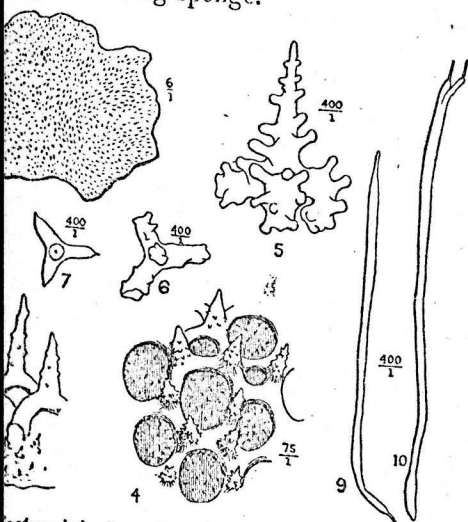
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new Sponge from Christmas Island.

(Lankester's 'Treatise on Zoology,' Porifera) my statement was partly incorrect, for the sense, included only one genus in Minchin's *Lithonia*, the whole of the rest of the genera in the order under *Lithoninae* and *Pharetroninae* (see

theory of the nature of the "Pharetron" in his great work 'Palæospongologie' (Palæontologische Zeitschrift) expresses the belief that the spicules are only in apposition in the living sponge, and are cemented into solid fibres during the fossilization. Steinmann ('Palæontologie,' ed. 2, 1900) at the spicules have been joined together by the living sponge.



Pharetronina deansii, sp. n.

encrusting rock. Nat. size.

near edge of sponge. $\times 115$.

sp. $\times 75$.

4-rayed spicules of various sizes. $\times 400$.

single. $\times 400$.

single. $\times 400$.

on of certain recent Pharetronid sponges of that Steinmann's theory is the true Pharetrones we find, however, some (Lelapia, Kebira), and others again (Lithoninae). A revised classification partly on that of Minchin and partly

Descriptions and Records of Bees.

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on that of Steinmann and Welter (Verh. Ver. Rheinland, 1910, p. 1), would be as follows:—

Family Pharetronidae, Zittel *.—Heterocœla with spicules united into bundles and fibres. (Tuning-fork spicules often present.)

Subfamily 1. DIALYTINÆ, Rauff.—Spicules not cemented. (*Lelapia*, *Kebira*.)

Subfamily 2. PHARETRONIDÆ, Steinmann.—Spicule-bundles cemented into solid anastomosing fibres.

Subfamily 3. LITHONINÆ, Döderlein.—Anastomosing fibres formed of 4-rayed spicules cemented together.

Subfamily 4. MURRAYONINÆ, K.—Fibres of main skeleton formed of calcareous substance (? cement), without an axial core of spicules.

XIX.—*Descriptions and Records of Bees.*—XXXVII.†
By T. D. A. COCKERELL, University of Colorado.

Dianthidium sinapinum, sp. n.

♀.—Length about 8 mm.

Compact, light mustard-yellow, with black and pale dull ferruginous markings; head, thorax, and abdomen densely and strongly punctured; head large; eyes pale olivaceous; mandibles with the cutting-edge broad, dark brown, having only the apical tooth and a rather poorly developed second one; clypeus quadrate, its lower margin denticulate; scape yellow; flagellum ferruginous, the apical two-thirds dusky, the end of the last segment blackish; ocellar region black, sending a broad black stripe downward to each antennal socket, or these black markings may be evanescent and largely replaced by pale reddish; upper part of clypeus and sides of face sometimes stained with reddish; mesothorax with a broad median black band, expanding posteriorly, and two broad sublateral ones, ending in front at level of front of tegulæ, or these bands may be narrower and broadly edged with ferruginous; hair of face, sides of thorax, and ventral scopa pure shining white; anterior margin of mesothorax with appressed white hair, the rest with scanty

* A writer in 'Nature' (Jan. 12, 1911, p. 345) objects to the use of the term Pharetronidae on the ground that there is no genus *Pharetron*.

† An error occurs in part xxxv. ('Annals,' 1911, vii. p. 311): Sigiri is in Ceylon, not in N.W. India.

yellowish hair, and scutellum with longer yellow hair; scutellum projecting, rounded, thin-edged, emarginate but not dentate; axillæ obtusely but evidently angled; lower part of occiput and opposing part of prothorax black, the latter with a large round yellow spot on each side; middle of metathorax blackened; tegulæ yellow, with a large pale ferruginous spot and hyaline margin. Wings hyaline, broadly infuscated apically, and with a dark streak in marginal cell; stigma red with a dark margin; nervures piceous; b. n. meeting t.-m.; second r. n. going well beyond end of second s.m. Legs bright yellow without markings, the small joints of tarsi becoming reddish; pulvillus rudimentary. Abdomen yellow, with the hind margins of the segments pale ferruginous, and a narrow longitudinal black or partly reddish line or band running down the middle of the first three or four segments.

