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# THE MAMMALIAN FAUNA OF BOUGAINVILLE ISLAND, SOLOMONS GROUP.

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Although Bougainville Island is essentially a zoo-geographical part of the Solomons, annexation by Germany and subsequent transfer under mandate to Australia has rather inaptly linked it politically as well as postally with the more distant Bismarck Archipelago, so that it is sometimes regarded as being an intermediate or buffer island between those groups. Actually, more than one hundred miles of open ocean separate Bougainville from New Ireland, whereas to the south only the twenty-six odd miles of Bougainville Strait, obstructed by numerous islands, separates it from the large island of Choiseul, a distance also scarcely exceeded between any of the larger islands of the group.

Considerable faunistic interest therefore attaches to Bougainville as a base of deployment for the mammals found within the Solomons—a fact which, coupled with its size and rugged nature, accounts for the relatively rich variety of mammals secured there recently for the Australian Museum by the Reverend J. B. Poncelet, S.M., of the Catholic Mission at Buin, South Bougainville. Largest of the group, discovered by Mendana in 1567, the island is about one hundred and ten miles long and from twenty to thirty-five miles wide, with a volcano erupting at intervals from a 6,000-ft. peak of the mountain range, which extends throughout its length and attains in Mount Balbi the astonishing altitude of 10,171 feet.

Owing to the great elevation, and rugged and mainly shelving coastline, which formed a natural barrier in overcoming the ferocity of the inhabitants, Bougainville was until recently the least known of the group. It is less than fifty years since missionaries began their civilizing work at Buin, the southern point facing the remainder of the group, and then only after great difficulty in getting hold of a few sickly natives and proving their friendly intentions by kindly treatment and cures was it possible to venture forth without firearms.

At present there are inland parts where the natives have not yet made contact with whites, and in May, 1935, a newspaper reported the experience of a missionary who penetrated the mountains in search of an unknown community. Armed only with a walking stick and accompanied by nine mission boys, he eventually located the settlement, where the natives were so amazed at the colour of the first European seen that they actually rubbed his skin to make certain the colour was not painted on. Discussing his fate, the natives apparently concluded that a man of peace was not worth killing, to the relief of the priest, who said he was naturally terrified, as the natives, though not cannibals in the sense of killing to eat, have been known to kill and feast upon intruders.

Although government stations and plantations are now well established and a palm-shaded road runs along the coast, and the known natives are nearly all friendly towards strangers, in spite of submitting to civilized taxation, past difficulties and dangers evidently kept the large island a close preserve from explorer-naturalists and

collectors. Even that indefatigable naturalist and administrator the late C. M. Woodford, C.M.G., who sent the first comprehensive collection of birds and mammals from the Solomons to England in 1886-7, and remained as Resident Commissioner of the British Solomons from 1896 to 1915, apparently never visited, and certainly never collected at Bougainville, although he reported that natives of the nearby Shortland and Fauro islands spoke of a Cuscus being found there.

In view of the above, Father Poncelet's offer to collect for the Australian Museum, made during a visit in 1934, was gladly accepted and has so far resulted in the acquisition of over a hundred specimens of mammals alone, representing thirteen genera, one of which has already been described as new. Of the species, five are now described as new, while six others are recorded for the first time from Bougainville.

As far as one can ascertain, of the mammals, only three bats—*Pteropus grandis*, *Pteralopex anceps*, and *Hipposideros diadema oceanitis*—have previously been described or definitely recorded from the island. When it is noted of these that the *Pteropus* is the only species duplicated in the recent collection, the importance of Father Poncelet's contribution to science may be realized, and also the pleasure with which his name was associated with the outstanding novelty, the new genus of giant rat described in the preceding part of the *Records*, as well as with the pipistrel of the Solomons in this paper.

The remarkable thoroughness of the collector is emphasized by the fact that most of the carefully tabulated material, which also includes insects, fishes, and reptiles, was secured in densely wooded country about ten miles inland from Buin, where heat and the prevailing dampness must have added greatly to the usual difficulties of the capture and preservation of mammals.

#### ***Phalanger orientalis breviceps* Thomas.**

*Phalanger orientalis breviceps* Thomas, Cat. Mars. and Monotr. Brit. Mus., 1888, p. 204.  
San Christoval Island, Solomons Group.

Comparison of the cranial and external measurements of five females and a male from Bougainville with the dimensions given by Thomas, and those of Museum specimens from Ysabel, indicates that this form cannot retain the specific status which was subsequently accorded by its author. Originally, Thomas listed the skull of an adult female from Alu, near Shortland Island, in the north-west Solomons, and an adult female in spirit from Rubiana, near New Georgia, in the middle region, the respective dental and external dimensions of which agreed with the relatively small size of the type from San Christoval in the extreme south-east of the group. A comparison of detailed measurements shows the Bougainville series averaging slightly larger, but any implied distinction is negated by intergradation shown by the Ysabel series, apart from individual variation.

A similar intergradation appears to render *Ph. orientalis ducatoris* Thomas<sup>1</sup> from Duke of York Island of doubtful subspecific distinction, though it should probably be retained as a convenient geographical race. It is notable that Thomas regarded it as an intermediate form, which doubtless inhabited New Britain and New Ireland as well, and, lacking a male, was in doubt if such would exhibit the greatly developed supraorbital crests of that sex of *breviceps*. Two skulls of adult

<sup>1</sup> Thomas.—Ann. Mag. Nat. Hist., (9) ix, 1922, p. 680.

males from New Britain are in the collection, received from Rev. George Brown, who provided the British Museum holotype in 1878, with which their dimensions accord, while the supraorbital crests are as strongly developed as in males of *breviceps*.

The slightness of the distinction of *duicatoris* from *breviceps* is shown by the pes of a Bougainville adult male attaining 60 mm. compared with 62 mm. given for the adult female *duicatoris*, while a young female with  $pm^4$  and  $m^4$  not fully erupted has the length of molars 1-3 equalling, and the horizontal length of  $pm^4$  (3.9-4.1) including that given for the holotype *duicatoris*.

Because of the recognised colour variability of most species of Cuscus, it would seem that these two insular races are mainly differentiated from the typical one by the smaller  $pm^4$  measuring 3.9-4.1 against 5-5.1, while the presence on Bougainville and Ysabel of somewhat larger animals than those examined by Thomas from the Solomons, indicates that *breviceps* is not specifically distinct, and that *duicatoris* is barely distinguishable subspecifically from it, though its distribution in the eastern area of the Bismarck Archipelago is confirmed.

#### ***Rattus praetor medioeris* subsp. nov.**

*Diagnosis.*—A warmer coloured and somewhat larger form than the typical race from Guadalcanar, with a shorter ear, tail averaging longer, and longer palatal foramina and molars. Habitat: Bougainville Island.

*Colour.*—General of back about grizzled sayal brown (Ridgway's "Colour Standards") contrasted with the "grizzled grey" of the typical form, the browner element being due to the light tipping varying from cinnamon to cinnamon-rufous in two males, while the dark tips are not black but of a dark fuscous brown. Sides becoming paler owing to reduction of grizzling and the smoke-grey of the underfur showing through, but contrasting in a well-defined line with the pale olive-buff under-surface. There is a pinkish-cinnamon wash on the sides of the head, the outer arm is dark hair brown, which extends as a contrasted mark on the wrist; both manus and pes are sparsely covered with brownish and pale yellow hairs, and the back of the ear and the tail is blackish-brown.

*External characters.*—Pelage a fairly sparse but even admixture of coarse spines and very soft underfur, the average length of the spiny hairs about 15 mm. and the longest piles about 30 mm.; spines of under-surface about 9 mm. long. Ear shorter than in typical form, reaching about two-thirds of the distance to, instead of reaching, the posterior canthus of the eye, when pressed forward. The hindfoot is of similar size but the tail averages somewhat longer.

*Skull and dentition.*—Size of skull apparently similar, but the bullæ probably larger and the supraorbital ridges more strongly marked, the beading expanded outwards in the orbital region and continuing clearly to the outer corners of the interparietal. Palatal foramina longer than in the holotype of the typical form, their hind edges slightly overlapping the front ends of molars. Upper molar row longer, and probably broader, than in the typical form.

*Dimensions of holotype male.*—Head and body 196; tail 149; pes 38.5; ear 18.5 x 14.5 mm.

Skull: Greatest length 44.2; basal length 39.4; zygomatic breadth 23; interorbital width 6.9; nasals 16.6 x 5.4; palatal length 24; palatal foramina 8.1 x 3.2; upper molar row 7.7; width of  $m^1$  2.3; bulla 6.2 x 6.2\*.

\* Width of bulla includes meatal tubercle.

*Specimens examined.*—Holotype adult male No. M. 5761, and two paratype adult males Nos. M. 5759–60, in the Australian Museum collection, taken at Buin, Bougainville, by the Rev. J. B. Poncelet, S.M. The native names Inakia and Kamaide were applied, the latter to *Solomys* also.

*Remarks.*—When amplifying his brief diagnosis in the Proceedings of the Zoological Society for 1888, Thomas stated that there was a skin of the species in the British Museum from New Britain, collected by the Rev. G. Brown, which agreed with Woodford's Guadalcanar specimens in every respect. Apparently, however, the skull was not available, which would doubtless have confirmed the interesting extension of range, and would also probably have shown subspecific distinctions not observable in the single skin, thus indicating the intermediate character of the present form.

### **Melomys bougainville** sp. nov.

*Diagnosis.*—A medium-sized, broadfooted, reddish species, allied to *M. rufescens* Alston of Duke of York Island, but differing in having a proportionately longer tail, and smaller nasals, palatal foramina, and molar row. *Habitat*: Bougainville Island.

*Colour.*—General colour of back bright yellowish red. According to Ridgway's "Standards" the centre of the back is a russet sayal brown owing to the pencilling of the darker hair-tips; clearer on the rump where the light tips are about cinnamon-rufous. Cheeks below eye, lower sides, and limbs washed with pinkish cinnamon, which is paler towards the extremities. Edges of lips, throat, inside of limbs, and entire undersurface strongly contrasting ivory or buffy white, the hair white to the base. Manus and pes creamy white, with a dark mark extending along the outside, covering half the back of the manus, and forming a narrow line on the pes from the outside of the heel to the base of the fourth digit.

*External characters.*—Limbs stout, manus large, with thick digits and strongly arched claws, and pes very broad. Ears short and rounded, when pressed forward barely reaching two-thirds of the distance to the posterior canthus of the eye, outer upper half and entire inside naked. Pollex rudimentary, with broadly arched nail entirely covering it above. Palm with combined thenar-interdigital pad inflated and triangular with a depression in hind margin, the surface microscopically striated; second to fourth interdigital pads inflated, rounded, and smooth, the outer with a small subsidiary postero-external pad, and the rearmost or hypothenar pad large and inflated. Sole with smooth globular interdigital pads, the first with a small outer subsidiary pad. Thenar pad 6 mm. long, smooth and broad and unusually close to the side of the pes; hypothenar pad not elongate but rounded, and separated by less than 1 mm. from the fourth interdigital pad. Tail naked except for average of one microscopic hair to each scale; the short fur at the base extending 1 cm. from the vent; scales extremely small, averaging 16 to the cm., but raised and inflated as in *M. rubicola* and *limicauda*, not set in defined rings but somewhat diagonally as figured for *Pogonomys forbesi*. Tail-tip curling upwards as in *Pogonomys* but not entirely naked above as in that genus, being surrounded for the final 25 mm. with a leathery replica of the scale-pattern, which is coarser above, indicating at least semi-prehensile use.

*Palate ridges.*—Seven; two pre-molar ridges, raised and undivided, and five intermolar ones, the first and fifth not completely divided and the intermediate ones divided, the fourth being very incomplete.

*Skull and dentition.*—Compared with the holotype skull of *M. musavora* Ramsay = *rufescens* Alston, of similar length, it is distinguished by its narrower rostrum contrasted with a decidedly broader and more inflated cranial region, as emphasized by the zygomatic arches being wider posteriorly. Zygomatic plate lighter, almost transparent and narrower, its profile slanted obliquely under instead of boldly convex. Interorbital region somewhat broader, and the slight ridging expanded outwards in conformation with the wider cranium. Readily distinguished by the nasals, which are smaller and straighter sided, much less expanded anteriorly, and have markedly truncated instead of rounded tips. Palatal foramina much narrower. Molars decidedly lighter, the upper row being shorter and  $m^1$  narrower than in *rufescens*, but the general pattern quite similar, and as in *cervinipes* of the mainland.

*Dimensions of holotype male.*—In spirit, dimensions in brackets from skin of type of Ramsay's *musavora*; head and body 149 (170\*); tail 140 (97.5); pes 27.5 (28.5); ear 14.3 x 12 (15.5 x 10.2) mm.

*Skull:* Greatest length, to back of interparietal, 36.1 (36.5); basal length 31.9 (—); zygomatic breadth 20.1 (18.9); interorbital width 6.8 (6.3); nasals 12.4 x 3.6 (13 x 4.4); palatal length 18.2 (19); palatal foramina 4.8 x 2 (5 x 2.5); bulla length 4.2 (—); upper molar row 6.1 (6.6); width of  $m^1$  1.9 (2.1) mm.

*Specimens examined.*—The holotype male, No. M. 5757, from the Buin district of Bougainville, in comparison with the lectotype male and allotype female of *Mus musavora* Ramsay = *Melomys rufescens* Alston, from Duke of York Island, Nos. M. 2367–8, collected by the Rev. George Brown about 1876, in the Australian Museum collection.

*Remarks.*—This well-defined species is nearest allied to *rufescens* in colouration and the smallness of the tail scales, but is differentiated by the marked cranial characteristics and definitely longer tail. The short and less tapered tail of *rufescens* has the small scales arranged in more definite rings, and doubtless lacks the up-curved more prehensile tip of *bougainville*. Actually the general appearance, and the manus and pes, with enlarged and rounded pads and stout, mobile strongly clawed digits, suggests a much more exclusively arboreal existence than that of the mainland *Melomys*. Associated with this, the tendency of the tail towards the condition found in *Pogonomys*, with the diagonal scaling, and up-curved though not entirely smooth tip above, is suggestive of an interesting intermediate prehensile development linking *Melomys* with the simpler-toothed forms of the more arboreal *Pogonomys*.

In his description Ramsay used the vernacular name "Banana Rat" for the Duke of York Island species, stating that it fed on the plantain, also that the body was rather heavily made, the limbs short and thick, and the feet rather long and broad. These features apply generally to the Bougainville specimen except that the hindfoot is relatively smaller and broader. The diet and habits are doubtless very similar, though more definitely arboreal, and it is known to the natives as "Ituoko," and as the "yellow rat" by its collector. A second adult male recently received from Father Poncelet has external dimensions conforming almost exactly with the holotype.

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\* The head and body length is exaggerated by measurement of stuffed skin. Alston's type dimensions of head and body 127, tail 109 mm., support the conclusion that *rufescens* has a relatively smaller body and considerably shorter tail.

**Solomys salebrosus** sp. nov.

*Diagnosis*.—A robust coarse-coated and sombre yellowish brown species, with a profuse admixture of longer black hairs extending from forehead to rump. Distinguished from the nearest ally, *S. sapientis* of Ysabel Island, in addition to colour and pelage, by various cranial features, and the relatively heavier molars. Habitat: Bougainville Island.

*Colour*.—General colour of back grizzled dark yellowish brown, composed of the cinnamon-buff to sayal brown upper half of the fur, with a sprinkling of light buff tips and heavy pencilling of the longer jet black hairs. Sides becoming clearer cinnamon-buff, with the black hairs shorter and sparser, gradually merging into the paler almost pinkish-buff undersurface. Nose, lips, and backs of ears about snuff brown; head coarsely grizzled with light buffy, dark brown, and black hairs. Forearm washed with Prout's brown. Manus dark, between Prout's and mummy brown, speckled with light buffy hairs, most marked on the inner edge and fringing the digits. Pes of holotype male light, warm buff, with a Prout's brown tinge continued from the limb to form a dark line near the outer edge of the pes to the base of the second digit; pes of allotype female differing in being entirely dark, about snuff brown. Female otherwise differing but slightly, probably individually, in the various tones of the grizzling, with a slightly greater abundance of shining tips, some ochraceous tawny ones tending to form patches on the nape and shoulders. Undersurface paler, greyish buff.

*External characters*.—Texture of coat more sparse and coarse than in *S. sapientis*, the long pile especially coarser and more profuse and averaging 22 mm. in length. Palms and soles as in *sapientis*, the thenar pad very long (11 mm.) and close to the large triangular fourth interdigital pad. Tail averaging consistently, if slightly, shorter than head and body, whereas it may be equal, and up to 42 mm. longer, in *sapientis*; hair extending somewhat further onto base,  $1\frac{1}{4}$  inches in all, remainder naked and similarly scaled, the rings 9–10 to the cm. Mammae 4.

*Skull and dentition*.—General appearance of skulls of male and female types much as in topotypic female of *sapientis*, the edges of the nasalia equally sinuous, but the interorbital region relatively broader and not so evenly concave, having expanded overhanging edges posteriorly. Zygomatic plate broader owing to not being so deeply arched behind, and the anterior profile varying from straight or almost concave in the female to slightly convex in the male. Palatal emargination barely extending beyond the middle of  $m^3$  and therefore less marked than in *sapientis*. Palatal foramina shorter and definitely constricted in their anterior half, instead of evenly arched. Bullae proportionately smaller, and definitely less inflated in both sexes than in the slightly shorter topotype female skull of *sapientis*.

Pattern of molar rows quite as in the young adult female of *sapientis*, but longer and heavier, the condition being most emphasized in the lower row, which is 11–11.5 opposed to 10.1 mm. long, while  $m_2$  is 3.3 against 3 mm. in width. Hind lamina of  $m_3$  also distinctly wider.

*Dimensions of holotype male*.—In spirit: head and body 229; tail 213; pes 46; ear  $18 \times 14.5$  mm.

Skull of female allotype: greatest length 52; basilar length 43.4; zygomatic breadth 29.2; interorbital width 8.7 (9 in male); nasals  $18.3 \times 5.6$ ; palate length 27.5; palatal foramina  $6.5 \times 3$  ( $6.2 \times 2.9$  in male); upper molars 10.9; width of  $m^1$  3.2; lower molars 11; width of  $m_2$  3.3 mm.

*Specimens examined.*—Six specimens, including male holotype No. M. 5590 and female allotype M. 5589, also a male and three female paratypes in the Australian Museum, collected on Bougainville by Rev. J. B. Poncelet, S.M. Compared with a female of *S. sapientis* from Ysabel Island, presented to the Australian Museum by Mr. N. S. Heffernan, when District Officer of that Island.

*Remarks.*—Though evidently allied to the Ysabel animal, this species is clearly distinguished by the colour and coarser pelage as well as the cranial features and apparently heavier molars. It is obviously distinguished from *Melomys porculus* of Guadalcanar by the generic feature of the much larger bullæ, described as minute in *porculus*, and the much longer tail.

In reference to the Ysabel animal Mr. N. S. Heffernan, then District Officer of the Island, wrote that it was a big and large-toothed rat which must be almost entirely arboreal, as it cracks the Ngali (*Canarium*) nuts and gnaws coconuts, and is found in trees felled by the natives, by whom it is eaten.

The skull is readily distinguished from that of *S. salomonis* described by Ramsay from Ugi Island, near San Christoval, at the south-eastern end of the group, by the decidedly narrow interorbital region, the margins of which are markedly sinuous instead of straight.

#### ***Unicomys ponceleti* Troughton.**

*Unicomys ponceleti* Troughton, Rec. Austr. Mus., xix, 4, 1935, pp. 259–262, pl. xix, figs. 1–8 (animal and skull).

The holotype adult young male and two paratype skulls formed the basis of the new genus and species, described in the preceding part of the Records, which may be thus briefly diagnosed. A uniformly blackish giant rat, with a remarkably long and sparse coat which is without underfur, and the basal three inches of the tail covered with hair of about the same length, the remainder of tail naked and file-like owing to the irregular rings of raised non-overlapping scales with crinkled surfaces. Differing from the nearest geographical ally, *Cyromys*, and *Mallomys* of Papua, in the hairy instead of woolly coat, relative size of pes and skull, and cranial and dental features described.

This striking form represents the outstanding novelty of the remarkably varied collection received from the Rev. J. B. Poncelet, who stated that it was very rare in the densely wooded country ten miles inland from Buin, on the southern coast of Bougainville, where it is called "Nagara" by the natives. Doubtless the prehensile adaptations of the hindfoot and tail have evolved owing to a mainly arboreal existence in the dense foliage of its habitat, during prolonged isolation similar to that of *Cyromys*, which produced an arboreal as well as terrestrial species of that genus on Guadalcanar Island.

It was indeed a pleasure to associate the name of the collector with this unique animal in appreciation of the important and careful field-work which he voluntarily undertook on behalf of the Australian Museum.



**Pteropus grandis** Thomas.

*Pteropus grandis* Thomas, Ann. Mag. Nat. Hist. (5), xix, 1887, p. 147; *Id.*, Proc. Zool. Soc., 1887, p. 320, pl. xxv (animal), text fig. 1 (teeth). Alu, near Shortland Island.

An adult male, female, and young female of the species, not hitherto represented in the collection, are welcome additions from Bougainville, from which Island it was previously collected by A. S. Meek for the British Museum in 1908, and by the Whitney Expedition for the American Museum of Natural History in 1928-9.

*Characters.*—The specimens conform generally with Andersen's "Catalogue" review, with a tendency for the female to have a slightly darker back as remarked by Sanborn, though it is doubtful if this is not individual. It is notable, however, that the adult female's forearm length increases the listed range from 167-172 to 177 mm., while the ear dimension, estimated by Andersen at about 30 mm. from dried skins, can be given the definite range of 29.5-31.5 mm. in length and 17-19 mm. in breadth, from the above material in spirit; the foot (*c.u.*) 54-57 mm. reaches the maximum given. Cranial and dental dimensions are within the range listed, excepting that the female with the outside forearm has the upper and lower canine to hind molar tooth rows measuring slightly below the minimum listed for males, with the premolars and molars correspondingly somewhat shorter and narrower.

*Distribution.*—Northern and east central Solomons; recorded from the islands of Bougainville, Mono, Choiseul, Ysabel, and doubtless known from Shortland, as the type locality of Alu is a small island close to it, though Thomas apparently regarded it as a locality on the larger island.

**Pteralopex anceps** K. Andersen.

*Pteralopex anceps* K. Andersen, Ann. Mag. Nat. Hist. (8) iii, 1909, p. 266: Bougainville Island.

No specimens of this representative of the essentially pteropine genus have been received as yet from Father Poncelet. It was not secured by the Crane or Whitney American Expeditions, and apparently no specimens have been recorded since A. S. Meek collected the immature female holotype for the British Museum in 1904.

According to Sanborn, a specimen of the allied species, *atrata*, previously known only from Guadalcanar, was shot on Ysabel at night while feeding upon green coconuts. It was said to be the only one of the wounded fruit-bats which showed fight and tried to attack the collectors, which is certainly surprising, as it is usually necessary to show caution when approaching wounded fruit-bats on the mainland, though they may not be the actual aggressors.

**Dobsonia inermis nesea** K. Andersen.

*Dobsonia inermis* K. Andersen, Ann. Mag. Nat. Hist. (8) iv, 1909, p. 532: Ugi Island, near San Christoval.

*Dobsonia nesea* K. Andersen, Ann. Mag. Nat. Hist. (8) iv, 1909, p. 532: Alu Island, near Shortland Island.

In his arrangement of the *D. viridis* section of the genus, Andersen considered that separate species were represented in the Solomons, *inermis* being from the south-eastern, and *nesea* the west and central areas. Examination of seven males

and seven females from Bougainville, together with a series of both sexes already in the collection from Ysabel, from which islands the genus had not been recorded previously, shows that there is but a single species occurring throughout the group. Comparison of a detailed series of cranial and external dimensions indicate considerable intergradation, but it would appear that two subspecific races may be retained. Of these, the typical race *D. inermis inermis* with a somewhat shorter ear and generally lighter coloration is from San Christoval and Ugi and Ysabel Islands in the south-eastern and east central area, and *D. inermis nesea* with the ear averaging longer and the colour somewhat darker and more olivaceous, is from Alu, Shortland, Bougainville and Rubiana Islands in the northern and west central areas of the Solomons.

*Characters.*—Concerning the specific characters used by Andersen, it is notable that in his catalogue synopsis the forearm length groups the two forms, while the Australian Museum series of twenty crania from various localities shows the main diagnostic feature regarding the more or less proclivous state of the premaxillæ and canines to be quite unstable. Noting that Andersen had only females of *inermis* and males of *nesea*, it was considered possible that a consistent sexual difference was indicated, until the cranial series showed a male and female from Ugi to possess the proclivous condition stated to be typical of the males of *nesea*, while two females from Bougainville present the more vertical and less proclivous anterior profile figured for the females of *inermis*. An extensive series of dental measurements show a tendency to insular variation, but there is a confusing amount of intergradation which negatives its diagnostic importance.

*Distribution.*—Northern and west-central Solomons; type locality, Alu Island, also from nearby Shortland and Bougainville Islands, and Rubiana Island.

#### ***Nyctimene bougainville* sp. nov.**

*Diagnosis.*—Closely allied to the typical species of the *papuanus* group but distinguished by the darker undersurface in both sexes, somewhat smaller ear and shorter tail, and distinctly longer and narrower  $p_3$  and  $p_4$ . Differing from its congener of the Solomons, *N. scitulus*, by its much smaller forearm and other dimensions, as well as in colour, and length and closeness of coat. Foreman 55–59.5 mm. Habitat: Bougainville Island.

*Colour.*—Male: Back hair-brown with a warmer tinge of wood brown, and a slightly rippled effect caused by the lighter drabby and darker brown tips of the wavy hairs; fur edging membranes, on lower half of forearm, and knee, cinnamon to Prout's brown. Nape paler owing to emphasis of drab-gray tipping, and head a clearer hair brown than back, neither part being darker than the back as in *papuanus*. Undersurface, though lighter than back, not whitish and sharply contrasted in centre like *papuanus*; general colour below pale hair to drabby brown, washed with dark olive-buff on centre of chest and belly, the hairs on each side being a drabby brown to their bases.

Female: Above, paler more avellaneous brown, with edging of membrane, and fur on forearm a lighter brown. Head paler drabby brown. Undersurface clearer hair brown, washed with avellaneous, not yellowish-white in the centre, the hairs being buffy-brown to their bases. The dorsal stripe in both sexes rather short, being very poorly defined in the region of the shoulders and foreback.

*External and dental characters.*—Pelage closer and shorter and dimensions much smaller than in *N. scitulus*, the ear somewhat smaller and the tail shorter than in *papuanus*. Lower  $pm_3$  and  $pm_4$  definitely longer and narrower than the maximum given for those teeth of *papuanus*, the greater length especially marked in  $pm_3$ .

*Dimensions of holotype male.*—In spirit: Forearm 59; tibia 21; tail 22.5; pes 14.5; ear 13 x 9.5 mm.

Skull: Length, lambda to gnathion, 31.1; palation to incisive foramina 13; width of braincase at zygomata 12.8; zygomatic width 20; width outside  $m_1$ , 8.6; interorbital width 6.2; postorbital width 5.9; orbital diameter 8.6; upper teeth,  $c-m^1$ , 10.5; lower teeth,  $c-m_2$ , 11.9;  $pm_3$ , 2.7 x 1.4 mm.

*Specimens examined.*—Series of twelve including eight males and four females, the male holotype registered No. M.5787 and the allotype M.5785 in the Australian Museum collection.

*Remarks.*—The series is of interest in providing the first record of the genus from Bougainville, as well as in extending the range of the short-forearmed *papuanus* group into the Solomons, where the new form represents the second known species. The native name of Mutukenu is given by the collector, and for one specimen Numekomu.

#### **Odontonycteris lagochilus microtus** K. Andersen.

*Macroglossus lagochilus microtus* K. Andersen, Ann. Mag. Nat. Hist. (8), vii, 1911, p. 642: Guadalcanar.

Two males from Bougainville provide the first record of the genus north of Guadalcanar in the Solomons, though it is of course evident that the geographical race may be widely distributed within the group. In addition to the original specimens from Guadalcanar and Florida, two were recorded from San Christoval by Sanborn in 1931. In view of the slender nature of the characters separating the races of the Bismarck Archipelago and Solomons, the slight variation shown by the Bougainville specimens is not marked enough to indicate the presence of a north-western race in the Solomons. The native name "Mutukenu" is associated with this animal on Bougainville, as well as with *Nyctimene*, and also the name "Numekomu."

#### **Hipposideros diadema oceanitis** K. Andersen.

*Hipposideros diadema oceanitis* K. Andersen, Ann. Mag. Nat. Hist. (7) xvi, 1905, p. 497: Guadalcanar.

This subspecies, originally listed from Guadalcanar and Fauro by Andersen, is not yet represented in the Poncelet collection but was recorded from Bougainville by Sanborn in 1931, who also records it from Ysabel and Vella Lavella Islands.

#### **Hipposideros cervinus** Gould.

*Rhinolophus ? cervinus* Gould, Mamm. Austr., pt. vi, vol. iii, pl. xxxiv: Cape York and Albany Island, North Queensland.

A fine series of twenty males and sixteen females provide not only the first note of the species occurrence on Bougainville but also apparently the first record from the Solomons since Thomas originally listed the specimens collected on Fauro Island by the late C. M. Woodford in 1887.

Several specimens are in the Museum from Ysabel which were part of the splendid collections received from Mr. N. S. Heffernan when District Officer there, providing a new record for that island. As this very widely distributed small species probably occurs on most islands of the group, it is surprising that no specimens were taken in the Solomons by the recent American expeditions, though several New Hebridean and one Santa Cruz localities are listed in Sanborn's account.

Five native names are given for this species, of which four—Bogungakau, Luliganu, Malekenu, and Mimekomu—are not listed for other bats, while Numekomu is also given for one specimen of *Nyctimene* which, of course, is of strikingly different appearance.

#### ***Anthops ornatus* Thomas.**

*Anthops ornatus* Thomas, Ann. Mag. Nat. Hist., (6) i, 1888, p. 156; *Id.*, Proc. Zool. Soc., 1888, p. 477, pl. xxii, fig. 1 (noseleaf); Guadalcanar.

A female provides the first record of this remarkable and rare species from Bougainville, indicating that the range throughout the group is far more comprehensive than might have been supposed. It is apparently only the second specimen recorded as being taken since the original series was described from Guadalcanar. The intervening specimen was listed by Sanborn in 1931 as being taken at Choiseul by the Whitney Expedition in 1929. A male collected at Ysabel for the Australian Museum by Mr. N. S. Heffernan in 1924, represents a new record for the island as well as an important link in the distribution of the sole member of a genus characterized by the extraordinary arrangement of the facial membranes, rudimentary nature of the tail, and various other features involving its genetic relationship in considerable doubt.

The forearm range of the six specimens of the typical series was given as from 48–53 mm., of which the largest was a male. The forearm length of the male from Ysabel is 47 mm., while that of the female from Bougainville is 52.5 mm. The name "Kengki" is listed by the collector as being applied to this species only by the natives of Bougainville.

#### ***Pipistrellus ponceleti* sp. nov.**

*Diagnosis.*—A medium-sized chocolate brown representative of the *papuanus* group of pipistrels, with a forearm range of 32–33.8 mm., and a skull-length of 12–12.4 mm. in the adult male and female types. Distinguished from the typical form of *papuanus* by the longer tibia and foot, and from the geographically intermediate *angulatus* of the Bismarck Archipelago, which is of generally similar dimensions, by the definitely shorter and relatively broader ear, and shorter tragus. Habitat: Bougainville and other islands of the Solomons group.

*Colour.*—General colour, light to medium chocolate brown, much as in *Chalinolobus morio*, brighter in the female, the head and neck uniform with the back in both sexes. Above the male is a dusky shade of Prout's brown (Ridgway), and the generally lighter female cinnamon-brown. Below, the general colour of both sexes is not strongly contrasted, though lighter than the back, especially in the female which has the ventral fur tipped with Brussels brown, instead of the Saccardo's umber or light mummy brown of the male.

*External Characters.*—Forearm of medium range and the tibia and foot longer than in typical *papuanus*. Ear relatively short and broad, obtusely rounded at the tip and boldly convex in the inner and outer lower halves, tending to accentuate an outer emargination below the tip which is lacking in the nearest allies; the ear is definitely smaller and the tragus shorter and more arched than in *P. angulatus*. Calcaneal lobe relatively long and narrow, about  $4 \times 1$  mm.

*Skull and dentition.*—Skull of medium size and relatively slender. Teeth rather small, the maxillary row measuring 4.3 mm. Upper first premolar crowded forward internally so that its apex is almost hidden laterally by the rear cusp or talon of the canine; lower first premolar almost of the same bulk basally as, and usually at least two-thirds the height of, the 2nd lower premolar.

*Dimensions of holotype male.*—In spirit: forearm 33.5; 3rd digit, metacarpal 31.8; head and body 42; tail 35; tibia 13.5; pes 7.5 (*c.u.*); ear, from outer base 11.5, from inner base 8.6, width 8.3 mm.

Skull: greatest length 12.4; breadth of braincase 6.3; palato-sinual length 4.6; maxillary tooth-row 4.4;  $pm^4-m^2$  3mm.

*Specimens examined.*—Six specimens from Bougainville, including the holotype No. M.5798 and allotype M.5599 in the Australian Museum, collected by the Rev. J. B. Poncelet, S.M. A specimen from Ysabel collected and presented by Mr. N. S. Heffernan when District Officer there, and three from Ugi Island, adjacent to San Christoval, apparently provide the first records of pipistrels from those islands, which agree well with the typical series. A spirit specimen from New Ireland, received from the Rev. George Brown about 1876, which may be taken as topotypical of *P. angulatus* of Peters, was of assistance in indicating the differences of ear and tragus in the intermediate Bismarck Archipelago form.

*Remarks.*—First recorded as *Vesperugo abramus* Temminck from Guadalcanar by Thomas in 1888, no specimens appear to have been listed since, and apparently none were secured by the recent American expeditions within the Solomons. Since the original identification, however, the unreasonably extensive range accorded to *abramus* has been reduced by the recognition of individual species from New Guinea and adjacent islands, and there seems no doubt that the animal from the Solomons is separable as a distinct form. It is distinguished from *abramus* by the generally smaller dimensions and uniform colouring of the dorsal surface, from *papuanus papuanus* by the longer tibia and foot, from *papuanus collinus* by the smaller forearm and size, and from *angulatus* by the smaller ear and shorter tragus.

The uniformly mid-brown species was listed as the "little brown bat" by its collector, whose name is gladly associated with this most distant form of the world genus in further appreciation of his efforts which have yielded such valuable and varied material for research. The native name "Tsilamai," also applied to *Emballonura solomonis*, was listed for the species, and the word "Tereka" was also associated with one specimen.

#### **Emballonura solomonis** Thomas.

*Emballonura nigrescens solomonis* Thomas, Ann. Mag. Nat. Hist. (7) xiv, 1904, p. 200: Florida Island, Solomons.

Seven specimens, with a forearm maximum of 36 mm. in males and 38.3 in females, provide the first record of the species from Bougainville, while several specimens from Guadalcanar, received from Mr. C. E. Hart in 1924, supply the first

record for that island. It was originally recorded as *E. nigrescens* from Fauro, Shortland, Savo, and Ugi in 1887 by Thomas, who stated that it seemed to be very common in the Solomons, as both Surgeon Guppy and C. M. Woodford had obtained considerable numbers. It is listed in addition by Sanborn (1931) as *E. nigricans solomonis* from San Christoval, Bauro, Pavuvu and Vella Lavella, but in 1914 Thomas accorded the form specific rank with a range extending to the Admiralty group. Stating that, as often happens, the Solomons form is quite like that of the Bismarck Archipelago while the New Guinea ones are distinct, Thomas described *E. papuana* from Dutch New Guinea and restricted the range of *E. nigrescens* to the islands of Amboina and Buru.

The much paler coloration, which is of a dusky instead of rich Mars brown, and the long tragus distinguish *solomonis* from the other species in the group, which was described as *E. cor* from Choiseul Island by Thomas in 1915. The present specimens were listed as the "Little white bat" by Father Poncelet owing to the pale base of the sparse fur and glimpses of skin giving a whitish appearance to the small creatures. As with the preceding species, the native names of Tsilamai and Tereka were listed as being associated with *E. solomonis* on Bougainville.