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On some new species of Hymenoptera collected by the Rev, J. A. O'Neil, S.J., at Dunbrody, Cape Colony.

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Hockeria melanaria, sp. nov.

Black, the sides of the head and thorax densely covered with long white hair; the rest more sparsely with white pubescence; wings clear hyaline, iridescent, the nervures fuscous, tegulae black. Female.

Length 3.5 mm.

Grahamstown. Misses Daly and Sole.

Front laterally and vertex bearing round, not very deep clearly separated punctures; the inner orbits longitudinally punctured-striated. Malar space longer than the eyes; the lower half with a wide deep furrow. Occiput, except in the centre, closely, strongly reticulated; in the centre is an aciculated space which becomes gradually wider below. Middle lobe of mesonotum closely, rugosely punctured; the lateral less strongly punctured more shining, less strongly and closely punctured on the inner-side; it is roundly convex and clearly separated from the middle lobe. The scutellum is strongly, closely punctured-reticulated; the apical lobes gradually roundly narrowed towards the apex, about as long as they are wide at the base; the lower edge with a distinct bordering keel. On the base of the metanotum are 6 stout, slightly curved keels, which form, longer than wide, areæ; the apical part bears longitudinal keels, united by more numerous transverse ones; the sides project into a triangular point, above the middle; this tooth is bluntly pointed at the apex, and has the sides equal in length. Propleuræ distinctly regularly reticulated; the rest more closely rugosely punctured. The base of the hind femora is straight and oblique on the underside, the junction of this with the rounded central part forms an angle; the apex projects more than the centre.

The scutellar spines are much broader, compared with their length than in the European species, than in *e.g.* *H. rufipes*. Above they are distinctly hollowed.

On some new species of Hymenoptera collected by the Rev. J. A. O'Neil, S.J., at Dunbrody, Cape Colony.

BY P. CAMERON.

ICHNEUMONIDÆ.

Campoplex O'neili, sp. nov.

Luteous, the flagellum of antennæ, stemmata, and a broad line down the mesonotum, black; wings hyaline, the nervures black, the stigma fuscous; areolet shortly appendiculated; the recurrent nervure broadly rounded; the transverse median nervure received shortly beyond the transverse basal. Male.

Length nearly 8 mm.

May. At light.

Face and clypeus closely, distinctly punctured, almost reticulated; the front and vertex much less strongly punctured; a smooth line down the centre of the front. Eyes obliquely converging on the innerside above. Occiput almost transverse. Thorax above closely, distinctly punctured, the metanotum not areolated; a broad, moderately deep furrow down its centre. Pleuræ closely, distinctly punctured; the metapleuræ more strongly and closely than the rest. The pedicle of the areolet is shorter than the 1st transverse cubital nervure, the 2nd is longer, bullated from shortly above the middle; the recurrent nervure is interstitial with it.

The hind femora &c. are wanting in the only specimen; presumedly they are coloured like their coxæ. There is a broad transverse band on the base of the scutellum, followed by a short longitudinal one; the extreme base of the 2nd abdominal segment is black. The face is only slightly covered with white hair.

Limmerium garrulum, sp. nov.

Black; the apex of the 3rd and the whole of the following segments rufo-testaceous; the 4 front legs fulvous, their coxæ and trochanters pallid stramineous; the hind coxæ and basal joint of

metanotum closely, finely, distinctly punctured, except in the centre at the base. Pleuræ almost smooth. Abdomen sparsely punctured; the pygidium thickly covered with short, thick rufous hair, except on the apex, which is rufo-testaceous. Apex of 4 anterior and the outerside of the posterior tibiæ thickly covered with bright red, bristle-like hair; the calcaria white. Clypeus transverse, piceous, the centre distinctly projecting; its apex not quite transverse. The 1st recurrent nervure is received shortly behind the middle; the 3rd transverse cubital nervure forms a broad, rounded curve, without any oblique slope.

Plesia erythronota, sp. nov.

Black; the prothorax and mesonotum bright red; the tarsi, apex of middle tibiæ and the greater part of the hind tibiæ rufous; a transverse white mark, wider than long on the sides of the 2nd, 3rd and 4th abdominal segments, white; the mark on the 4th wider than on the others, reaching close to the centre of the segment. Wings hyaline, suffused with fuscous; the stigma and nervures black. Female.