Hab. Karachi, N.W. India (*E. Comber*). British Museum.

This belongs to the *bellicosum*-group of *Dianthidium*, and is aberrant for the genus, approaching *Proanthidium*. It nearly agrees with the description of *Anthidium saltator*, Nurse, from Deesa, but differs by the broadly darkened apical margins of the wings and the absence of dark markings on the legs. It is just possible that it is only a race of *saltator*. Structurally, there is much resemblance to *A. subochraceum*, Walker.

Dianthidium rasorium (Smith).

Anthidium rasorium, Smith, 1875. India.

Proanthidium soliferum, sp. n.

♀.—Length about or not quite 7 mm.

Black, marked with pale yellow; head and thorax densely punctured; abdomen shining, with the punctures well separated; ventral scopa pure white; mandibles quadridentate, yellow, with the teeth black, and the subapical corner broadly red; clypeus high, differing from that of *oblongatum* in the concave lateral outlines; clypeus, lateral face-marks covering lateral areas up to a little above antennal sockets, and broad lower border of supraclypeal area sending a band upwards on each side and a little tooth in middle, all yellow; front entirely black; a broad yellow band almost entirely covering cheeks and continuous across top of head; antennæ black, the apical margin of the scape narrowly dark red, and the flagellum obscurely reddish

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and scutellum with longer yellow hair; g, rounded, thin-edged, emarginate but the obtusely but evidently angled; lower and opposing part of prothorax black, large round yellow spot on each side; ax blackened; tegulae yellow, with a large spot and hyaline margin. Wings hyaline, apically, and with a dark streak in stigma red with a dark margin; nervures ting t.-m.; second r. n. going well beyond . Legs bright yellow without markings, tarsi becoming reddish; pulvillus rudimentary yellow, with the hind margins of the aginuous, and a narrow longitudinal black line or band running down the middle of our segments.

N.W. India (*E. Comber*). British Museum. the *bellicosum*-group of *Dianthidium*, and the genus, approaching *Proanthidium*. It is the description of *Anthidium saltator*, but differs by the broadly darkened wings and the absence of dark markings just possible that it is only a race of ally, there is much resemblance to Walker.

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Smith, 1875. India.

anthidium soliferum, sp. n.

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with pale yellow; head and thorax densely shinning, with the punctures well scopae pure white; mandibles quadrate with the teeth black, and the subapical l; clypeus high, differing from that of concave lateral outlines; clypeus, lateral g lateral areas up to a little above and broad lower border of supraclypeal l upwards on each side and a little tooth e; front entirely black; a broad yellow y covering cheeks and continuous across ae black, the apical margin of the scape , and the flagellum obscurely reddish

beneath; tubercles yellow, sharply keeled; mesothorax with broad yellow lateral bands, pointed behind, and extending along the anterior margin for some distance, their ends here abruptly truncate; scutellum projecting, broad and short, almost straight-edged, emarginate in middle, not toothed, the sides occupied by a pair of large triangular yellow patches, the axillae, which are not toothed or angled, also yellow; pleura with white hair; tegulae bright ferruginous, with a yellow spot in front. Legs bright ferruginous, with the following parts *pale yellow*: lower side of anterior femora, posterior side of middle femora, subapical spot on hind femora, and outer side of all the tibiae. Wings dusky, darker in marginal cell and apical field; b. n. going far basad of t.-m.; second r. n. going well beyond end of second s.m. Abdomen with five broad pale yellow bands, broadly interrupted on first three segments, more narrowly on fourth, not quite completely on fifth; last two segments entirely black. No pulvilli.

♂.—Similar, but yellow markings brighter, those of head stained with reddish; mandibles tridentate; lower margin of clypeus fringed with white hair; front with a large inverted-cup-shaped yellow patch; posterior edge of scutellum very straight, and emargination not evident; pleura with a small yellow spot. Wings very dark; legs nearly all yellow, reddish basally, hind femora marked with black behind; end of abdomen very simple, without lateral teeth, the apex broadly shallowly emarginate, the lobes subangulate, the structure not unlike that of *Anthidium alpinum*, Morawitz.

Hab. N.W. India (*E. Comber*). British Museum. Type (♀) from Karachi; male from "Shpali."

The male of *P. soliferum* nearly agrees with the description of female *Anthidium flavomaculatum*, Cam., from Poona, but it is larger, with darker wings, and must, I think, be different, even if the supposed female *flavomaculatum* should prove to be really a male.

Anthidium friesei, n. n.

Anthidium flavomaculatum, Friese, *Apidæ* von Argentina, 1908, p. 70. Argentine Republic. (Not *A. flavomaculatum*, Cameron, 1897.)

Anthidium ternarium, sp. n.

♂.—Length about 11½ mm.

