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BATS FROM POLYNESIA, MELANESIA,  
AND MALAYSIA

BY

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## BATS FROM POLYNESIA, MELANESIA AND MALAYSIA

BY COLIN CAMPBELL SANBORN

The following report is based upon the collections of bats made by the Crane Pacific Expedition of Field Museum of Natural History, by the Whitney South Sea Expedition of the American Museum of Natural History, and by Dr. William Mann for the Museum of Comparative Zoology. Included also are two specimens presented by John T. Zimmer.

The combined collections contain 783 specimens, representing nineteen genera and fifty-three species and subspecies. Of these, nine genera and thirty-seven species belong to the Megachiroptera and ten genera and sixteen species to the Microchiroptera.

The greatest value of this material is, perhaps, what it has added to knowledge of distribution, for there are specimens from many islands never collected on before and new records from various other islands. Distribution, and especially seasonal distribution, is undoubtedly governed by the food supply. Of seasonal distribution very little is known. That distribution is, in some cases, probably very limited is shown by the material from the Solomon Islands where twenty-one forms were taken. The Whitney South Sea Expedition has collected bats in the Solomons in every month except May, and from seventeen islands visited secured fourteen forms, ten of which are in its collection only. The Crane Pacific Expedition visited three islands in April, securing five forms of which four are not in the other collections. Dr. Mann collected six species on three islands and three of these were taken only by him. Kulambangra was the only island visited by but one of the expeditions, and no two collectors visited any island during the same month. If there was a wider distribution of the various forms there should have been more than four species duplicated by two of the expeditions.

There is still much to be learned about the Megachiroptera besides distribution. Many species are known only from a type or from a few specimens. In some species there appears to be a wide range in color, and series of certain forms are needed to fully establish their status. A systematic survey of the Pacific islands would go far toward a better understanding of this group.

In the nine years since the publication of Mr. Knud Andersen's *Catalogue of the Chiroptera*, twenty-five new forms of fruit-bats have been described. A list of these is given at the end of this report. Two new species are described in this paper.

The Crane Pacific Expedition was in the field from January to August, 1929. Most of the 587 bats taken were collected by Frank C. Wonder, the mammalogist of the expedition. These were secured on twelve of the islands visited by the expedition between the Fiji Islands and the Philippines. Some species are represented by large series. Eighteen of the forms taken are not represented in the other collections and three are described as new.<sup>1</sup>

The Whitney South Sea Expedition has been in the field for many years but primarily in search of birds. Its collection of 211 bats is the richest in forms and is from the widest territory. I have examined specimens taken between 1923 and 1930, collected by Rollo H. Beck, F. P. Drowne, Hannibal Hamlin, and others. This collection contains nineteen forms not represented in the other collections and two have been described as new.

The collection of Dr. William Mann from the Solomon Islands is small, containing but six species. Three of these, however, are not represented in the other collections although they are from islands visited by the other expeditions. I have examined twelve specimens from this collection, which was identified by Dr. G. M. Allen.

I am indebted to the authorities of the American Museum of Natural History for the privilege of examining their material and for permission to include it in this report. My thanks are also due to H. E. Anthony, Curator of Mammals, and to the members of the department of mammals for their interest and cooperation. I wish to thank Dr. Glover M. Allen of the Museum of Comparative Zoology for the same favors in connection with Dr. Mann's collection. John T. Zimmer generously presented two specimens from New Guinea and the United States National Museum loaned one for comparison with them.

The spelling used for the names of the various islands has been taken, wherever possible, from *An Index to the Islands of the Pacific*, by William T. Brigham (Mem. B. P. Bishop Mus. Ethnol. and Nat. Hist., 1, Mem. 2, Dec. 1900).

<sup>1</sup>Besides the bats covered in this report, the Crane Pacific Expedition secured specimens of *Artibeus j. jamaicensis* and *Macrotus w. waterhousii* in Haiti, and *Myotis n. nigricans* and *Saccopteryx b. bilineata* in Panama.

## LIST OF LOCALITIES AND SPECIES

## TONGA ISLANDS

Uanukuiliahaki Island..... *Pteropus tonganus*

## SAMOAN ISLANDS

Olosenga Island..... *Pteropus tonganus*  
*Pteropus samoensis*  
 Tutuila Island..... *Pteropus samoensis*  
 Savii Island..... *Pteropus samoensis*  
 Upolu Island..... *Pteropus samoensis*  
 Manua Group..... *Pteropus tonganus*  
 Tau Island..... *Emballonura semicaudata*

## FIJI ISLANDS

Namena Island..... *Pteropus tonganus*  
 Nairai Island..... *Pteropus tonganus*  
 Yasawa Island..... *Pteropus tonganus*  
 Vana Levu Island..... *Pteropus tonganus*  
 Ovalau Island..... *Pteropus tonganus*  
 Viti Levu Island..... *Pteropus tonganus*  
*Notopteris macdonaldi*  
*Emballonura semicaudata*  
 Taviuni Island..... *Pteropus nawaiensis*

