

A COLLECTION OF BEES FROM QUEENSLAND.

By T. D. A. COCKERELL, University of Colorado.

THE object of the present paper is to report on a very interesting series of bees from Queensland, collected by Mr. H. Hacker, and kindly transmitted to me by Dr. R. Hamlyn-Harris. They are all represented by specimens in the Queensland Museum.

PROSOPIS Fabricius.

Scutellum and postscutellum yellow	..	..	..	..	..	..	..	..	1.
Scutellum and postscutellum dark	..	..	..	..	..	..	..	..	6.
1. Abdomen greenish blue (139, Bribie I., 2.11.13)	..	..	..	..	..	..	..	<i>perplexa</i> Sm., ♀.	
Abdomen black	..	..	..	..	..	..	..	..	2.
2. Face-marks white or creamy white	..	..	..	..	..	..	..	..	3.
Face-marks yellow	..	..	..	..	..	..	..	..	4.
3. Clypeus mainly white (130, Brisbane, 6.10.14)	..	..	..	..	..	..	..	<i>aureomaculata</i> Ckll., ♂.	
Clypeus black with a small white mark (144, Sunnybank, Brisbane, 17.9.14)	..	..	..	..	..	..	..	<i>aureomaculata</i> Ckll., ♀.	
4. Face extremely narrow (146, Darra, 14.10.13)	..	..	..	..	..	..	..	<i>aureomaculata</i> Ckll., ♂, variety.	
Face broad	..	..	..	..	..	..	..	..	5.
5. Mesothorax extremely finely punctured (142, Oxley, Brisbane, at <i>Leptospermum</i> , 8.9.14)	..	..	..	..	..	..	..	<i>frederici</i> Ckll., ♀, variety with lateral face-marks short.	
Mesothorax coarsely punctured (143, Brisbane, 9.9.12)	..	..	..	..	..	..	..	<i>obtusata</i> Sm., ♀.	
6. Abdomen blue	..	..	..	..	..	..	..	..	7.
Abdomen black	..	..	..	..	..	..	..	..	10.
7. Face below antennæ white or creamy white right across (135, 141, Brisbane, 17.2.14 and 6.10.14)	..	..	..	..	..	..	..	<i>chromatica</i> Ckll., ♂.	
Face below antennæ not white right across	..	..	..	..	..	..	..	..	8.
8. Clypeus yellow, margined with black (128, Stradbroke I., 2.10.11)	..	..	..	..	..	..	..	<i>disjuncta</i> Ckll., ♂.	
Clypeus black	..	..	..	..	..	..	..	..	9.
9. Tubercles marked with creamy white, not continuous with the white marks on prothoracic border (140, Sunnybank, Brisbane, 17.9.14)	..	..	..	..	..	..	..	<i>disjuncta</i> Ckll., ♀.	
Tubercles bright yellow, the colour continuous with that on prothoracic border (134, Brisbane, 6.10.14)	..	..	..	..	..	..	..	<i>chromatica</i> Ckll., ♀.	
10. Greater part of femora yellow	..	..	..	..	..	..	..	..	11.
Femora mainly or wholly dark	..	..	..	..	..	..	..	..	12.
11. Mandibles yellow (131, Brisbane, at <i>Leptospermum</i> , 12.9.12)	..	..	..	..	..	..	..	(<i>Gnathoprosopis</i>) <i>euxantha</i> Ckll.	
Mandibles black (136, Brisbane, 6.10.14)	..	..	..	..	..	..	..	(<i>Gnathoprosopis</i>) <i>amicula</i> Sm., ♂.	
12. Tubercles white or very pale yellow	..	..	..	..	..	..	..	..	13.
Tubercles bright yellow	..	..	..	..	..	..	..	..	14.
13. Face below antennæ very pale yellow right across (129, Oxley, Brisbane, 17.9.14)	..	..	..	..	..	..	..	<i>perhumilis</i> Ckll., ♂.	
Clypeus black, lateral face-marks white (145, Brisbane, 13.10.14)	..	..	..	..	..	..	..	<i>eburniella</i> Ckll., ♀.	
14. Yellow band on prothorax interrupted (137, 138, Brisbane, at <i>Leptospermum</i> , 6.10.14)	..	..	..	..	..	..	..	(<i>Gnathoprosopis</i>) <i>hackeri</i> Ckll., ♂ and ♀.	
Yellow on prothorax continuous	..	..	..	..	..	..	..	..	15.
15. Face all black (151, Caloundra)	..	..	..	..	..	..	..	<i>melanops</i> Ckll., n. sp.	
Face with yellow lateral marks (132, 133, Brisbane, 6.10.14)	..	..	..	..	..	..	..	<i>amicula</i> Sm., ♀.	