Black with bright chrome-yellow markings; face narrow,

facial quadrangle much broader than high; clypeus, lateral face-marks (reaching to level of antennæ, but the upper end receding from eye), mandibles except apex, occipital band interrupted in the middle, anterior lateral corners of mesothorax (forming a sort of L), axillæ, large mark on each side of scutellum, underside of anterior and middle femora, patch at apex of hind femora, outer side of tibiæ and basitarsi, very broad abdominal bands on segments 1 to 6 (interrupted widely on first segments, successively more narrowly on the others), and seventh segment (except in middle, and ends of lateral teeth), all *bright yellow*; lower margin of clypeus dark; antennæ black; sides of face, and front, with much white hair; cheeks and pleura with much white hair; hair of head and thorax above very pale ochreous-tinted; scutellum rounded, emarginate in middle; tegulæ yellow in front, piceous behind, except the margin. Wings dusky; b. n. going basad of t.-m.; first r. n. entering extreme basal corner of second s.m., and second r. n. going hardly beyond its end; hind femora with an obtuse subbasal tooth beneath. Sides of abdomen with white hair; fifth segment with a yellow tooth on each side, sixth with longer teeth, which are largely black; apical segment with three teeth, the middle one short, the others rather longer, directed outwardly.

Hab. Quetta, Sept. 1909 (*E. Comber*). British Museum. In Friese's table of palaearctic species this runs to 36, and agrees with *A. florentinum* in the diverging apical teeth of abdomen, but with *A. septemspinosum* in having white hair at sides of abdomen, instead of bundles of ochreous hair. Compared with *A. florentinum*, it differs conspicuously in the much shorter apical teeth of abdomen. Nurse states that *A. florentinum caucasicum* (Rad.) is common in the alfalfa fields at Quetta, and I naturally expected this insect to be identical with it. I have never seen authentic *caucasicum*, but, as described by Friese and Dusmet y Alonso, it is a colour-variety of *florentinum*, not differing structurally.

Allodape pumilio, sp. n.

♀.—Length a little over 4 mm.

Black, with clear hyaline wings; stigma and nervures pale testaceous; labrum very dark reddish, with large punctures; mandibles black: pale ochreous-tinted face-mark with the upper part broad as usual, the lower narrower, parallel-sided, not expanded laterally; front and sides of vertex shining; flagellum dark reddish beneath; tegulæ hyaline-testaceous with a cream-coloured spot; tubercles

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th broader than high; clypeus, lateral to level of antennæ, but the upper end mandibles except apex, occipital band middle, anterior lateral corners of mesothorax (of L), axillæ, large mark on each side of anterior and middle femora, patch on outer side of tibiae and basitarsi, bands on segments 1 to 6 (interrupted at 5), successively more narrowly on the segment (except in middle, and ends of light yellow; lower margin of clypeus; sides of face, and front, with much white hair; hair on pleura with much white hair; hair on venter very pale ochreous-tinted; scutellum yellow in middle; tegulæ yellow in front, at the margin. Wings dusky; b. n. first r. n. entering extreme basal and second r. n. going hardly beyond with an obtuse subbasal tooth beneath. White hair; fifth segment with a tooth, sixth with longer teeth, which are on segment with three teeth, the middle rather longer, directed outwardly. 1909 (E. Comber). British Museum. *A. florentinum* species this runs to 36, *A. florentinum* in the diverging apical with *A. septemspinosum* in having abdomen, instead of bundles of ochreous *A. florentinum*, it differs conspicuously in the teeth of abdomen. Nurse states *A. caucasicum* (Rad.) is common in the Caucasus and I naturally expected this insect. I have never seen authentic *caucasicum* Friese and Dusmet y Alonso, it is a new species, not differing structurally.

A. pumilio, sp. n.

Length over 4 mm. Head pale yellow; stigma and nervures very dark reddish, with large black; pale ochreous-tinted face, broad as usual, the lower narrower, rounded laterally; front and sides of head dark reddish beneath; tegulæ with a cream-coloured spot; tubercles

cream-colour; mesothorax and scutellum shining, base of metathorax dull; legs piceous, with rather dilute brown tarsi; hind tibia and basitarsus with much brilliantly shining silvery hair; abdomen piceous, hind margins of segments dorsally narrowly pallid; last three segments granular, with strong piliferous punctures.

Hab. Karachi, N.W. India (E. Comber; one is numbered 39). British Museum.

Known from the other Asiatic species by its very small size, punctured apical part of abdomen, dark mandibles, &c. The first r. n. meets the first t.-c., whereas in *A. picitarsis*, *A. rufogastra*, &c. it goes considerably beyond it.

Tetralonia leucopoda, sp. n.

♂.—Length about 10½ mm.; antennæ 9½, reaching about to fourth abdominal segment.