## NEW HEBRIDES ISLANDS

Aurora Island..... *Pteropus eotinus*  
 Lopevi Island..... *Pteropus eotinus*  
 Mau Island..... *Pteropus bakeri*  
 Nguna Island..... *Pteropus bakeri*  
 Malo Island..... *Miniopterus australis*  
*Hipposideros cervinus*  
 Malekula Island..... *Pteropus geddiei*  
*Pteropus eotinus*  
 Elephant Island..... *Pteropus geddiei*  
 Espiritu Santo Island..... *Pteropus geddiei*  
*Pteropus eotinus*  
*Hipposideros cervinus*  
 Efate Island..... *Pteropus geddiei*  
*Pteropus bakeri*  
*Hipposideros cervinus*  
 Pentecost Island..... *Pteropus geddiei*

## BANKS ISLANDS

Ureparapara Island..... *Pteropus banksiana*

## SANTA CRUZ ISLANDS

Vanikoro Island..... *Pteropus geddiei*  
*Pteropus tuberculatus*  
 Tapoua Island..... *Pteropus geddiei*  
 Santa Cruz Island..... *Pteropus geddiei*  
*Pteropus nitendiensis*  
*Hipposideros tricuspidatus*  
 Fenualoa Island..... *Hipposideros cervinus*

## DUFF GROUP

Masurers Island..... *Pteropus geddiei*

## MATEMA (SWALLOW) ISLANDS

Nupani Island..... *Pteropus geddiei*

## SOLOMON ISLANDS

Ronongo Island.....	<i>Pteropus solomonis</i> <i>Pteropus lavellanus</i>
Tucopia Island.....	<i>Pteropus geddiei</i>
Rennell Island.....	<i>Pteropus geddiei</i>
Mono Island.....	<i>Pteropus colonus</i> <i>Pteropus grandis</i>
Kulambangra Island.....	<i>Pteropus woodfordi</i>
Savo Island.....	<i>Emballonura n. solomonis</i>
Bauro Island.....	<i>Emballonura n. solomonis</i>
Guadalcanar Island.....	<i>Pteropus rayneri</i>
Pavuvu (Russell) Island.....	<i>Nesonycteris woodfordi</i> <i>Emballonura n. solomonis</i>
Vella Lavella Island.....	<i>Pteropus solomonis</i> <i>Pteropus lavellanus</i> <i>Emballonura n. solomonis</i> <i>Hipposideros d. oceanitis</i>
Ghizo Island.....	<i>Pteropus lavellanus</i>
Malaita Island.....	<i>Pteropus rayneri</i>
Ysabel Island.....	<i>Rousettus brachyotis</i> <i>Pteropus mahaganus</i> sp. nov. <i>Pteropus grandis</i> <i>Pteralopex atrata</i> <i>Emballonura cor</i> <i>Hipposideros d. oceanitis</i>
Choiseul Island.....	<i>Pteropus grandis</i> <i>Nyctimene scitulus</i> <i>Anthops ornatus</i>
Malapa Island.....	<i>Nyctimene scitulus</i>
Narovo Island.....	<i>Pteropus solomonis</i> <i>Pteropus rubianus</i>
San Christoval Island.....	<i>Pteropus cognatus</i> <i>Dobsonia nesea</i> <i>Macroglossus l. microtus</i> <i>Emballonura n. solomonis</i>
Ugi Island.....	<i>Pteropus cognatus</i> <i>Hipposideros tricuspidatus</i>
Bougainville Island.....	<i>Pteropus grandis</i> <i>Hipposideros d. oceanitis</i>

## LOUISIADE ARCHIPELAGO

Moratau Island.....	<i>Pteropus h. luteus</i>
Tagula Island.....	<i>Pteropus h. luteus</i>
Goodenough Island.....	<i>Nyctimene geminus</i>

## BISMARCK ARCHIPELAGO

New Britain.....	<i>Dobsonia praedatrix</i>
New Ireland.....	<i>Dobsonia praedatrix</i>

## TERRITORY OF NEW GUINEA

Marienberg, Sepik River.....	<i>Pteropus h. vulcanius</i> <i>Pteropus sepikensis</i> sp. nov. <i>Pteropus papuanus</i> <i>Pteropus epularis</i> <i>Dobsonia m. magna</i> <i>Hipposideros cervinus</i> <i>Miniopterus schreibersii magnater</i> subsp. nov.
Koragu.....	<i>Leuconoe moluccarum</i>
Nyomonga.....	<i>Pipistrellus papuanus</i> <i>Leuconoe moluccarum</i>