Length 11–12 mm.

Head, except in the centre of the vertex, closely and strongly punctured; the face and clypeus smooth. Apex of pronotum and apical two-thirds of mesonotum punctured, but not closely or strongly; the latter more strongly than the former. Base and centre of scutellum smooth, the rest with somewhat coarse, clearly separated punctures; in the centre is a curved, transverse white line. Metanotum finely and closely punctured; the triangular basal area smooth. Apical segments of abdomen punctured; the pubescence tinged with fulvous; the pygidium piceous at the apex; the pubescence black, mixed with shorter rufous bristles.

Plesia incisa, sp. nov.

Black, the clypeus, mandibles, except at the apex, a line on the apex of the frontal tubercles, palpi, a line on the apex of the pronotum and narrow lines, dilated in the middle and on the sides—except that on the 1st,—on the apex of the abdominal segments, the 4 anterior legs below and the hind tarsi, below, pale

yellow; head, thorax and legs densely covered with white pubescence; the wings hyaline, the nervures and stigma black. Male.

Length 13 mm.

March.

Apex of clypeus transverse in the middle, the sides roundly curved and narrowed. Front and vertex coarsely, rugosely punctured, the pro- and mesonotum are less closely and less rugosely punctured, the punctures being clearly separated. Parapsidal furrows wide, shallow, striated. Metanotum closely, rugosely punctured, the apical slope more closely than the base; there is a smooth, irregular space in the centre of the basal part. Pleuræ coarsely, rugosely punctured, the base of the propleuræ lined with white. The narrowed basal third of the 1st abdominal segment almost smooth, the dilated pyriform apex closely punctured; there is a narrow transverse furrow near the base of the 3rd, 4th, and 5th, the incision in the pygidium is twice longer than wide, roundly narrowed at the base; the sides are not keeled. The 3rd abscissa of the radius is not much longer than the 2nd; the 4th distinctly longer; the 2nd recurrent nervure is roundly obliquely curved outwardly above; the lower part straight, oblique, slightly turned towards the base of the wings.

SPHEGIDÆ.

Notogonia rufoscapa, sp. nov.

Black, the antennal scape bright red, darker at the apex above, the mandibles of a darker red, palpi dark fuscous, the body covered with a silvery pile; wings uniformly dark fuscous violaceous; the nervures and stigma black; 2nd cubital cellule much narrowed in front, half the length of the space bounded by the 1st transverse cubital and the 1st recurrent nervures are united, and are received near the apex of the basal third of the cellule; the metanotum minutely, obscurely transversely striated, the apical slope more distinctly, widely and irregularly striated.

The apical 3 joints of the antennæ are dark rufous; the long spur of the hind tarsi three-fourths of the length of the metatarsus. Third joint of antennæ not much longer than the fourth. Metapleuræ weakly obliquely striated. Metatarsus of fore legs with 3 long spines on the outside; the tibial and tarsal spines of moderate length; the long claws have no tooth. The pygidium in the specimen described, whatever it may be in fresh examples, has no pubescence, and is pitted all over with little raised points. Female.

Length 12 mm.

December.

Characteristic of this species is the red scape, and the united recurrent nervures. It comes near to *N. ciliata*, Sm.; that species may be known by the fore tarsi being armed with numerous long stiff spines, longer than the joints, there being 5 on the metatarsus, by the 2nd cubital cellule being one-third of the length of the 3rd in front, very slightly more than the space bounded by the recurrent nervures, which are received not far from the base of the cellule; and the 1st recurrent nervure has not the front half obliquely bent as it is in *N. rufoscapa*.

Ammophila dunbrodyensis, sp. nov.

Length 19 mm. Male.

This species is very similar to *A. erythrospila*; it is a more slenderly built species; the red colouration on the thorax being present only on the lower half of the meso- and metapleuræ and absent from the apex of the metanotum, the 4 front legs are only very slightly marked with black, the occiput is broadly rounded, not transverse in the middle; and otherwise is easily separated from it, and from *A. dolichodera*, Kohl, by the 3rd cubital cellule being only one-quarter of the length of the 2nd.

Hind ocelli separated from each other by a slightly less distance than they are from the eyes. Clypeus about one-half longer than wide, its apex almost transverse. Pronotum broader than long, sparsely, weakly punctured. Mesonotum transversely rugulose, but not closely striated. Metanotum closely, transversely rugulose. Pleuræ rugulose, thickly covered with white

pubescence. Tubercles large, round, reddish. Third cubital cellule short, in front hardly longer than the space bounded by the 2nd transverse cubital and 2nd recurrent nervures. The underside of the petiole and the greater part of the 3rd and 4th abdominal segments, rufous. The 4 front legs are light red; the trochanters and basal three-fourths of the femora black above; the hind coxæ, trochanters and femora, except at the apex, black, the rest of the legs of a darker red than the anterior.

Stizus Johannis, sp. nov.

Length 9-10 mm.

February.

Belongs to the group of *tridens*, having the same form and colouration. Median cellule in hindwings emitting only an anterior nervure. Lateral incision in sides of median segment large, twice longer than wide, rounded; the upper angle broad, rounder, the lower short, acute.

Black, covered with a closely silvery pubescence, the clypeus, face, lower inner orbits, opposite the antennæ, base of mandibles, a narrow, short line, near the top of the upper eye orbits, lower part of scape, the hind edge of pronotum, the line extending on to the tubercles, a small oval mark behind the latter, a line along the apical half of the sides of the mesonotum, a mark longer than wide on the sides of the scutellum, not quite reaching to the apex, a broad curved line on the post-scutellum, broad lines on the apices of the abdominal segments—the basal 2 broadly dilated backwards on the sides, and the apical 3 bordered with brown,—and fascial on the 2nd and following ventral segments—dilated laterally and in the centre. The 2nd cubital cellule not pedunculated, at the top separated by the length of the space bounded by the 2nd transverse cubital and 2nd recurrent nervures. The legs yellow, the coxæ, trochanters, a line behind on the 4 front tibiae, one in the centre of tibiae and the basal half of the hind femora, black. The flagellum of antennæ reddish brown, black above. Clypeus not clearly separated, densely pilose. Front and vertex shagreened. Thorax above closely, minutely punctured, as are also the basal segments of the abdomen.

The male is coloured like the female, including the antennæ; the penultimate ventral segment is laterally, broadly, roundly incised. It wants the round spot on the pleuræ behind the tubercles. The eyes in both sexes strongly converge below; the antennæ clavate, short. In the female the eyes near the face are separated by distinctly more than the length of the antennal scape; in the male by very little more than its length. The wings in both sexes are clear hyaline; the costa is testaceous.

VESPIDÆ.

Odynerus senex, sp. nov.

Black, the clypeus, a mark, broader than long, above the antennæ, mandibles, except at the apex, underside of antennal scape, a spot on the innerside at lower side of the eye orbits, a short line on the upper outer eye orbits, the edge of the pronotum at the apex, tegulæ, the hinder part of the tegulæ tubercles, the sides of both scutellums and the apices of the abdominal segments, yellow, red are the base of the antennal scape above, the hinder part of the pronotum from near the base, the sides of the median segment, of the 1st abdominal segment and a large mark on the sides of the basal half of the 2nd, legs red, the outer side of the tibiæ and base of tarsi yellow. Wings fuscous, highly iridescent, the apex darker coloured and with a distinct violaceous tinge, the nervures and stigma black. Male.

Length 10 m.m.

Head and thorax strongly and closely punctured, the punctures above running into reticulations; the abdomen are closely, but less strongly punctured; the 2nd segment with a longitudinal keel down the centre. Antennæ stout, the underside of the flagellum brown; its hook stout, reaching close to the base of the joint. Clypeus as long as its greatest width, strongly, but not closely punctured; the central length of the apical incision not as great as the width at the apex; the centre at the base is rounded; the top of the clypeus is broadly rounded. Base of thorax transverse,

sharply angled laterally. Sides of scutellum largely raised into a keel or tooth; its highest part is beyond the middle; the basal and longer slope is straight, obliquely sloped; the apical has a more rounded slope; the sides of the post-scutellum rise into a prominent tooth, which is triangular as seen from behind; its apex has a more rounded, dilated slope than the base. Sides of metanotum broadly rounded. Basal segment of abdomen cup-shaped; the 2nd segment is as long as its width at the apex.

This species comes close to *O. Whiteanus*, Cam.; probably the coloration differences between the two are not of much importance; but there are structural differences between them; e.g. the base of the thorax in *Whiteanus* is not so transverse, it being somewhat dilated in the middle; the keel on the sides of the scutellum is less prominent, it being less prominent and not so high as that on the post-scutellum, the opposite being the case with the present species; the post-scutellar keel on *Whiteanus* is more prominent, longer and more broadly and distinctly rounded above, its pterostigma testaceous, not black; and there is no keel on the 2nd dorsal segment of the abdomen which is shorter compared with the width.

Odynerus quadrituberculatus, Sm. (Cat. Hymen. Ins. Brit. Mus. v, 70) from Port Natal appears to be related to the present species and to *O. Whiteanus*. The terms used by Smith for the scutellums "sub-dentate on each side laterally" can hardly be applied to the two species I have described.

Odynerus erythrotomus, sp. nov.

Black, the underside of the scape, mandibles except their teeth; a small mark, wider than long, rounded and narrowed above, slightly incised in the centre below, clypeus, labrum, a short line above the middle of the outer orbits, a band on the apex of the pronotum, dilated laterally, a small spot on the sides of the scutellum, the greater part of the post-scutellum, a line on the apex of the 1st abdominal segment above, and a broader one on the 2nd, all round, yellow. Legs rufo-testaceous, the fore coxæ and trochanters, the base of the fore femora narrowly, the middle coxæ above, trochanters, femora to beyond the middle, the hind

coxae, trochanters and femora to near the apex, black. Wings fuscous violaceous, the nervures and stigma black. Male.

Length 10 mm.

Head and thorax closely and strongly punctured, covered with a silvery pile. Thorax longer than wide, the base not transverse, being slightly roundly dilated in the middle, its sides bluntly rounded. Sides of metanotum broadly rounded. Scutellum not toothed laterally; the post-scutellum not flat, somewhat rounded, obliquely sloped. Clypeus about as wide as long, rounded above but with a slight projection in the middle on the top; the apical incision, rounded, distinctly wider than long. First abdominal segment cup-shaped, narrow at the base, becoming gradually wider towards the apex; the second slightly longer than its width at the apex, width at the apex, which is smooth and distinctly raised; the 1st and 2nd segments are closely, uniformly and strongly punctured; the 1st more strongly than the 2nd.

The post-scutellum is rounded behind. Antennal hook stout, curved, reaching to shortly beyond the base of the joint. The punctuation the mesonotum and scutellum runs into striae. Tegulae rufous, large.

Is allied, by the not transverse base of thorax, to *O. melanodontus*; that species should be readily separated by the raised sides of the scutellum, by the black teeth on the post-scutellum; and by the yellow bands on the apex of the 1st abdominal segment being dilated laterally. In Saussure's Work it would come in near *O. hottentotus* (*olim posticus*). The head and thorax are more densely covered with white pubescence than usual.

Odynerus O'neili, sp. nov.

Black, largely tinged with ferruginous; the antennae, vertex, outer orbits and legs ferruginous, the clypeus of a lighter ferruginous tint; the 2nd abdominal segment above light orange coloured; with a dark line, darker and dilated at the base and apex, down the centre; wings bright fulvous, the apex smoky violaceous from the end of the stigma. Female.

Length 17 mm.

March.

Front and vertex strongly, but not closely punctured. Clypeus longer than its greatest width, its sides obliquely sloped; the apex narrow, transverse, depressed in the centre; the top broadly rounded. Thorax closely, strongly rugosely punctured; the base of pronotum broadly rounded and bordered by a distinct, sharply raised keel. Scutellum flat, on a level with the mesonotum, the post-scutellum slightly more raised, especially towards the apex; its apical slope long, slightly oblique and sparsely punctured. Sides of median segment broadly rounded, the apex obscurely transversely striated, punctured round the edges. The lower part of propleurae is only sparsely punctured. First abdominal segment cup-shaped, broadly rounded at the base; the 2nd segment barrel-shaped, clearly longer than the greatest width. The thorax is longer than usual, fully twice longer than wide; the base of the 2nd abdominal segment is not sharply contracted and separated from the apex of the 1st.

The rounded and narrowed base of the thorax, bright fulvous wings and broad orange band on the abdomen makes this *Leionotus*, with its large size for an *Odynerus*, easily recognised. The metanotum is more obliquely sloped than usual and has its face finely, closely, transversely striated. The species looks more like a *Polistes* than an *Odynerus*. The broad orange band reminds one of *O. punctum*.

ANTHOPHILA.

Sphcodes iridipennis, sp. nov.

Black, the abdomen bright red, the wings fuscous violaceous, highly iridescent, the nervures and stigma black; the hind wings with at least 9 hooks; the first 5 separated from the 6th by a space and the latter from the apical three; the flagellum of antennae brownish beneath; the basal two-thirds of the mandibles bright red. Female.

Length 7 mm.

Front and vertex closely, rugosely punctured, the punctures almost running into reticulations in places; there is a narrow fine

keel down the centre of the front on its lower half. Face closely rugosely punctured, its centre forming a raised triangle, with the apex above; the clypeus strongly, but not closely punctured; its apex fringed with fulvous hair. Labrum depressed in the centre, the sides forming 2 rounded tubercles. Mesonotum strongly, but not very closely punctured, with a central smooth depression, and with a smooth space down the sides. Scutellum strongly punctured; a smooth space in the centre of the basal half. Post-scutellum coarsely, closely longitudinally rugose. Base of metanotum coarsely, closely, longitudinally reticulated in the centre, the sides more closely, obliquely striated. Pleuræ coarsely, closely rugosely reticulated, as is also the breast. Legs black, the calcaria and the apical joints of the tarsi pale testaceous, as are also the tarsal spines; the hair on the tarsi inclines to fulvous; on the rest of the legs it is black.

Sphecodes O'neili, sp. nov.

Black, the antennæ, basal two-thirds of the mandibles, apex of clypeus, legs, basal segment of the abdomen and the basal half of the 2nd, bright red; wings hyaline, the nervures and stigma blackish; the hind wings with ten hooks in 3 divisions of 5, 1 and 4. Metanotum widely reticulated, the keels distinct, stout; the centre of the area with 2 large smooth spaces. Female.

Length 7 mm.

December.

Front and vertex closely, rugosely punctured, the former below the ocelli finely longitudinally striated; the raised part of the face finely, closely rugose; the clypeus strongly punctured, the punctures clearly separated. Mesonotum closely, strongly punctured, a shallow furrow down the middle. Scutellum with the basal half only sparsely, the apical much more closely, punctured. Apical slope of metanotum closely, strongly punctured. Pleuræ: the upper part of the pro- almost smooth, lower, especially towards the apex, striated; the meso- irregularly reticulated-rugose, the apex finely and closely rugose; the meta- on the upper basal part obscurely, the lower more distinctly obliquely striated, the rest irregularly reticulated-striated. The

1st abdominal segment closely punctured; the basal half of the 2nd more strongly, and of the 3rd still more strongly punctured; the others smooth; the pubescence white.

Sphecodes capensis, sp. nov.

Black, the apex of the 1st abdominal segment and the sides of the 2nd and 3rd segments broadly, red; the mandibles dark red before the apex; wings clear hyaline, iridescent, the nervures and stigma blackish, the latter fuscous behind; the hind wings with 8 narrow curved hooks. Male.

Length 6 mm.

Head thickly covered with longish white pubescence, the front and vertex closely rugose; the clypeus more strongly, less closely punctured. Labrum smooth and shining; a small rounded incision in the centre of the apex above. Mesonotum strongly, but not very closely punctured; the base of scutellum sparsely, the apex, more closely punctured. Post-scutellum closely rugosely punctured. Base of metanotum closely, strongly, irregularly and somewhat obliquely striated. Propleuræ strongly, the meso more closely and less strongly reticulated, the apex above with some oblique striæ; the metapleuræ wrinkled and bearing some striæ at the base. Basal 3 segments of abdomen closely and strongly punctured, the apex of the 2nd and 3rd depressed and smooth. Apical joints of tarsi and calcaria pale testaceous.

Halictus Schönlandi, sp. nov.

Black, the apical third of the 1st abdominal segment, the whole of the 2nd and the greater part of the 3rd red; wings clear hyaline, the stigma fuscous, the nervures pale. Hair dense whitish cinereous. Female.

Length 5 mm.

Metanotal area closely, longitudinally reticulated, more finely and closely at the apex than at the base, the sides with stouter, more widely separated oblique striæ. The hair on the face, clypeus and front is very dense, hiding the sculpture. Sides of mesonotum finely, closely and distinctly punctured, the centre more widely and strongly punctured. Apex of scutellum

closely, the base sparsely punctured. Calcaria pale testaceous; the hair on the innerside of the tarsi is rufous. The 3rd abscissa of radius is not much longer than the 2nd; the 3rd transverse cubital nervure is oblique in front, the hinder (and smaller) part is broadly rounded. Tegulae piceous. Antennae stout, the joints of flagellum almost moniliform. The apex of the metanotum is transverse in the middle above, its sides rounded. Only the base of the 2nd abdominal segment is depressed. There are no basal or apical fasciae on the abdominal segments. Above the propleurae is dilated into a triangular, large projection, which is bare below, above thickly covered with long white hair; it is as long as its width at the base, and becomes gradually narrowed towards the apex.

Halictus dunbrodyensis, sp. nov.

Black; the underside of the antennal flagellum and the greater part of the mandibles rufous; as are also the apical joints of the tarsi; the hair on head, thorax, abdomen and legs white; wings clear hyaline, the nervures and stigma black. Female.

Length 4-5 mm.

Metanotal area irregularly, finely obliquely striated. Clypeus strongly, but not closely punctured, the large punctures being widely separated. Centre of face finely and closely punctured. Mesonotum closely finely, but distinctly punctured, depressed in the middle; the base with a fine longitudinal furrow. Abdomen impunctate. The hair on the underside of the tarsi rufous; the calcaria pale testaceous. The rima is testaceous laterally, its centre black. The hinder parts of the transverse cubital nervures are testaceous; the 3rd transverse cubital nervure is obliquely sloped in front, the rest broadly, roundly curved. Abdominal segments not depressed.

The propleural projection is large, the apex broad, rounded and clearly separated. On the base of the abdominal segments are bands of depressed pubescence.

Notice of some new Fossil Reptiles from the Karroo Beds of South Africa.

By R. BROOM, M.D., D. Sc.

Dicynodon Jouberti, n. sp.

At many places in the Gouph, skulls of a small species of *Dicynodon* are met with in considerable numbers. The S. African Museum possesses about a dozen such skulls from the Beaufort West district, presented in 1881 by Mr. J. R. Joubert, and one or two presented by Mr. J. M. Bain, also from near Beaufort West. The same species I have also found at Rietfontein in the Prince Albert district. The form is of interest, not only on account of our being able to compare a large series of specimens (nearly 20), but owing to its being apparently the first species of *Dicynodon* to appear in South Africa. At Rietfontein it occurs with *Titano-suchus*, and may thus belong to an upper zone of the *Pariasaurus* beds.

In the whole series of skulls there is very little difference in size, the largest being 110 mm. long, and the smallest a little over 90 mm. It is highly probable, therefore, that most of the skulls are adult.

The most noteworthy features of the skull are the following: the parietal, frontal and upper nasal are practically in one plane; the interparietal portion is about equal in breadth to the interorbital; and the jugal arch is unusually deep in the region of the post-orbital bar, being at least as deep as the radius of the orbit.

The largest specimen, No. 695, may be taken as the type.

The antorbital portion of the skull is about equal in length to the antero-posterior diameter of the orbit. In the type it measures 32 mm., and in two other specimens 30 mm. The nostrils are fairly large, and the premaxillary meets the nasals at the upper border of the nostril. The nasals are of large size, and in one