Black, with the pubescence pure white except as follows: pale fulvous tinted on occiput, strongly fulvous on thorax above, fawn-colour on sixth (except extreme sides) and last abdominal segments, ferruginous on inner side of anterior tarsi, dark fuscous on inner side of middle and hind pair; head broad; eyes pale green; clypeus and large spot at base of mandibles light lemon-yellow, the yellow of clypeus rectangularly notched on each side; labrum yellowish white, with much white hair; clypeus closely but shallowly punctured; scape very short, black; flagellum long and thick, bright ferruginous, the apical part strongly dusky above; mesothorax closely but not deeply punctured; tegulæ light ferruginous. Wings tinged with brown, nervures and stigma dark ferruginous; legs with much white hair. Abdomen finely punctured, with the hind margins of the segments obscure reddish; fifth segment densely covered with appressed white tomentum, fourth with same, except margin (broadly in middle, but gradually narrowing, the tomentum reaching margin at sides), third like fourth, except that the bare area is so broad in middle as to reach halfway to base, second with the white tomentum confined to extreme base and very broad antero-lateral corners (reaching hind margin at extreme sides); first segment with the usual long hair; a sharp black tooth at each side of apical segment; apical plate dark ferruginous, broad, squarely truncate, not notched subapically; last ventral segment with a concave shining basin. Tarsi ferruginous at apex.

Hab. Nasik, N.W. India (E. Comber). British Museum.

Among the Indian species this may be compared with *T. phryne* (Nurse), which has the antennæ as long as body, the abdominal bands on second and third segments only "somewhat narrowed in the middle," and the hair on the legs differently coloured. It may also be compared with *T. testaceitarsis*, Cam., but that has rufo-testaceous tarsi, and I infer that the antennæ are black.

Tetraloniella aliena, sp. n.

♂.—Length 8 mm. or a little more; antennæ about $7\frac{2}{3}$ mm.

Black, with pale pubescence, very pale ochreous on thorax above, white on face, pleura, cheeks, and legs; abdomen very dark reddish, with dense greyish-white tomentum covering the fifth segment, leaving a narrow apical margin on fourth, leaving a broader margin (about apical third in middle) on third, and on second reduced to base and anterior lateral corners (reaching hind margin at sides); head broad; eyes pale greenish ochreous; clypeus (which is densely and rather strongly punctured), large spot at base of mandibles, and labrum, all lemon-yellow; mandibles (except for the spot) dark, faintly reddish toward apex; maxillary blade obtuse, not much elongated; maxillary palpi small and short, five-jointed, the third joint longest, nearly as long as fourth and fifth together, these subequal; scape short, black; flagellum entirely bright ferruginous; mesothorax densely punctured; tegulæ pale testaceous, very hairy. Wings hyaline, faintly dusky, nervures and stigma testaceous; first r. n. joining second s.m. at about the beginning of its last third; third s.m. narrowed about half above; b. n. falling a little short of t.-m.; small joints of tarsi ferruginous; hair on inner side of tarsi pale orange-fulvous; abdomen minutely granular; apical plate hairy, not notched subapically; hair of apical segments very pale fawn-colour.

Hab. Nasik, N.W. India, 2 ♂ (*E. Comber*). British Museum.

Distinguished from *Tetralonia erythroceræ*, Cam., by the longer antennæ and testaceous nervures; from *T. cassandra* (Nurse) by the basal instead of apical abdominal bands and the entirely red flagellum; from *T. punctata*, Cam., by the dark mandibles, tegulæ not yellow, and hair of abdomen not fulvous. This is evidently congeneric with *T. brevipennis* and *T. punctata*, which Cameron describes as having four-jointed maxillary palpi. Cameron's figure of the palpi of

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Indian species this may be compared with *T. brevipennis*, which has the antennæ as long as body, bands on second and third segments only "broad in the middle," and the hair on the antennæ coloured. It may also be compared with *T. graja*, but that has rufo-testaceous tarsi, and antennæ are black.

Tetraloniella aliena, sp. n.

mm. or a little more; antennæ about

pubescence, very pale ochreous on thorax and abdomen, pleura, cheeks, and legs; abdomen with dense greyish-white tomentum on second segment, leaving a narrow apical margin and a broader margin (about apical third in on second reduced to base and anterior edge hind margin at sides); head broad; ochreous; clypeus (which is densely and punctured), large spot at base of mandibles, fawn-yellow; mandibles (except for the reddish toward apex; maxillary blade elongated; maxillary palpi small and the third joint longest, nearly as long as the other, these subequal; scape short, black; right ferruginous; mesothorax densely pale testaceous, very hairy. Wings with nervures and stigma testaceous; first m. at about the beginning of its last row about half above; b. n. falling a small joints of tarsi ferruginous; hair pale orange-fulvous; abdomen minutely hairy, not notched subapically; hair very pale fawn-colour.

India, 2 ♂ (*E. Comber*). British

Tetralonia erythroceræ, Cam., by the testaceous nervures; from *T. cassandra* instead of apical abdominal bands and plum; from *T. punctata*, Cam., by the not yellow, and hair of abdomen not entirely congeneric with *T. brevipennis*. Cameron describes as having four-segmented. Cameron's figure of the palpi of

T. brevipennis appears to indicate that he did not count the basal joint. I place these insects in Ashmead's genus *Tetraloniella* (type *T. graja*, Eversm.), although they do not wholly agree in the venation. If we allow a moderate latitude in our definition of *Tetraloniella*, it cannot very well be separated from the American genus *Xenoglossodes*. The genus *Xenoglossodes* was described by Ashmead (1899) in the same paper as *Tetraloniella*, but on a later page, so *Tetraloniella* must be given priority. Before sinking *Xenoglossodes*, however, it will be necessary to carefully compare *T. graja*, a species I do not possess.

I have regarded *Melissodes* and its immediate allies in America as of southern or neotropical derivation. It is now evident that *Xenoglossodes* represents a northern or holarctic type, from which *Melissodes* and *Xenoglossa* have been derived in America.

Ceratina (*Ceratinidia*) *eburneopicta*, sp. n.

♀.—Length $6\frac{1}{2}$ –7 mm.

Like *C. morawitzii*, Sickm., but all the markings ivory colour instead of bright yellow; wings clear hyaline. Distinguished at once from *C. hieroglyphica*, Sm., by the small size and the very densely punctured sides of mesothorax in front.

Hab. N.W. India (*Comber*), British Museum. Type from Salsette; another from Khandala.

Perhaps only a local race of *C. morawitzii*.

Ceratina sexmaculata, var. *purpurascens*, var. nov.

♂.—Deep blue-green, the head, thorax, and abdomen strongly clouded or suffused with purple, especially the front, vertex, and mesothorax. Seen without a lens, the insect appears deep purple-blue, and looks just like *Chrysis cecata*, Buyss., except that the colour is hardly so bright as in the *Chrysis*.

Hab. Takao, Formosa, Sept. 20 and 29, 1907 (*Sauter*). Berlin Museum.

Ceratina binghami, Ckll.

Nasik, N.W. India (*Comber*). British Museum.

Ceratina comberi, sp. n.

♀.—Length a little over 6 mm.

Like *C. binghami*, but smaller, golden green, strongly

suffused with brassy on head, thorax, and basal half of abdomen. Wings clear, stigma ferruginous, nervures testaceous; second s.m. narrowed almost to a point above, and receiving first r. n. not much beyond the middle; last dorsal segment rugose, light bluish green, not keeled; large ochreous mark on clypeus without prominent lateral lobes; labrum and mandibles entirely black; tubercles ivory-colour.

Hab. Karachi, N.W. India (*Comber*). British Museum. Perhaps only a variety of *C. binghami*; Bingham says: "The specimens from the Punjab and Western India have a golden-bronzy tint," referring, I suppose, to *comberi*.

Apis indica peroni, Latr.

Tainan, Anping, Formosa, July 13, 1906 (*A. E. Wileman*). British Museum.

Halictus propinquus, Smith.

Nasik and Karachi (*Comber*). British Museum.

Closely related to *H. tumulorum*. The tibiae and tarsi in the female are ferruginous rather than yellow.

Nomia parcella, Ckll.

A female from Karachi (*Comber*) is so like an *Halictus* that I had it mixed with that genus. It is like the male, but has a very broad face with thin greyish-white hair; antennae black, the thick flagellum very obscure reddish beneath; apical half of mandibles dark reddish; front with well-separated punctures and irregular striae; area of meta-thorax with irregular rugae. Legs dark brown, with glittering hairs; knees and small joints of tarsi ferruginous. Apical margins of first two abdominal segments broadly ferruginous. The last-mentioned character readily separates it from the similar small *Halicti* of the same region. From all the other *Nomia* of the region, *parcella* is known by the small size, ordinary tegulae, and hind legs of male not noticeably modified.

Nomia pereziana, n. n.

Nomia gracilipes, Pérez, Bull. Sci. France et Belgique, xli. 1907, p. 491. Persian Gulf. (Not of Smith.)

Allied to *N. parca*, Kohl, but male tarsi longer.

Black Halicti of India.

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W. India (Comber). British Museum. Variety of *C. binghami*; Bingham says: in the Punjab and Western India have a referring, I suppose, to *comberi*.

is indica peroni, Latr.

rimosa, July 13, 1906 (A. E. Wileman).

us propinquus, Smith.

(Comber). British Museum.

I. tumulorum. The tibiae and tarsi inous rather than yellow.

nia parcella, Ckll.

achi (Comber) is so like an *Halictus* with that genus. It is like the male, face with thin greyish-white hair; thick flagellum very obscure reddish; mandibles dark reddish; front with s and irregular striae; area of metathorax. Legs dark brown, with glittering joints of tarsi ferruginous. Apical ominal segments broadly ferruginous. racter readily separates it from the of the same region. From all the on, *parcella* is known by the small d hind legs of male not noticeably

pereziana, n. n.

ull. Sci. France et Belgique, xli. 1907, (not of Smith.)

l, but male tarsi longer.

Halicti of India.

o, Col. C. T. Bingham gave me a

graphic account of his troubles with Indian *Halicti*, and after working over a series collected by Mr. Comber I can fully appreciate the difficulty of the subject. Not only are the species very numerous and often closely allied, but the existing descriptions are often hard to interpret. I can only hope that none of the names now proposed as new are synonyms, but in spite of much labour in comparing descriptions and tabulating characters, I fear there remain some probabilities of error. Fortunately the types are all in the British Museum, where they can always be examined by students. The following table separates the species described:—

Mesothorax shining, with sparse punctures on disc	1.
Mesothorax dull, minutely rugose or punctured	3.
1. Labrum ferruginous; flagellum ferruginous beneath (male)	<i>speculithorax</i> , Ckll.
Labrum black	2.
2. Second abdominal segment without a band of dense tomentum; very small species, with ferruginous tarsi (male)	<i>debilinervis</i> , Ckll.
Second abdominal segment with a dense band of tomentum at base	<i>salsettensis</i> , Ckll.
3. Ocelli small and close together, far from eyes. (Ceylon.)	<i>kalutara</i> , Ckll.
Ocelli normal	4.
4. Area of metathorax dull, with widely separated prominent ridges. (Ceylon.)	<i>sigiriellus</i> , Ckll.
Area of metathorax shining, with closer or less regular sculpture	5.
5. Area of metathorax with only the basal half or a little more sculptured. (Ceylon.)	<i>semisculptus</i> , Ckll.
Area of metathorax sculptured all over	6.
6. Smaller; mesothorax densely punctured all over	<i>nasicensis</i> , Ckll.
Larger; mesothorax less densely punctured on disc	<i>perhumilis</i> , Ckll.

Halictus speculithorax, sp. n.

♂.—Length about or nearly 7 mm.

Black, with the small joints of the tarsi pale ferruginous; pubescence throughout white; head broader than long, clypeus hardly produced; labrum and narrow apical margin of clypeus pale ferruginous; mandibles ferruginous, except at base; front dull, vertex shining; face and cheeks with much white hair; antennae long; scape black, flagellum strongly infuscated above, beneath pale ferruginous, with the last two joints rather dusky; mesothorax shining, the disc smooth, with very sparse and small punctures, all the margins rather narrowly but densely bordered with pure white hair;

scutellum shining, with sparse minute punctures; post-scutellum with dense white hair; area of metathorax semilunar, large, shining, with coarse irregular ridges, which are scarcely oblique; truncation of metathorax small, its upper end with two tufts of white hair; tegulae testaceous-hyaline. Wings clear hyaline, beautifully iridescent; nervures and stigma red-brown, outer nervures of submarginal and discoidal cells moderately weakened; second s.m. nearly square; first r. n. meeting second t.-c.; third s.m. not greatly wider than second. Legs with white hair; hind knees and apices of anterior tibiae reddish; hind knee-plate well developed, elongate. Abdomen moderately elongate, parallel-sided, without evident constrictions; surface dullish, without evident punctures, hind margins of segments reddened; first segment with scattered hair as usual, and on each side a large triangular patch of denser white hair; second and third segments with broad dense basal bands of white tomentum; fourth and fifth with rather narrow and thin, but conspicuous, subapical white hair-bands; apical plate broad, brilliantly shining.

Hab. Hyderabad, N.W. India (*E. Comber*).

The disc of the mesothorax is not at all microscopically tessellate between the punctures, as it is in *H. perhumilis*, *H. nasicensis*, *H. salsettensis*, *H. semisculptus*, &c.

Halictus debilinervis, sp. n.

♂.—Length about or hardly 5 mm.

Black, with rather scanty white hair, the abdomen with scattered hairs, but no hair-bands or patches; knees narrowly reddish; all the tarsi pale testaceous; head quite large, eyes converging below; mandibles with the apical two-thirds ferruginous; labrum black; apex of clypeus obscurely brownish; antennae long, flagellum dusky reddish beneath; front dullish, granular, strongly contrasting with the smooth and shining mesothorax and scutellum, which have rather numerous very minute punctures; thorax with thin white hair, not forming a border to mesothorax; area of metathorax large, with feeble irregular longitudinal rugae; posterior truncation with lateral margins rounded, not defined by a distinct edge; tubercles with narrow brown margins; tegulae hyaline testaceous. Wings quite clear, with light sepia stigma and nervures, stigma with margins darker than disc; third t.-c. and second r. n. evanescent; second s.m. subtriangular, narrowed one-half above; first

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W. India (*E. Comber*).
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s debilinervis, sp. n.

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r. n. meeting second t.-c.; abdomen rather short, shining,
not evidently punctured, hind margins of segments reddish.

Hab. Karachi, N.W. India (*E. Comber*).