Nissan Island.....	<i>Leuconoe moluccarum</i> <i>Emballonura n. solomonis</i> <i>Hipposideros calcaratus</i>
BRITISH NEW GUINEA	
Wareo.....	<i>Pipistrellus papuanus</i>
Port Moresby.....	<i>Scoteinus greyii</i>
BRITISH NORTH BORNEO	
Sandakan.....	<i>Rhinolophus sedulus</i> <i>Myotis muricola</i>
PHILIPPINE ISLANDS	
Mindanao Island.....	<i>Pteropus v. lanensis</i> <i>Pteropus mearnsi</i> <i>Acerodon j. mindanensis</i> <i>Macroglossus l. lagochilus</i> <i>Kerivoula hardwicki</i>

ANNOTATED LIST<sup>1</sup>**Rousettus brachyotis** Dobson.

*Cynopterus brachyotis* Dobson, P. Z. S. Lond., p. 116, 1877.

*Rousettus brachyotis* Trouessart, Cat. Mamm., Suppl., p. 60 (pt.), 1904.

SOLOMON ISLANDS: Ysabel (M. C. Z. No. 17208-11), twelve (alc.) (four examined), 1916.

This species has been recorded from Fauro and Guadalcanar in the Solomons but this is the first instance of its occurrence on Ysabel. The forearms are 74 and 76 mm. in two males and 68.2 in a female. P<sup>1</sup> is present on both sides in all the skulls. Andersen found that the formula for the palatal ridges in the one specimen examined was 3+4+1 but added that "some slight individual variation may occur." In the larger male the fourth ridge is divided in the median line making the formula the same. In the other male and in the female the formula is 4+3+1. Andersen found the same variation in *R. leachi*.

**Pteropus hypomelanus luteus** K. Andersen.

*Pteropus hypomelanus luteus* K. Andersen, Ann. and Mag. Nat. Hist., (8), 2, p. 362, 1908.

LOUISIAD ARCHIPELAGO: Moratau Island (A. M. No. 79804), male, Nov. 14, 1928; Tagula Island (A. M. No. 79833-34), male, female (skins only), Feb. 15, 19, 1929.

This species has not hitherto been reported from these islands, but is known from Conflict Island, Woodlark Island, and New Guinea.

<sup>1</sup>Reference is to skin with skull unless otherwise stated. A. M.=American Museum of Natural History, F. M.=Field Museum of Natural History, M. C. Z.=Museum of Comparative Zoology.

**Pteropus hypomelanus vulcanius** Thomas.

*Pteropus hypomelanus vulcanius* Thomas, Ann. and Mag. Nat. Hist., (8), 15, p. 388, 1915.

TERRITORY OF NEW GUINEA: Marienberg, forty miles up the Sepik River (F. M. No. 31858), juv. male, May 17, 1929.

This specimen was compared with the types of *Pt. h. luteus* and *Pt. h. vulcanius* by Dr. W. H. Osgood, who found that it differed in many respects from both of them. It is, however, very immature.

While this specimen does not have the buffy or dull whitish wash on the chest and belly, nor the intermixture of the light buffy or whitish hairs on the back, as in *vulcanius*, this is no doubt due to its immaturity. Its main difference is in its black throat, which in *vulcanius* is dull buffy. Dr. Osgood also found that the teeth appeared to be wider in proportion to their length than the teeth of either *luteus* or *vulcanius*.

With but one immature specimen, however, these two differences hardly warrant the naming of another subspecies in a group already so full, and especially as Vulcan Island is only about fifty miles in an air line from Marienberg.

**Pteropus mearnsi** Hollister.

*Pteropus mearnsi* Hollister, Proc. Biol. Soc. Wash., 26, p. 112, 1913.

PHILIPPINE ISLANDS: Zamboanga, Mindanao (F. M. No. 33708-9), two males (one alc.), July 20, 23, 1929.

The skin, while mainly agreeing with the description of the type, is smaller and lacks the golden ochraceous in the center of the belly.

**Pteropus solomonis** Thomas.

*Pteropus solomonis* Thomas, Nov. Zool., 11, p. 597, 1904.

SOLOMON ISLANDS: Ronongo Island (A. M. No. 79853), female, Oct. 22, 1927; Vella Lavella Island (A. M. No. 79950), male, Nov. 11, 1927; Narovo Island (A. M. No. 79855), female, Oct. 26, 1927.

This species was formerly known from the type specimen only, which was collected on Ghizo Island in November. The forearm of the type measured 110 mm. and the forearms of this series measure 107, 108 and 109.6.

**Pteropus colonus** K. Andersen.

*Pteropus colonus* K. Andersen, Ann. and Mag. Nat. Hist., (8), 2, p. 363, 1908.

SOLOMON ISLANDS: Mono Island (A. M. No. 79851-52, 79856-59, 79866-67), six males, two females, Dec. 7, 1927.

*Pt. colonus* has been known previously from Shortland and Alu Islands from two specimens. The present series of *colonus* and

*solomonis* agree closely with the original descriptions in color and measurements and vary in but one respect. Andersen gives the length of  $m^1$  in *colonus* 4.4–4.5 mm. and 5.2 in *solomonis*; this tooth in this series of *colonus* measures 3.8 (very worn)–4.5 and in *solomonis* 4.3, 4.5, and 4.8.

### ***Pteropus tonganus* Quoy and Gaimard.**

*Pteropus tonganus* Quoy and Gaimard, Voy. Astrolabe, Zool., 1, p. 74, 1830.

TONGA ISLANDS: Uanukulichaki Island (A. M. No. 73617), male (A. M. No. 77948–49), two females (alc.), Aug. 5, 1924.

SAMOAN ISLANDS: (A. M. No. 68738), male (alc., skull removed), Jan. 1924; Olosenga Island (A. M. No. 68736–37, 68739), two males, one female (alc.), Jan. 24, 1924; Manua Group (A. M. No. 68749), male (alc.), 1924.

FIJI ISLANDS: (A. M. No. 69212–16), one male, four females (alc.), Sept. 24, 1924; Namena Island (A. M. No. 69562), male (skin only), Feb. 2, 1925; Nairai Island (A. M. No. 69563–64), two males, Feb. 16, 1925; Yasawa Island (A. M. No. 69565), female (A. M. No. 69571–73), three females (alc.), Jan. 5, 1925; Vana Levu Island (A. M. No. 73619), skull only, Feb. 3, 1925; Viti Levu Island (F. M. No. 31538–45), two males, six females, March 16, 1929; Ovalau Island (F. M. No. 31546–50), two males, three females, March 19, 1929.

This species and the following probably have the widest distribution of any of the forms of *Pteropus* and, from specimens in collections, are apparently rather abundant.

### ***Pteropus geddiei* MacGillivray.**

*Pteropus geddiei* MacGillivray, Zool., 18, p. 7134, 1860. Type locality Aneiteum Island, New Hebrides.

NEW HEBRIDES: Malekula Island (A. M. No. 79897), juv. (alc.), Oct. 8, 1926; (F. M. No. 31551–52), two females, March 28, 1929; Elephant Island (F. M. No. 31554), male, April 4, 1929; Espiritu Santo Island (F. M. No. 31553, 31555–57), two males, two females (F. M. No. 33700), female (alc.), April 3, 5, 1929, (A. M. No. 75189), male, Dec. 8, 1926; Efate Island (A. M. No. 79951), female, June 28, 1926; Penticost Island (A. M. No. 79990), head only (alc.), Jan. 1, 1927.

SANTA CRUZ ISLANDS: Vanikoro Island (A. M. No. 79958–60), male, female, Sept. 25, 1926; Tapoua Island (A. M. No. 79952), male (skin only) (A. M. No. 79961), male, Sept. 29, 1926, (A. M. No. 79983–85, 79987, 79989), one male, one female, three juv. (alc.), Aug. 28, 1926; Santa Cruz Island (A. M. No. 75191–94), two males, two females (75193 skin only), Feb. 23, 24, 1927.

MATEMA (SWALLOW) ISLANDS: (A. M. No. 79988), juv. (alc.), Oct. 11, 1926; Nupani Island (A. M. No. 79956–57), male, female, Oct. 15, 1926.

DUFF GROUP: Masurers Island (A. M. No. 75196, 79963), two males, Oct. 5, 1926.

SOLOMON ISLANDS: Tucopia Island (A. M. No. 79195), female, Feb. 12, 1927;  
Rennell Island (A. M. No. 79802), male, Aug. 29, 1928.

SOUTH SEA ISLANDS (A. M. No. 73618, 79964), two skulls only.

This series greatly increases the range of *Pt. geddiei* as known by Andersen, and shows *geddiei* to be a wide ranging form of fairly uniform color with a forearm of from 150 to 170 mm. When I first examined this large series I came to the conclusion that *Pt. geddiei* MacGillivray should be a synonym of *Pt. vanikorensis* Quoy and Gaimard. After a conversation with Mr. Ellis Le G. Troughton of the Australian Museum, who has not only made a thorough survey of Vanikoro Island but who has lately examined the type of *vanikorensis* in Paris, I agree with him that *vanikorensis* is really a synonym of *Pt. tonganus* Quoy and Gaimard. The reasons for this conclusion will be given by Mr. Troughton in a future paper.

***Pteropus sepikensis* sp. nov.**

*Type* from Marienberg, forty miles up the Sepik River, Territory of New Guinea. No. 31855 Field Museum of Natural History. Adult male. Collected May 22, 1929, by Frank C. Wonder. Orig. No. 303.

*Diagnosis*.—A member of the *melanopogon* group and about the size of *Pt. melanopogon* but much darker throughout. Size very large, forearm 204 mm.

*Color*.—Top and sides of head, from in front of eyes to in front of ears, belly, flanks, lower breast, and chin covered by very dark brown hairs, some of which have light, almost straw-colored tips, most prominent in center of belly, lower breast, rump, anal region, and sides of head. There are a few silver hairs throughout the dark brown parts. The bases of all the hairs from a line in front of the ears and down the top of the neck to the back, are close to Cream Color. The tips of the hairs of the mantle and the whole length of the crinkly hairs on the sides of the neck are close to Ochraceous Orange. Some of the crinkly hairs are scattered across the throat and mingle with the light-tipped hairs of the lower breast. Back and tibia naked. The under side of the membrane along lower forearm covered with dark brown hairs.

*Skull*.—Long and narrow with a well-developed sagittal crest extending the full length of the braincase. Coronoid heavy and sharply ascending. Teeth long and narrow.

*Measurements*.—Forearm 204; pollex, total length c. u. 76; pollex metacarpal 18.5, first phalanx 44; second digit, metacarpal 111,



first phalanx 22, second and third phalanges c. u. 22; third digit, metacarpal 132, first phalanx 101, second phalanx 153; fourth digit, metacarpal 130, first phalanx 85, second phalanx 83; fifth digit, metacarpal 139, first phalanx 64, second phalanx 58. Ear 24, flat 16; lower leg 93; foot c. u. 61; calcar 29. All measurements from dried skin. Skull: Total length to gnathion 90.9; palation to incisive foramina 45.5; front of orbit to tip of nasals 32; width of brain case at zygomata 29; zygomatic width 49; width across  $m^1$  externally 23.2; lachrymal width 19; width across canines externally 17.9; postorbital constriction 12.2; width of mesopterygoid fossa 9; width between  $p^4$ - $p^4$  internally 14.8; orbital diameter 17.1; mandible length 73; coronoid height 35.8; upper teeth c- $m^2$  35; lower teeth c- $m$ , 40.7.

*Remarks.*—The type, and only known specimen, is very old. The teeth are worn smooth and there are no characters left in them. They are, undoubtedly, very much as in true *melanopogon* which, from Andersen's measurements, is nearly the same size as *sepikensis*. Its very different color will readily distinguish *sepikensis* from the other members of the group which are found in the Amboina group, Bunda Islands, Timor Laut, Key, and Aru Islands, all west of New Guinea, and one species on Johanna Island, Comoros, between Madagascar and the mainland. The type was brought in by a native and other specimens were seen later but were flying so high that they were out of the range of a twelve gauge shotgun. In the skull of the type the zygomatic arch shows that it had been broken in three places but had healed and grown together again.

### ***Pteropus cognatus* K. Andersen.**

*Pteropus cognatus* K. Andersen, Ann. and Mag. Nat. Hist., (8), 2, p. 365, 1908.

SOLOMON ISLANDS: San Christoval Island (A. M. No. 79749), male, Dec. 18, 1929; Ugi Island (M. C. Z. No. 17214), one (alc., skull removed), 1916.

Formerly known from San Christoval Island only.

### ***Pteropus rayneri* Gray.**

*Pteropus rayneri* Gray, Cat. Monk., etc., p. 108, 1870.

SOLOMON ISLANDS: Guadalcanar Island (A. M. No. 79854, 79868), two females, July 22, 25, 1927; Malaita Island (A. M. No. 92149), male, Feb. 6, 1930.

One specimen from Guadalcanar is a juvenal with a forearm of 120 mm. The other is adult but has a very dark, small rump patch for this species. Formerly known from Guadalcanar only.

### ***Pteropus rubianus* K. Andersen.**

*Pteropus rubianus* K. Andersen, Ann. and Mag. Nat. Hist., (8), 2, p. 366, 1908.

SOLOMON ISLANDS: Narovo Island (A. M. No. 79942), female, Oct. 27, 1927.  
F. A. 166.1 mm.

This specimen is here referred to *Pt. rubianus* on account of its long forearm. It seems intermediate in color between *rubianus* and *lavellanus*. *Pt. rubianus* was described from an alcoholic specimen and the type is still the only one known.

***Pteropus lavellanus* K. Andersen.**

*Pteropus lavellanus* K. Andersen, Ann. and Mag. Nat. Hist., (8), 2, p. 366, 1908.

SOLOMON ISLANDS: Vella Lavella Island (A. M. No. 79948), male, Nov. 14, 1927; Ghizo Island (A. M. No. 79944), male (skin only), Oct. 7, 1927; Ronongo Island (A. M. No. 79943), male, Oct. 21, 1927.

The forearms of these specimens measure 158.8, 153.3, and 151 mm. respectively. It is the first time this species has been recorded from Ghizo and Ronongo Islands.

***Pteropus grandis* Thomas.**

*Pteropus grandis* Thomas, Ann. and Mag. Nat. Hist., (5), 19, p. 147, 1887.

SOLOMON ISLANDS: Bougainville Island (A. M. No. 79801, 79808), two females (skins only), Jan. 5, 1928, (A. M. No. 79900), female, July 27, 1929, (A. M. No. 79900A), male, Aug. 19, 1929; Mono Island (A. M. No. 79945-46), two females, Dec. 7, 1927; Choiseul Island (A. M. No. 79949), female, Nov. 23, 1927, (A. M. No. 99910), female, Oct. 4, 1929, (A. M. No. 99911), female, Sept. 21, 1929, (A. M. No. 99912, 99918), two females (skins only), Oct. 20, 22, 1929; Ysabel Island (A. M. No. 79875), female (skin only), Aug. 19, 1927, (A. M. No. 79941, 79947), male, female, Sept. 7, 1927, (F. M. No. 31562), male, April 17, 1929.

This species was formerly known from Alu and Bougainville Islands. This series shows a fairly constant color pattern throughout but the males have a slightly lighter back than the females. As Andersen suspected, the females do not have a glandular neck tuft, nor does a young male in the series. The specimen from Choiseul Island has an extra tooth in the lower jaw behind molar three.

The distribution of the *rayneri* group in the Solomon Islands as it is now known is:

*Pteropus cognatus*, San Christoval 4, Ugi 1.

*Pteropus rayneri*, Guadalcanar 8, Malaita 1.

*Pteropus rubianus*, Rubiana 1, Narovo 1.

*Pteropus lavellanus*, Vella Lavella 4, Ghizo 1, Ronongo 1.

*Pteropus grandis*, Alu 2, Bougainville 5, Mono 2, Choiseul 1, Ysabel 4.

***Pteropus nawaiensis* Gray.**

*Pteropus nawaiensis* Gray, Cat. Monk., etc., p. 107, 1870.

FIJI ISLANDS: (A. M. No. 69569-70), one female, one juv. (alc.), Oct. 28, 1924; Taviuni Island (A. M. No. 69566), male (A. M. No. 69566 bis, 69568), male, female (alc.), Dec. 16, 1924.

Recorded from Vana Levu, Viti Levu, Ovalau, and Nauai Islands but there seems to be no other record from Taviuni Island.

***Pteropus samoensis* Peale.**

*Pteropus samoensis* Peale, U. S. Expl. Exp., 8, p. 20, 1848.

SAMOAN ISLANDS: (A. M. No. 68732-35, 69263), two males, three females (alc.), 1924; Tutuila Island (A. M. No. 68726), male (skull only) (A. M. No. 68727-30), three males, one female (alc.), Feb. 1924; Olosenga Island (A. M. No. 68731), female (alc.), Jan. 24, 1924; Savaii Island (A. M. No. 69262), female (alc.), May 17, 1924; Upolu Island (A. M. No. 68722), female (skin with skull inside), April 25, 1924.

This is the first time *samoensis* has been recorded from Olosenga Island. It is found also on Nanua Island.

***Pteropus eotinus* K. Andersen.**

*Pteropus eotinus* K. Andersen, Ann. and Mag. Nat. Hist., (8), 11, p. 469, 1913.

NEW HEBRIDES: Aurora Island (A. M. No. 79967), male, June 24, 1927; Lopevi Island (A. M. No. 79962), female, Aug. 10, 1926; Malekula Island (A. M. No. 73616), one, Aug. 17, 1926, (F. M. No. 31558-59), two males, March 28, 1929; Espiritu Santo Island (F. M. No. 31560), male, April 3, 1929, (A. M. No. 75188), female (skull only), Dec. 4, 1926.

***Pteropus bakeri* Thomas.**

*Pteropus bakeri* Thomas, Ann. and Mag. Nat. Hist., (9), 16, p. 240, 1925.

NEW HEBRIDES: Efate Island (A. M. No. 79966), male (alc.), June 28, 1926; Mau Island (A. M. No. 79965), male (alc.), July 12, 1926; Nguna Island (A. M. No. 79954), male, July 3, 1926.

There are three species of the *samoensis* group found in the New Hebrides: *Pteropus anetianus* Gray, from Aneiteum Island, of which there are no specimens in America; *Pteropus bakeri* Thomas, described from two specimens from Efate or Sandwich Island; and *Pteropus eotinus* Andersen, described from alcoholic specimens from Maewo or Aurora Island. *Pt. bakeri* was compared by Thomas with *anetianus* and unfortunately not with *eotinus*. Baker (Ann. and Mag. Nat. Hist., 1928, (10), 2, p. 295) quotes Thomas as saying: "My *Pt. eotinus*, from Espiritu Santo, may be subspecifically different from the type specimen from Maewo; but

there are not sufficient specimens from Maewo to determine the point."

The collections under consideration contain one topotype of *eotinus* which is immature and agrees rather closely with the description of the paratype; also the skulls have been mixed and the skull may not belong to this specimen. There are also one topotype of *bakeri* in alcohol and two other specimens, one in alcohol and one skin with skull, from islands close enough to the type locality to be considered typical *bakeri*.

There are six specimens from Espiritu Santo, Malekula, and Lopevi Islands, which, while they show marked color differences from the description given for *eotinus*, also show a wide range of color in themselves. The skulls, however, do not show any marked differences which could not be attributed to age. In view of the limited material for comparison of the three species already described, it seems better to refer these last six specimens to *eotinus* until better material can be secured, rather than add another species of this group to the New Hebrides.

#### ***Pteropus banksiana* Sanborn.**

*Pteropus banksiana* Sanborn, Am. Mus. Nov., No. 435, p. 1, 1930.

BANKS ISLANDS: Ureparpara or Bligh Island (A. M. No. 79986), male, Nov. 16, 1916. Skin in alcohol, skull removed.

*Pt. banksiana* is the most northern representative of the *samoensis* group and is also its smallest member. It is about the size of *anetianus* but has a shorter forearm, 117.5 mm., and is of an almost uniform shade of brown. The type is the only specimen known.

#### ***Pteropus tuberculatus* Peters.**

*Pteropus tuberculatus* Peters, M. B. Akad. Berlin, p. 393, 1869.

SANTA CRUZ ISLANDS: Vanikoro Island (A. M. No. 79955, 79959), male, female, Sept. 24, 1926, (A. M. No. 79896), female (alc.), Sept. 21, 1926, (A. M. No. 79898), juv. (alc.), Aug. 25, 1926.

These are the only specimens of this species in the United States. Besides the few specimens in Paris, there are eight in the Australian Museum collected by Troughton in 1926 (Rec. Aus. Mus., 1927, 15, p. 355). So far the species is known only from Vanikoro Island.

#### ***Pteropus nitendiensis* Sanborn.**

*Pteropus nitendiensis* Sanborn, Am. Mus. Nov., No. 435, p. 2, 1930.

SANTA CRUZ ISLANDS: Santa Cruz Island (A. M. No. 75186, type, 75187), two males, Feb. 24, 1924.

*Pt. nitendiensis* is a member of the *pselaphon* group and closely related to *tuberculatus* of Vanikoro Island. It has a different color pattern, slightly narrower teeth, and lacks the cusp-like projection on the upper canines.

***Pteropus vampyrus lanensis* Mearns.**

*Pteropus lanensis* Mearns, Proc. U. S. Nat. Mus., 28, p. 432, 1905.

*Pteropus vampyrus lanensis* Andersen, Cat. Chirop., p. 359, 1912.

PHILIPPINE ISLANDS: San Ramon, Mindanao (F. M. No. 33701), male, July 30, 1929.

This is a melanistic specimen with the mantle so mixed with black that the brown scarcely shows.

***Pteropus papuanus* Peters and Doria.**

*Pteropus melanopogon* var. *papuanus* Peters and Doria, Ann. Mus. Civ. Genoa, 16, p. 690, 1881.

TERRITORY OF NEW GUINEA: Marienberg, forty miles up the Sepik River (F. M. No. 31857), male, May 18, 1929.

This specimen is immature, with a forearm of 176.3 mm. The skull compares favorably with a drawing of *Pt. coronatus* = *Pt. neo-hibernicus* (Thomas, P. Z. S. Lond., 1888, pl. 21, figs. 2, 3, opposite p. 470).

***Pteropus epularis* Ramsay.**

*Pteropus (Epomops?) epularis* Ramsay, Proc. Linn. Soc. N. S. Wales, 2, p. 8, 1878.

TERRITORY OF NEW GUINEA: Marienberg, forty miles up the Sepik River (F. M. No. 31856), male, May 17, 1929.

This specimen agrees with the description given by Andersen. There is an extra tooth on each side of the skull behind molar two. The species was formerly known from Katow, Yule Island, and the Territory of Papua.

***Pteropus woodfordi* Thomas.**

*Pteropus woodfordi* Thomas, Ann. and Mag. Nat. Hist., (6), 1, p. 156, 1888.

SOLOMON ISLANDS: Kulambangra Island (F. M. No. 31568-70), three males, April 21, 1929.

When taken, these bats were feeding on young green coconuts and were shot by shining the eyes at night. Formerly *woodfordi* was known only from New Georgia and Guadalcanar Islands.

***Pteropus mahaganus* sp. nov.**

*Type* from Tunnibuli, Ysabel or Mahaga Island, East Central Solomon Islands. No. 31563 Field Museum of Natural History.

Adult male. Collected April 17, 1929, by Frank C. Wonder. Orig. No. 247.

*Diagnosis.*—Similar to and about the size of *Pt. scapulatus* from Australia, but lighter in color. Skull with wider palate posteriorly and much larger  $m^2$  and  $m_3$ . Front of orbit above anterior half of  $m^1$ . Forearm 131.8 mm. to 143.6.

*Color.*—Type: Back close to Tawny Olive of Ridgway, interspersed with dark brown hairs; mantle and foreneck Light Buff darkened by grayish bases of hairs; a narrow strip of Warm Buff on foreneck; well-developed neck tufts between Tawny and Russet; sides of face and chin sparsely covered with long dark brown hairs; throat Antimony Yellow; breast and belly Warm Buff.

In the four other specimens, three males and one female, the back and rump is Prouts Brown, heavily intermixed with silver gray hairs, less so in the female. The mantle and upper parts are all darker throughout than in the type.

*Skull.*—Type: Brain case deflected; rostrum normal, ascending rami of premaxillae heavy, sagittal crest low, coronoid weak, low and sloping, condyle of mandible on level of alveolar line. Palate wide anteriorly, its edge being nearly parallel. Teeth very weak and narrow, being but slightly larger than in *scapulatus*, with the exception of  $m^2$  and  $m_3$ , which are much larger. *Pt. woodfordi*, although much smaller, also has these teeth larger than in *scapulatus* but smaller than in *mahaganus*. Upper incisors separated from each other by a space equal to  $i^1$ ; lower middle incisors separated by a wide space;  $i^2$  slightly larger than  $i^1$ . Upper canines long with many grooves, an especially deep one on the anterior face reaching almost to tip, and a narrow internal basal ledge; lower canines with a very narrow internal basal ledge.  $P^1$  about the size of  $i^2$ ;  $p_1$  about the size of  $m_2$ ;  $m^2$  about twice the size of  $m_3$ . One skull has an extra tooth, a mere spicule, on the right hand side behind  $m^2$ .

*Measurements.*—Skin of type (minimum and maximum of five specimens given in parentheses): Head and body 223 (201–223); foot 46 (43–48); forearm 143.6 (131.8–143.6); ear 23 (23–25). Skull: Total length 59.9 (54.6–59.9); condylo basal length 58.7 (52.6–58.7); palation to incisive foramina 28.3 (25–28.3); front of orbit to tip of nasals 20.4 (18–20.4); width of brain case at zygomata 22.5 (21.7–22.5); zygomatic width 35.4 (29–35.4); width across  $m^1$  externally 14.9 (13.7–15); width across canines externally 13.5 (11.5–13.5); postorbital constriction 8.2 (8.2–11); interorbital constriction 9

(7.2–9); orbital diameter 12.6 (11.9–12.6); mandible length 43.9 (40.9–43.9); coronoid height 20.5 (16.2–20.5);  $c-m^2$  19.5 (17.9–19.5);  $c-m_3$ , 22.6 (19–22.6); upper incisors, combined width 6.5 (4.6–6.5). Length  $m^2$  2 (1.7–2), width  $m^2$  1.7 (1.3–1.7); length  $m_3$  1.4 (1.2–1.4), width  $m_3$  1.2 (1.1–1.2).

*Remarks.*—*Pteropus mahaganus* is the third member of the *scapulatus* group, the other two being *scapulatus* from Australia and *woodfordi* from Kulambangra, New Georgia, and Guadalcanar Islands in the Solomons. It is distinguished by its very narrow cheek-teeth, wide palate, moderately long, rounded ears, and light-colored mantle. It has the largest  $m^2$  and  $m_3$  of the three members of the group.

The type and four others collected with it have been examined. The type is the only adult specimen with a sagittal crest, the others being younger. They were shot at night feeding on young green coconuts. A poor skin without skull or sex (A. M. No. 79822), collected Jan. 9, 1928, on Bougainville Island, which has a forearm of 137.6 mm., is provisionally referred to *mahaganus*.

#### ***Acerodon jubatus mindanensis* K. Andersen.**

*Acerodon jubatus mindanensis* K. Andersen, Ann. & Mag. Nat. Hist., (8), 3, pp. 24, 26–29, 1909.

PHILIPPINE ISLANDS: San Ramon, Mindanao (F. M. No. 33702–7), five males, one female, July 30, 1929.

#### ***Pteralopex atrata* Thomas.**

*Pteralopex atrata* Thomas, Ann. and Mag. Nat. Hist., (6), 1, p. 155, 1888.

SOLOMON ISLANDS: Ysabel Island (F. M. No. 31561), male, April 17, 1929.

This is another specimen which was shot at night while feeding on green coconuts. It was the only one of the wounded fruit-bats which showed fight and tried to attack the collectors. Heretofore it has been known from Guadalcanar only.

#### ***Dobsonia moluccensis magna* Thomas.**

*Dobsonia magna* