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NEW MELANESIAN ANTS OF THE GENERA
SIMOPONE AND *AMBLYOPONE* (HYMENOPTERA-
FORMICIDAE) OF ZOOGEOGRAPHIC SIGNIFICANCE^{1,2}

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The two ants described below are of special zoogeographic interest. *Simopone gressitti* sp. n. (subfamily Cerapachyinae) is the second species of its genus recorded from the Indo-Australian area, and the first east of the Philippines. *Amblyopone noonadan* sp. n. (subfamily Ponerinae) is the first apparently endemic *Amblyopone* to be described from Western Melanesia.

Simopone Forel includes ten described Ethiopian and Malagasian species: *S. grandidieri* Forel, 1891 (in Grandidier, Hist. Nat. Phys. Madagascar, 20: 141, pl. 4, fig. 8, Imerina, Madagascar); *S. emeryi* Forel, 1891 (*ibid.* 247, Anosidé, Madagascar); *S. conradti* Emery, 1899 (Ann. Soc. ent. Belg., 43: 475, Cameroon; 1911, Genera Insect., 118: 16, pl. 1, fig. 7); *S. (?) mayri* (Emery), 1900 (Bull. Soc. ent. Ital., 31: 264 (*Cerapachys*); 1911, Genera Insect., 118: 16, Antongil Bay, Madagascar); *S. marleyi* Arnold, 1915 (Ann. S. Afr. Mus., 14 (1): 20, Stella Bush, South Africa); *S. grandis* Santschi, 1923 (Rev. Zool. Afr., 11 (3): 259, Kungu, Congo); *S. schoutedeni* Santschi, 1923 (*ibid.*: 260, fig. 1 a-c, Kamaiembi, Congo); *S. fulvinodis* Santschi, 1923 (*ibid.*: 262, fig. 1d, Kidaba [Kitabola], Congo); *S. wilburii* Weber, 1949 (Am. Mus. Novit., 1396: 7, figs. 6, 7, N. of Beni, Congo); *S. laevissima* Arnold, 1954 (Ann. Mus. Congo, n.s., 4^o, Zool., 1: 291, figs. 1, 1a, Zika Forest, Uganda). An eleventh species, *S. bakeri* Menozzi, 1926, was described from Singapore (Atti Soc. Nat. Mat. Modena, (6) 4: 92 (1925)). All these species are known only from the worker, except *S. mayri*, which

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² The specimens discussed here were provided by Drs. J. L. Gressitt (Bishop Museum, Honolulu) and Børge Peterson (Universitetets Zoologiske Museum, Copenhagen), whose assistance is gratefully acknowledged.

is based on a unique male and may not really belong in *Simopone*.

Simopone workers are small to medium sized slender ants (length about 5.0-8.5 mm), usually dark brown or black in color, with very weak to moderately intense sculpturation and pilosity. The head is elongate-subrectangular, prismatic behind, with a transverse occipital carina. Frontal carinae horizontal, diverging posteriorly and obscuring the antennal insertions in facial view; fused anteriorly with the median part of the clypeus, and forming with it and the frontal area a continuous planar surface, thus producing an anterior cephalic structure much as in the aberrant Indo-Australian myrmicine genus *Metapone*. Eyes very large (maximum diameter about 0.3 to 0.5 x the head width), situated at or just behind the middle of the sides of the head. Ocelli present, usually minute and closely approximated. The 11-segmented antennae have flattened stubby scapes (usually only about 3 x as long as broad) which lie at rest in well developed preocular antennal scrobes, each of which is enclosed dorsally by the frontal carina and ventrally by the characteristically cerapachyine genal carina. These carinae usually reach the eye posteriorly and may become continuous with a very fine postorbital carina, so that the eye is essentially enclosed within the scrobal area. Mandibles obtusely triangular, strongly arched ventrally; masticatory border with a number of small regular teeth. The palpal formula of a single African specimen (species evidently undescribed) in the MCZ collection is *maxillary* 6: *labial* 2, possibly 3 (inspected).

The structure of the mesosoma is generally like that of *Phyracaces mayri* Forel, with its dorsolateral borders broadly or narrowly rounded, sometimes angled but never carinate. Pronotum prismatic anteriorly, with a transverse carina between the humeri. A similar carina may separate the dorsal and declivitous faces of the propodeum and the declivitous face may be laterally margined. Sutural traces on mesosomal dorsum weak or vestigial, the mesometanotal suture sometimes lacking. The leg segments, especially the femora, are often inflated, the fore and hind tibiae each bear a single pectinate spur, and the pretarsal claws are toothed or pectinate.³ The posterior flange of the hind coxa may be produced dorsally as a more or less raised lamella

³ The characters of the tibial spurs and the pretarsal claws have been seldom mentioned in specific descriptions. All specimens which I have seen lack tibial spurs on the middle legs, and have a single median tooth on each tarsal claw.

(another character common to many cerapachyines). Petiole longer than broad, subrectangular-trapezoidal in dorsal view, the dorsolateral margins acarinate, though sometimes angled; there is usually a transverse anterior carina, and sometimes a posterior one. Postpetiole strongly constricted behind, subrectangular in dorsal view, about equal in size to the petiole or larger. Pygidium flattened at its apex, with a full or reduced complement of bristle-like marginal setae, the presence of which indubitably establishes the cerapachyine affinities of this genus (see Brown, 1954).

Little is known of the biology of *Simopone* but its general habitus strongly implies that it is arboricolous; several of the older types were collected on vegetation and one species (*S. marleyi*—see Arnold, 1915) has been taken in hollow twigs. Specimens in the MCZ collections are either labeled as having been swept from foliage, or else carry adherent moth wing scales, an almost sure sign that they were collected by sweep-net. The genus is apparently an aberrant arboricolous offshoot from *Phyracaces*-like stock. The feeding biology needs study, especially since many cerapachyines, including some *Phyracaces* species, are apparently specialized myrmecophagous feeders (Wilson, 1958).

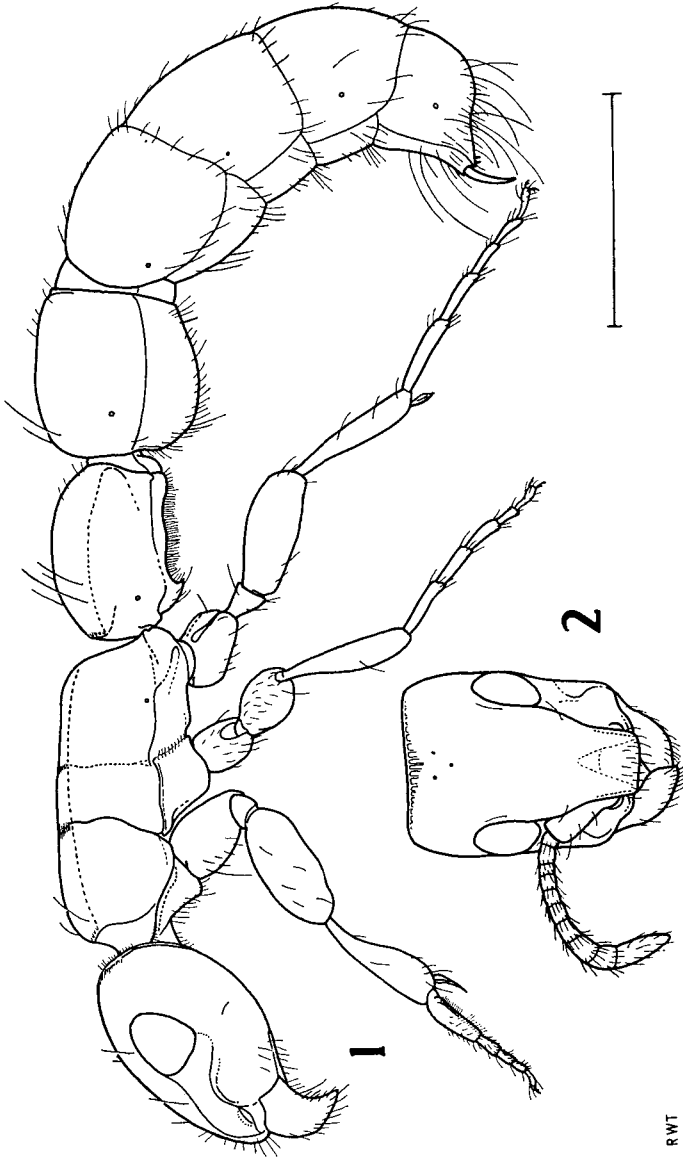
Amblyopone Erichson is an almost cosmopolitan genus now containing 50 described and apparently valid species, including 31 from the Indo-Australian area. The world fauna was extensively reviewed by Brown (1960), and one subsequently described species is known (Brown, 1962). *A. noonadan* sp. n. is a member of the Indo-Australian *luzonica* group, which includes the following species: *luzonica* (Wheeler and Chapman) 1925, Philippines (= *williamsi* (Wheeler and Chapman) 1925; synonymy by Brown, 1960); *silvestrii* (Wheeler) 1928, Japan; *amblyops* (Karawajew) 1935, Indo-China; and probably also *celata* (Mann) 1919, Solomon Islands (see Brown, 1960, for details and references). The features distinguishing *noonadan* from these species and others present in Melanesia are given below.

SIMOPONE GRESSITTI Taylor, new species



Type locality. NEW GUINEA (WEST): Hollandia-Binnen, 100 m. The unique holotype worker was collected on November 1, 1958, by Dr. J. L. Gressitt for whom this species is named.

Type deposition. Holotype deposited in the Bernice P. Bishop Museum, Honolulu, Hawaii.



RWT

FIGS. 1 AND 2: *Simopone gressitti* sp. n. Fig. 1. Lateral view, left antenna omitted. Fig. 2. Frontal view of head, left antenna omitted. Scale line 1 mm. Holotype worker.

Description. Dimensions (in mm): Total length (TL) 6.4; head length at midline (HL) 0.98; maximum head width (HW) 0.79; maximum pronotum width (PW) 0.70; Weber's length of mesosoma (WL) 1.4; petiolar node length at midline 0.72; maximum petiolar node width 0.69; postpetiolar length at midline 0.70; maximum width of postpetiole 0.75. General form as shown in Figures 1 and 2. Mandibles small, their outer borders sinuate, convex basally; angle between masticatory and posterior borders broadly rounded; dentition worn, almost effaced, probably originally like that of *S. bakeri*. Head 0.81 x as broad as long; sides almost parallel, slightly concave before eyes, slightly convex behind; occipital border feebly concave; occipital carina well developed, ribbed along its anterior edge, enclosing the occiput laterally as well as dorsally, its ventral traces extended forwards for a short distance on each side, along the sides of the postgenae. Eyes large, maximum diameter 0.30 mm (0.38 x the head width), separated by a distance of 0.46 mm (1.53 x their maximum diameter); ocelli minute. Scapes barely reaching anterior margins of eyes, flagellar proportions as in Figure 2. Anterior clypeal border feebly convex. Frontal carinae diverging posteriorly, on each side meeting the postorbital carina, which is very fine and continuous below the eye with the genal carina.

Mesosoma twice as long as broad in dorsal view, its dorsolateral borders approximately right-angled but acarinate; transverse pronotal carina well developed; angle between dorsal and declivitous propodeal faces abruptly rounded, acarinate. Sutura-tion of mesosomal walls as shown in Figure 1; promesonotal and mesometanotal sutures represented by transversely ribbed traces on mesosomal dorsum, mesometanotal suture weakest. Femora and tibiae moderately inflated (Fig. 1); posterior edge of hind coxa raised but not lamellate; pretarsal claws each with a single median tooth. Petiole trapezoidal in dorsal view, broader behind than in front, with a distinct ribbed transverse anterior carina; lateral borders strongly angled at about 60 degrees, but not carinate; profile as in Figure 1. Sides of postpetiole slightly convergent posteriorly in dorsal view. Pygidial spines reduced to a single minute pair on each side, at the extreme apex.

Mandibles smooth and shining, with a few minute piligerous punctures. Entire body strongly shining, virtually lacking scul-p-turation except for scattered minute piligerous punctures, and some effaced longitudinal rugosity along the sides of the pronotal dorsum and on the metepisternum, which is in part coarsely punctate-rugose. Pilosity reduced. A few moderately long

suberect to reclinate hairs on mandibles, clypeus and underside of head, propleurae, coxae, and undersides of petiole and gaster; hairs most abundant on the propleurae and coxae, and on the petiolar sternite where they form a peculiar brush-like series behind the subpetiolar process. Single, slightly longer erect hairs in the following positions: at the midlength of each frontal carina, above eyes, on pronotal humeri, on the anterior half of the sides of the node (2 pairs) and the anterodorsal corners of the postpetiole. Similar, but slightly less erect hairs increasingly long and abundant towards the gastric apex, which is surrounded by very long arched hairs. Pubescence virtually absent. Color very dark brown, almost black, the following areas weakly infuscated with reddish brown: mandibles and front of head, anterior parts of each gastric tergite, gastric apex and legs, especially the tibiae and tarsi; antennae medium dull reddish brown.

Diagnosis. According to Menozzi's description (Menozzi, 1926) *S. bakeri* is smaller than *gressitti*, with a narrower head and petiolar node. I have tentatively identified as *S. bakeri* a specimen in the J. W. Chapman collection (MCZ) from the Philippine Island of Negros (Horns of Negros 3,600 ft., J. W. Chapman).

This individual agrees well with Menozzi's description, and resembles *gressitti* in color and habitus, but has very different cephalic, ocular and petiolar proportions as follows: TL c. 5 mm; HL 0.91 mm; HW 0.68 mm (head 0.75 x as broad as long); PW 0.55 mm; WL 1.2 mm; petiolar node length at midline 0.68 mm; maximum petiolar node width 0.56 mm (node 0.52 x as broad as long); postpetiolar length at midline 0.64 mm; maximum width of postpetiole 0.61 mm. The maximum diameter of the eyes is 0.30 mm (0.44 x head width) and they are separated by a distance of 0.34 mm (1.14 x their maximum diameter). Apart from these proportional differences the post-cephalic structure is similar to that of *gressitti*. The pilosity is similarly distributed but less abundant, and the subpetiolar "brush" is lacking.

AMBLYOPONE NOONADAN Taylor, new species

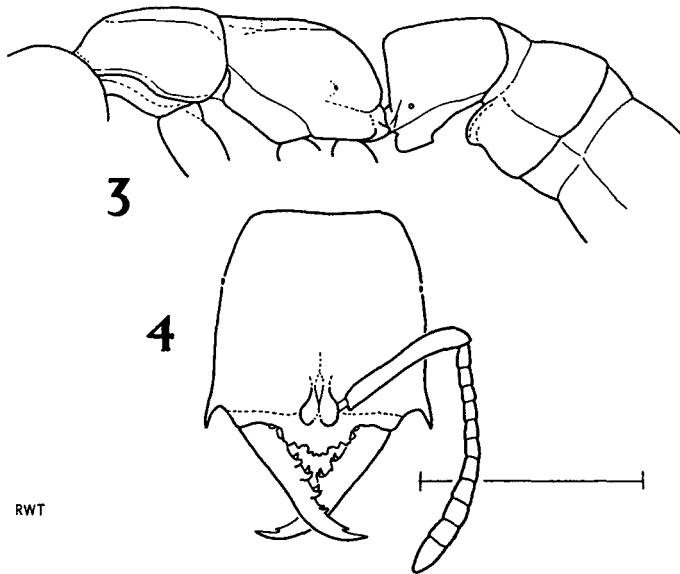
Type locality. TERRITORY OF NEW GUINEA: *New Britain*: Yalom, 1,000 m, May 19, 1962 (Danish Noona Dan Expedition). The types were collected "in or on the ground in newly cleared secondary growth," no collector specified.

Type deposition. The holotype is deposited in the Universitetets Zoologiske Museum, Copenhagen, Denmark; the paratype is in the Museum of Comparative Zoology (Type No. 31148). The species is named, in apposition, for the Danish expedition vessel *Noona Dan*.

Worker. The following description is based on the holotype and single paratype.

Dimensions (in mm, holotype cited first). TL *c.* 5.5, 6 mm; HL (including clypeal denticles) 1.04, 1.12; HW (immediately behind genal teeth) 0.96, 1.04; maximum scape length (excluding articular condyle) 0.64, 0.68; outside total length of mandible 0.85, 0.90; PW 0.58, 0.65; WL 1.38, 1.42; midline length of petiolar dorsum 0.49, 0.55; maximum petiolar node width 0.50, 0.57; postpetiolar length at midline 0.36, 0.40; maximum width of postpetiole 0.65, 0.73.

General habitus as in Figures 3 and 4. Head with occipital border feebly concave, sides feebly convex, converging posteriad;



FIGS. 3 AND 4: *Amblyopone noonadan* sp. n. Fig. 3. Lateral view of mesosoma and node. Fig. 4. Frontal view of head, right antenna omitted. Scale line 1 mm. Holotype worker.

anterior corners with strong acute genal teeth, the inner edges of which are about as long as the maximum width of the mandibular shafts. Frontal lobes approximate, separated by a deep linear groove. Clypeal apron strongly convex, with eight small denticles; the four median ones closely approximate, less deeply separated from each other than from the more lateral denticles, their apices diverging from the midline; the innermost of the two lateral denticles on each side moderately large, triangular, separated from the median quartet by a gap equal to its width at base; the outer tooth large and blunt, its apex jagged, forming two or three indistinct cusps. Mandibles slender, their external margins feebly concave, each bearing ten acute, slightly recurved teeth. The two basal teeth simple, conical, the basalmost blunt, the second acute; the eight apical teeth arranged in four more or less separated pairs, in typical "stigmatommine" fashion; the dorsalmost tooth of each pair lies slightly distal to its partner; a distinct low reclinate tooth is present on the inner edge of the strong acute mandibular apex. The mandibular apices cross when the jaws are closed, leaving a triangular gap between the mandibular and clypeal teeth. Palpal formula *maxillary* 4: *labial* 3 (paratype dissected). Scapes slender, slightly incrassate; funiculus with 11 segments proportioned as in Figure 4. Eyes small, variable in size, maximum diameter 0.02 mm in holotype, 0.06 mm in paratype, with four and nine or ten indistinct facets, respectively.

Mesosomal profile as in Figure 3. In dorsal view this tagma is widest at the pronotum and strongly narrowed at the base of the propodeum. Pronotal dorsum almost flat, with marginate lateral borders; inferior angles of pronotum broadly rounded. Promesonotal suture flexible; mesonotum transverse; mesometanotal suture vestigial, represented only by a sculptural break between the subopaque mesonotum and the moderately shining propodeum. Propodeal dorsum about as long as broad, its sides diverging posteriad; declivity feebly concave, rounding into dorsum, its lateral edges slightly raised, forming angles of a little more than 90 degrees in dorsal view.

Petiole sessile, its profile as in Figure 3; subpetiolar process afenestrate; nodal dorsum slightly wider than long in dorsal view, the anterior border with a slight median emargination, the sides converging slightly anteriorly. Postpetiole wider but shorter than node, and also shorter than the succeeding segment which is of about the same width. Gastric apex laterally compressed,

sting stout. Tibial spurs vestigial on middle legs; posterior tibiae each with a broad flat pectinate spur and a more slender simple conical one.

Mandibles and frontal lobes obscurely longitudinally striate. Clypeal apron with somewhat radial longitudinal striae; lateral parts of clypeus similarly sculptured, the striae on each side radiating back from a focal point at about the level of the inner basal edge of the mandible. These lateral clypeal striae arch back over the cheeks, where those nearest the midline are almost longitudinal, reaching back to the base of the frontal carinae; the cheek striae become increasingly divergent towards the sides of the head and the most lateral ones gather apically, at the base of the genal tooth. Remainder of head coarsely and roughly punctate-rugose; the sculptural trend faint, mainly longitudinal, but transverse across a narrow posterior strip. Scapes finely shagreened. Postgenae somewhat obscurely and irregularly longitudinally striate, the striae diverging posteriad. Lateral parts of the dorsa of the pronotum and propodeum with scattered punctures, about 0.02 mm in diameter, separated by about twice this distance on pronotum and more widely spaced on propodeum; a narrow longitudinal median strip on these sclerites lacks punctures, the surface here is shining, with a very fine superficial scale-like surface pattern which is also present on the interpunctural areas of the lateral strips, and which has a transverse trend on the posterior propodeal dorsum. Mesonotum subopaque, coarsely and irregularly shagreened.

Sides of mesosoma, except metepisternal area, subopaque, bearing somewhat effaced and polished, almost vertical fine striae, which are slightly curved (concave anteriorly) and slope posteriorly; sculptural intensity diminishing posteriad, with striae virtually absent behind the propodeal spiracle. Metepisternal area longitudinally striate. Declivity of propodeum shining, with very superficial, minutely scale-like transverse sculpturation. Petiolar dorsum subopaque, with scattered fine piligerous punctures; gastric tergites similar, the punctures finer and more abundant.

Pubescence adpressed and subadpressed, generally distributed over body except for the post-pronotal sides of the mesosoma and the sides of the petiolar node. Erect pilosity moderately abundant, especially on the dorsum of the body and towards the gastric apex, where the hairs are longest. Ground color dark

chocolate brown, with the following areas infuscated with reddish brown: clypeus, frontal lobes, anterior corners of head, including genal teeth, pronotal collar, area of mesosomal-petiolar junction, subpetiolar process, posterior edges of gastric tergites, and gastric apex. Mandibles, antennae, legs and sting rich golden brown.

Diagnosis. *A. noonadan* is readily distinguished from the only other known western Melanesian *Amblyopone*, *A. australis* Erichson, by the characters of its "stigmatommine habitus" (i.e., "double ranked" mandibular dentition and enlarged clypeal teeth, etc., — see Brown, 1960). In addition, *australis* is larger (minimum known HW on New Guinea about 1.5 mm), and has an acute tooth on each inferior pronotal angle. The third known Melanesian species, *A. celata* Mann (Solomon Islands), is much smaller (3 syntype workers in the MCZ collection have HL 0.69-0.71 mm; HW 0.60-0.63 mm) with minute genal teeth (maximally only about as large as the median clypeal denticles) and with the head evenly and rather finely shagreened.

The other *luzonica* group species have reduced genal teeth, as in *celata*, and most specimens (MCZ collection) are somewhat smaller than the *noonadan* types: 3 *silvestrii* syntypes have HL 0.87-0.92 mm; HW 0.76-0.81 mm; the *luzonica* female holotype from Los Baños (Luzon) has HL 0.82 mm, HW 0.74 mm; and six *luzonica* workers from Dumaguete (Negros) have HL 0.85-0.90 mm, HW 0.74-0.80 mm. Three *williamsi* syntype workers from Baguio (Luzon) are somewhat larger with HL 1.03-1.09 mm, HW 0.91-0.97 mm, and Karawajew (1935) gave similar measurements for his *amblyops* type — HL 1.05 mm, HW 0.98 mm. These "species" differ among themselves in the conformation of the clypeal denticles and in the sculpturation (Brown, 1960, p. 196), but they may ultimately prove to be geographical variants of a single species, especially considering the extensive variation known in other members of the genus. Notwithstanding, there can be little doubt that *noonadan* and *celata* are good "species."

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