Disc of mesothorax not microscopically tessellate between
the punctures.

Halictus salsettensis, sp. n.

♀.—Length about 8 mm.

Black, rather robust, with white pubescence, that on
inner side of tarsi orange-tinted; tarsi ferruginous at apex;
head broad; clypeus not much produced, its surface shining,
with strong punctures and irregular longitudinal grooves;
supraclypeal area with weak punctures; front dull, granular;
mesothorax and scutellum shining, the disc of the former
with scattered punctures of unequal sizes, that of the latter
almost impunctate; postscutellum covered with dull white
tomentum; area of metathorax smooth and shining, with
only vestiges of rather oblique ridges; posterior truncation
rather narrow, distinctly margined at sides; tegulae rufo-
testaceous. Wings hyaline, very faintly brownish; stigma
and nervures dull reddish; outer nervures weakened;
second s.m. subquadrate; first r. n. joining second t.-c.;
third t.-c. with a single curve; hind spur with three stout
spines and a nodule; abdomen shining, without evident
punctures; sides of first segment with rather small sub-
triangular patches, in addition to the usual erect hair;
second and third segments with broad basal bands of white
tomentum, third and fourth with narrower subapical bands
of white hair; sides of apical segment with fuscous hair, but
the rima pallid. Second abdominal segment microscopically
transversely lineolate and finely punctured.

♂.—Similar to the female in all but the usual sexual
characters; smaller and more slender; small joints of tarsi
brown; clypeus produced, entirely black; flagellum entirely
dark, at most faintly brownish beneath; first r. n. entering
basal corner of third s.m.

Hab. N.W. India (*E. Comber*). Type from Salsette;
another female from Nasik. Male from Karachi.

This may be compared with *H. tristis* in the Indian fauna;
in the European it reminds one of *H. morbillosus* and its
allies.

Halictus kalutarae, sp. n.

♀.—Length about 6½ mm.

Robust, black, the pubescence slightly ochreous, greyish

on pleura, fuscous on scutellum, thin and scanty on head and thorax, except on postscutellum, where it is dense; antennæ dark, flagellum reddened at apex; head large, *peculiar for the strongly elevated vertex and occiput, with the small ocelli close together and remote from the eyes*; a very fine raised line runs from the middle ocellus to the middle of the supraclypeal area; clypeus rugose; supraclypeal area dull, finely granular; front convex, very finely granular; sides of face and vertex more shining, the latter not evidently punctate; *cheeks remarkably small, with a strong keel on upper part just behind eyes*; prothorax flattened and angled at sides in front of tubercles; mesothorax dull, finely rugose, but much more coarsely sculptured than front; scutellum dull, rugose along hind margin; area of metathorax large, defined by absence of hair, entirely dull, with widely separated fine raised lines, more or less, but very irregularly, joined by transverse ones; posterior truncation large, hairy all over, well defined above and at sides, the upper lateral angles right angles; pleura with fine ridges giving a striate effect; tegulæ dark rufous with a large piceous spot. Wings hyaline, faintly dusky, stigma piceous, nervures browner; second s.m. as broad as high, receiving first r. n. near apex; third s.m. not greatly broader than second (no broader above). Legs dark, including tarsi, their hair very pale ochreous, short and fuscous on outer side of middle and hind tibiæ; hind tibiæ broad; hind spur with six long spines, close together. Abdomen broad, very finely punctured, hind margins of the segments broadly impunctate, but not discoloured; basal declivity of first segment with much pale ochreous hair; dense basal bands on second and third segments, that on second interrupted in middle; fourth segment hairy at extreme base; venter with long hair.

Hab. Kalutara, Ceylon, March 1910 (*E. Comber*).

A peculiar species.

Halictus sigiriellus, sp. n.

♀.—Length about or hardly 6 mm.

Robust, black, with pale slightly yellowish hair; head and thorax dull and finely roughened, abdomen shining; head broad, clypeus rugose, front finely granular; vertex and ocelli normal; flagellum faintly reddish apically; cheeks rather small but normal, with no keel on upper part; mesothorax and scutellum rough, the latter evidently finely reticulate; postscutellum and hind margin of mesothorax covered with pale tomentum; the thin hair of scutellum

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scutellum, thin and scanty on head; postscutellum, where it is dense; m reddened at apex; head large, elevated vertex and occiput, with the r and remote from the eyes; a very m the middle ocellus to the middle; clypeus rugose; supraclypeal area front convex, very finely granular; more shining, the latter not evidently kably small, with a strong keel on es; prothorax flattened and angled les; mesothorax dull, finely rugose, sculptured than front; scutellum margin; area of metathorax large, hair, entirely dull, with widely, more or less, but very irregularly, posterior truncation large, hairy ve and at sides, the upper lateral ra with fine ridges giving a striate ous with a large piceous spot. dusky, stigma piceous, nervures broad as high, receiving first r. n. greatly broader than second (no k, including tarsi, their hair very scons on outer side of middle and broad; hind spur with six long omen broad, very finely punctured, ents broadly impunctate, but not of first segment with much pale bands on second and third seg- apted in middle; fourth segment er with long hair. March 1910 (*E. Comber*).

giriellus, sp. n.

ly 6 mm.

slightly yellowish hair; head roughened, abdomen shining; front finely granular; vertex faintly reddish apically; cheeks no keel on upper part; meso- n, the latter evidently finely d hind margin of mesothorax; the thin hair of scutellum

pale, but brownish tinted; metathorax formed as in *H. kalutarae*, with the same peculiar basal area; upper side of prothorax laterally densely hairy; tegulae hyaline testaceous. Wings dusky hyaline, stigma and nervures testaceous; second s.m. narrow; first r. n. joining second t.-c.; third t.-c. with a single very slight curve. Legs with pale hair, including outer side of tibiae; hind spur with four long spines. Abdomen broad, first segment smooth and shining, the others appearing minutely granular; second and third segments with dense basal bands at sides, rapidly narrowing to a point mesad; venter with long hair.

Hab. Sigiri, Ceylon, March 1910 (*E. Comber*).

Evidently related to *H. kalutarae*, but smaller, with normally-formed head.

Halictus semisculptus, sp. n.

♀.—Length about 8 mm.

Robust, black, with very pale ochreous pubescence; head broad; clypeus shining, longitudinally grooved, with punctures in rows; supraclypeal area convex, dullish, hardly sculptured; front dull, minutely granular; vertex shining; cheeks normal, broad, hairy; antennae black, flagellum faintly brownish at apex; mesothorax and scutellum granular-punctate, but moderately shining; postscutellum (but not hind border of mesothorax) covered with pale tomentum; basal area of metathorax large, shiny, rather more than the basal half covered with irregular wrinkles, tending to form a network; posterior truncation well-defined, the upper lateral angles greater than right angles, while from them proceeds a ridge along each side of metathorax, running a little upwards; tegulae reddish testaceous. Wings hyaline; nervures and stigma dull testaceous; third t.-c. and second r. n. much weakened; second s.m. broad, first r. n. reaching extreme basal corner of third s.m.; hair on inner side of tarsi bright ferruginous; hind spur with strong spines; first abdominal segment smooth and shining, with scattered extremely minute punctures; the other segments shining, but surface appearing more granular; second and third segments with rather thin basal bands of greyish tomentum, continuous right across; fifth segment dark reddish.

Hab. Kalutara, Ceylon, March 1910 (*E. Comber*).

Closely resembles some of the species inhabiting the north-eastern United States, especially *H. arcuatus parvus*, Lovell.

Halictus nasicensis, sp. n.

♀.—Length about 6 mm.

Black, with rather dull white pubescence; face and cheeks rather thinly pilose all over; clypeus very small, shining, striate or grooved; front dull and minutely granular; vertex shining; flagellum ferruginous beneath apically; mesothorax dull, finely and closely punctured; scutellum shining, finely punctured; postscutellum with white tomentum; area of metathorax poorly defined, with a fine raised reticulation, failing apically; posterior truncation shining, well-defined, with sharp edges, the upper lateral angles very obtuse; tegulae rufo-testaceous, fuscous basally. Wings dusky hyaline, stigma and nervures dull testaceous; second s.m. broad, receiving first r. n. at its apical corner; third t.-c. and second r. n. greatly weakened. Hair of legs white, shining on hind tibiae, pale yellowish on inner side of tarsi. First abdominal segment very smooth and shining, the others more granular; continuous basal bands of white tomentum on second to fourth segments; hair at apex glittering, along sides of rima faintly yellowish; hind spur with large spines. Second abdominal segment with fine punctures, each bearing two little bristles.

Hab. Nasik, N.W. India (*E. Comber*).

Halictus perhumilis, sp. n.

♀.—Length about 7 mm.

Very close to *H. nasicensis*, but larger, eyes more emarginate, mesothorax less densely punctured; area of metathorax shining, with strong ridges reaching the posterior margin; otherwise practically the same.

Hab. Karachi, N.W. India, two specimens (*E. Comber*).

The following characters are seen with the compound microscope: front densely punctate, the punctures more or less in grooves, but the sculpture obscured by short plumose hairs; disc of mesothorax tessellate, with strong punctures, about as far apart as the diameter of one; second abdominal segment with very minute well-separated punctures, mostly bearing a pair of little bristles. This species may be compared with *H. lineolatus*. In Frey-Gessner's table of Swiss species it runs straight to *H. quadrisignatus*, Schk.

Halictus cameronellus, n. n.

Halictus himalayensis, Cameron, Entomologist, 1904, p. 210 (not Bingham, 1898).

Halictus strandiellus, n. n.

Halictus ceylonicus, Strand, Berl. ent. Zeits. 1909, p. 187 (not Cameron, 1902).

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