Gnathoprosopis hackeri Cockerell.

The female runs in my table in Ann. Mag. Nat. Hist., Feb. 1910, p. 137, to 35, and runs out because the clypeus is wholly black and the lateral face-marks are pale lemon-yellow, contrasting with the deep orange-chrome of the prothorax. The legs are black, with the anterior tibiæ pallid in front, and the hind tibiæ cream-coloured at base.

The following key contrasts the male of *G. hackeri* with those of two other recently described species :—

Scape greatly swollen, mandibles pale	..	..	..	..	..	..	..	<i>rowlandi</i> Ckll.
Scape ordinary	..	..	..	..	..	..	..	.. .. 1.
1. Mandibles black, face broader	..	..	..	..	..	..	..	<i>hackeri</i> Ckll.
Mandibles yellow, face narrower	..	..	..	..	..	..	..	<i>euxantha</i> Ckll.

Gnathoprosopis amicula (Smith).

The male is close to *G. asinella* (Ckll.), but the colour of the face agrees with that of *Prosopis primulipicta*, and the tegulæ are wholly dark. Both this and *amiculiformis* run out at *primulipicta* in the table just cited, but they differ conspicuously as follows :—

Face dull ; femora (except basal half of hind ones), tibiæ, and tarsi wholly bright yellow	..	..	..	..	..	..	..	<i>amicula</i> Sm.
Face shining ; legs with much less yellow	..	..	..	..	..	..	..	<i>amiculiformis</i> Ckll.

The male *amicula* agrees with *asinella* in having the abdomen beneath without tubercles or ridge.

Prosopis eburniella Cockerell.

The female differs by having the clypeus, supraclypeal area, and hind tarsi wholly black. In the Brisbane female the lateral face-marks have the upper inner side distinctly longer than the lower, and are whiter than those of the male. The male is from Sydney, and it is quite possible that when both sexes have been collected in both localities the Brisbane insect will be found to be subspecifically distinct. *Euryglossa albocuneata* Ckll., which is hardly a true *Euryglossa*, seems to be somewhat related to *P. eburniella*.

Prosopis melanops n.sp.

♀. Length about 7 mm. ; black, with the tubercles and an extremely heavy callus over the prothorax (separated from tubercles by a slight interval) very bright orange-chrome ; face entirely black ; flagellum, except basally, ferruginous beneath ; clypeus dull and sericeous ; front very distinctly punctured ; mesothorax extremely finely and closely punctured ; scutellum shining, with the minute punctures more separate ; basal area of metathorax ill-defined, without distinct sculpture, the margin of the apical truncation shining ; tegulæ piceous ; wings dilute fuliginous or pale brownish, second submarginal cell long, receiving both recurrent nervures ; legs black, middle tibiæ and tarsi with shining pale hair on inner side ; abdomen dullish, the punctures excessively minute.

Hab. : Caloundra, Queensland, Sept. 28, 1913 (*Hacker*). Related to *P. flavojugata* and *P. kelvini*, but known by the entirely black face. The following table separates the females of the three species :—

First abdominal segment very smooth and polished, contrasting with the others, which are suffused with blue	..	..	..	..	..	..	..	<i>flavojugata</i> Ckll.
First segment not thus polished, and the others not at all blue	..	..	..	..	..	..	..	1.

- | | | | | |
|--|----|----|----|-----------------------|
| 1. Postscutellum with white tomentum ; wings not brown | .. | .. | .. | <i>kelvini</i> Ckll. |
| Postscutellum without tomentum ; wings brown | .. | .. | .. | <i>melanops</i> Ckll. |

PACHYPROSOPIS Perkins.**Pachyprosopis hackeri** n. sp.

♀. Length a little over 5 mm. ; robust, black, moderately shining ; labrum, mandibles (except apex), anterior tibiae, and all the tarsi ferruginous ; head broad and thick, subquadrate, extremely feebly and minutely punctured ; the broad front is dullish, and very faintly greenish ; flagellum very short, dull ferruginous beneath ; mesothorax and scutellum like the front ; base of metathorax smooth and shining ; tegulae black ; wings hyaline ; stigma large, piceous, veins brown, second submarginal cell with the shape typical of the genus ; abdomen broad, without distinct punctures.

Hab. : Oxley, Brisbane, Sept. 24, 1914 (*Hacker* 150). Related to *P. angophorae* Ckll., but in that species, in addition to the colour differences, the mesothorax is very much more closely and distinctly punctured. *P. atromicans* Ckll. is much smaller, and has the first recurrent nervure meeting the first transversocubital, whereas in *P. hackeri* the first recurrent joins the first submarginal cell as far from its apex as the second recurrent from the apex of the second submarginal.

EURYGLOSSA Smith.

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|--|----|----|----|--------------------------|
| Thorax yellow, marked with black (159, Brisbane, 6.10.14) | .. | .. | .. | <i>flavopicta</i> Smith. |
| Thorax black | .. | .. | .. | 1. |
| 1. Abdominal segments with marginal pale tegumentary bands (156, 162, Oxley, Brisbane, Sept. 1914 ; Sunnybank, Brisbane, 3.10.12, at flowers of <i>Jacksonia scoparia</i> R.Br.) | .. | .. | .. | <i>chrysoceras</i> Ckll. |
| Abdomen without such bands | .. | .. | .. | 2. |
| 2. Abdomen red (161, Oxley, Brisbane, 24.9.14) | .. | .. | .. | <i>edwardsii</i> Ckll. |
| Abdomen black (168, Oxley, Brisbane, 17.9.14) | .. | .. | .. | <i>neglectula</i> Ckll. |

Euryglossa flavopicta Smith.

The specimen (♀) possibly represents a variety, but Smith's description is rather too short. The mandibles are yellow, broadly rufofuscous apically ; lateral black stripes running down orbital margins some distance from the transverse band on vertex, of which they are the continuation ; black bands going downwards from lateral ocelli very broad, but not reaching antennal sockets ; scutellum with two dark spots, but no band, though there is a black band in suture between scutellum and postscutellum ; area of metathorax black, except a very large median yellow patch, which divides the black (except along extreme base) into two triangular areas ; abdomen with four broad dark bands, and a narrow transverse discal band on first segment ; fifth and sixth segments yellowish brown, not banded. The nearest relative is *E. brachycera* Ckll., from Townsville.

Euryglossa edwardsii Cockerell.

This seems to be essentially identical with one of the forms (β) of *E. variabilis* Perkins, a species described six years later than *edwardsii*. The posterior corners of the abdominal tergites (overlapping the venter) are broadly colourless.

Euryglossa neglectula Cockerell.

Described from a specimen labelled "Australia" ; a precise locality was not known until the species was rediscovered by Mr. Hacker.

PARACOLLETES Smith.

Paracolletes ornatissimus n. sp.

♀. Length about 8.5 mm.; head and thorax yellow-green, bluish green on pleura and metathorax; clypeus and supraclypeal area black (more or less edged with rosy), very smooth and shining, the clypeus with strong well-separated punctures; mandibles black, faintly reddish subapically; flagellum obscure brown beneath, becoming clear red at apex; face and cheeks with dull white hair, vertex with fuscous; mesothorax closely but shallowly punctured, dull and granular, the posterior disc shining; area of metathorax with delicate raised lines; hair of thorax above pale ferruginous; tegulae piceous; wings clear, stigma lanceolate, amber colour; legs black, with the hind tibiae and all the tarsi red; scopa of hind tibiae large, dark fuscous on outer side, otherwise white; abdomen shining but not polished, not evidently punctured, bright peacock green shading posteriorly into brilliant lilac-purple, the first segment crimson shading posteriorly into purple; caudal fimbria black; venter with long pure white hair.

♂. Head and thorax dark blue-green, suffused with yellowish green on the front; flagellum long, entirely dark; abdomen peacock-green, the first segment crimson, shading through purple into green posteriorly; all the knees, tibiae and tarsi, and hind femora except at base, chestnut-red; hair of head and thorax above strongly suffused with blackish.

Hab.: Oxley, Brisbane, Sept. 24, 1914 (*Hacker*). The female is the type. Close to *P. semipurpureus* (Ckll.), of which it may be a brilliantly coloured race, but I have seen *semipurpureus* from various localities, and never such a form as that now described. The male resembles *P. plumosellus* Ckll., but differs by the black tegulae. From *P. plumosus* Sm. the new form is easily known by the much smaller size. *P. bicolor* Sm. is the male of *plumosus*, as Mr. Meade-Waldo has determined. *P. amabilis* Sm. is also allied. Australian students may determine by field studies that *P. ornatissimus* is not entitled to specific rank, but such a beautiful form deserves a name, which can then be used in a varietal or subspecific sense. The species bears Hacker's number 147.

NOMIA Latreille.

Nomia gracilipes Smith.

A female from Darra, Brisbane, 10.3.14 (153). The last three abdominal segments are chestnut-red, much brighter than I have previously seen in this species; the first three segments are blue.

PARASPHECODES Smith.

Thorax clear ferruginous	..	..	..	..	..	..	..	..	<i>aurantiacus</i> Ckll.
Thorax black	..	..	..	..	..	..	..	..	.. .. 1.
1. Abdomen brown	..	..	..	..	..	..	..	..	<i>bribiensis</i> Ckll.
Abdomen wholly or partly chestnut-red	..	..	..	..	..	..	..	..	.. .. 2.
2. Abdomen entirely red	..	..	..	..	..	..	..	..	<i>speculiferus</i> Ckll.
Abdomen with only the first three segments red	..	..	..	..	..	..	..	..	<i>leptospermi</i> Ckll.

Parasphecodes aurantiacus n. sp.

♀. Length 8 mm.; head black, with the lower half of clypeus obscure testaceous, labrum ferruginous, mandibles ferruginous with the bidentate apex black; clypeus shining, with sparse large punctures; front dull and granular, shining at extreme sides; scape fulvous, flagellum dark brown, redder beneath; hair of head short and scanty, pale; thorax, tegulae, and legs entirely bright orange-fulvous,

without markings, the thorax with scanty pale yellowish hair; mesothorax very minutely and indistinctly punctured; area of metathorax with a median triangular dull area; scutellum bigibbous, much lighter and yellower than mesothorax; wings dusky hyaline, darker at apex; second submarginal cell large; first recurrent nervure meeting second transversocubital; hind tibiae and tarsi with stiff golden hair, blackish on upper (posterior) side of tibiae; hind femora with a large curled scopa of very pale yellowish hair; abdomen shining, very finely and obscurely punctured, the first three segments clear orange-fulvous, the others black, with dark hair.

Hab.: Brisbane, May 28, 1914 (*Hacker* 160). A very distinct and peculiar species, allied to *P. contaminatus* Ckll. from Cairns, but readily known by the entirely orange-fulvous thorax.

***Parasphecodes bribiensis* n. sp.**

♀. Length 8 mm. or a little more; rather long and narrow; head and thorax black, abdomen dark reddish brown, the apical two segments suffused with black; legs piceous, the anterior tibiae with a clear ferruginous patch on inner side (about basal two-thirds), beset with long reddish hair; hair of head and thorax dull white, scanty; head broad; mandibles with apical half red; clypeus polished, sparsely and weakly punctured; antennae entirely dark; tubercles prominent; mesothorax and scutellum densely and finely granular-punctate; area of metathorax finely granular, with weak irregular wrinkles; sides of metathorax pruinose with fine greyish white tomentum; posterior truncation small, depressed in middle; tegulae pale rufo-testaceous; wings strongly reddened, stigma and nervures dull red; second submarginal cell broad; first recurrent nervure meeting second transversocubital; outer recurrent and transversocubital weakened; hind femora slender, with a curled scopa; hair on upper side of hind tibiae fuscous; abdomen shining, without evident punctures, first two segments each with a transversely oval polished swelling in each sublateral area; no hair-bands or patches.

Hab.: Bribie Island, Nov. 2, 1913 (*Hacker* 91). A peculiar species, known from other *Parasphecodes* by the brown abdomen, with oval bosses on the first two segments. It could be regarded as a species of *Halictus*, and would then fall as follows in a table of species having the mesothorax black, and the abdomen red or brown, or largely so:—

Male; abdomen lively ferruginous, with apex broadly black	..	..	..	<i>H. disclusus</i> Ckll.
Females	..	..	..	..
1. Scutellum and postscutellum densely covered with ochreous tomentum	..	..	..	2.
Scutellum and postscutellum not thus covered	..	..	..	3.
2. Second abdominal segment with a broad black band	..	..	..	<i>H. doddi</i> Ckll.
Second abdominal segment with no such band	..	..	..	<i>P. bryotrichus sordidulus</i> Ckll.
3. Smaller, wings clear	..	..	..	<i>H. cyclurus</i> Ckll.
Larger, wings smoky	..	..	..	<i>P. bribiensis</i> Ckll.

***Parasphecodes speculiferus* Cockerell.**

♀. Length 7 mm.; robust, with short broad abdomen; head, thorax, and legs black. Abdomen entirely chestnut-red, with a vague purplish tint; hair of head and thorax greyish white, stained with blackish dorsally; head broad; mandibles reddened only at extreme apex; clypeus shining, with strong sparse punctures; antennae black, the flagellum (except basally) very obscurely brownish beneath; front extremely densely and minutely punctured; mesothorax dull, densely and

minutely rugosopunctate, gibbous in front; scutellum a little more shining, with a median depression; area of metathorax with rather weak plicæ, failing distally; tegulæ brown with pallid margins; wings hyaline, slightly dusky, the apex darker; stigma and nervures dusky reddish brown; second submarginal cell rather small, third very large; first recurrent nervure meeting second transversocubital; outer recurrent and transversocubital weakened; hair of legs fuscous on outer side, pale on inner, the middle tibiæ with a stiff pale orange brush near apex; abdomen with the first segment and basal half of second very distinctly though very minutely punctured, the parts beyond with only scattered piliferous punctures; no hair-bands or patches; apex with fuscous hair; venter with shining white hair.

Hab.: Oxley, Brisbane, at *Leptospermum*, Sept. 8, 1914 (*Hacker* 148). *P. speculiferus* was described in 1912 from Victoria; I give a new description from the Brisbane specimen. The species is somewhat variable.

Parasphecodes leptospermi n. sp.

♀. Length about 9.5 mm., expanse fully 17; robust; head, thorax, and legs black; abdomen with the first two segments bright chestnut-red, the third more dusky, but still red, the others black; head broad; mandibles black; clypeus brilliantly shining, with scattered punctures; front rough but glistening; antennæ dark, the flagellum reddened at tip; hair of head and thorax dull white, much blackened dorsally; mesothorax finely and extremely densely punctured; scutellum bigibbous, the elevations shining though punctured; area of metathorax with weak irregular rugæ; tegulæ rufopiceous, with the anterior margin pallid; wings dusky hyaline, darker apically; first recurrent nervure joining apical corner of the large second submarginal cell; middle femora with a brush of red hair beneath at base; abdomen with first segment, and second except apical depression, finely and distinctly punctured.

Hab.: Oxley, Brisbane, at *Leptospermum*, Sept. 8, 1914 (*Hacker* 149). Allied to *P. speculiferus*, but easily known by its large size and black apical segments of abdomen. It appears to be closest to *P. hybodin* Ckll., described from a male collected in Victoria, but on comparing specimens I do not think they are the sexes of the same species. There is also some resemblance to *P. tilachus* Smith.

HALICTUS Latreille.

Mesothorax green	..	..	..	..	..	..	..	..	..	..	1.
Mesothorax black	..	..	..	..	..	..	..	..	..	..	3.
1. Abdomen red, marked with black (163, Brisbane, Sept. 1914)	..	..	..	..	..	..	..	..	..	<i>punctatus</i> Smith.	
Abdomen not at all red	..	..	..	..	..	..	..	..	..	..	2.
2. Abdomen green (164, 169, Brisbane, 1.9.14; Oxley, Brisbane, Sept. 1914)	..	..	..	..	..	..	..	..	..	<i>dampieri</i> Ckll.	
Abdomen black or piceous (155, 170, Brisbane, 13.4.15, and on cockscomb in garden, 10.4.15)	..	..	..	..	..	..	..	..	..	<i>urbanus</i> Smith.	
3. Females	..	..	..	..	..	..	..	..	..	<i>semipolitus</i> Ckll., n. sp.	
Males	..	..	..	..	..	..	..	..	..	..	4.
4. Tegulæ rufous	..	..	..	..	..	..	..	..	..	<i>repertulus</i> Ckll., n. sp.	
Tegulæ black	..	..	..	..	..	..	..	..	..	<i>bursariæ</i> Ckll., n. sp.	

Halictus semipolitus n. sp.

♀. Length about 5.5 mm., anterior wing scarcely over 4; black, including legs, with scanty greyish white hair, not forming patches or bands on abdomen; mandibles with a dark red subapical band; flagellum obscure red apically; tegulæ dark reddish; wings strongly smoky, stigma dark brown, nervures sepia; anterior

knees red; front dull, shining at extreme sides; mesothorax shining, especially posteriorly, the scattered punctures extremely minute and hardly visible; area of metathorax dull, covered with fine wrinkles; venter of abdomen with long white hair, in which pollen is collected.

Microscopical characters: Front as densely punctured as possible; mesothorax minutely tessellate, with scattered piliferous punctures; area of metathorax irregularly reticulate; first abdominal segment finely punctate; second with basal third punctate, the rest transversely striate; hind spur with few long teeth.

Hab.: Bribie Island, type taken 2.11.13 (*Hacker* 117). Another, with same data, bears number 167. Close to *H. blackburni* Ckll., but mesothorax and metathorax different. The area of metathorax is entirely different from that of *H. sturti* Ckll. Among the Tasmanian species it falls near the much larger *H. furneauxi* Ckll.

Halictus bursariæ n. sp.

♂. Length 6 mm. or slightly over; rather robust, shining black, with scanty dull white hair, which forms small inconspicuous patches at lateral bases of second and third abdominal segments; mandibles black, very obscurely reddish subapically; clypeus shining, with well-separated punctures, and an obscure yellowish transverse band; face with thin white hair; front dull; antennæ long, entirely dark, the flagellum crenulated beneath; mesothorax shining, polished, distinctly though not densely punctured; scutellum with the two shining slight elevations almost impunctate; area of metathorax minutely wrinkled, the margin shining; tegulæ black; wings hyaline, faintly dusky, stigma dusky reddish, nervures sepia; first recurrent nervure joining apical corner of second submarginal cell; legs black, the small joints of tarsi ferruginous, and the middle and hind basitarsi obscure reddish; abdomen very finely punctured, hind margins of segments not discoloured; apical segments with rather long pale hair; a broad red apical plate; fourth ventral segment heavily fringed with white hair, the margin of the fringe emarginate.

Microscopical characters: Front extremely closely punctured, the punctures subconfluent; mesothorax well punctured, on a smooth (not tessellate) surface; area of metathorax with labyrinthiform wrinkles; second abdominal segment with piliferous punctures.

Hab.: Brisbane, Jan. 10, 1913, at flowers of *Bursaria spinosa*, Kelvin Grove (*Hacker* 93).

In a table of more or less similar males, this is separated as follows:—

Tibiæ red, more or less suffused with dusky (Tasmania)	..	..	..	<i>isthmalis</i> Ckll.
Tibiæ dark	..	..	..	.. 1.
1. Mesothorax shining	..	..	..	<i>bursariæ</i> Ckll.
Mesothorax dull	..	..	..	<i>idoneus</i> Ckll.

H. bursariæ is a member of the group which includes *H. cambagei*, *H. repertus*, *H. isthmalis*, and *H. repertulus*.

Halictus repertulus n. sp.

♂. Length about 5.5 mm.; black, moderately robust, with scanty greyish white hair, not forming distinct bands or spots on the abdomen, though there are small and thin, hardly noticeable, patches at lateral bases of second segment; mandibles with a small cream-coloured spot in the middle, and the apical part red; clypeus shining, minutely and feebly punctured, nearly the apical half very pale yellow; face with short white hair; front dull; flagellum only moderately long, very obscure



Cockerell, Theodore D. A. 1916. "A collection of bees from Queensland." *Memoirs of the Queensland Museum* 5, 197–204.

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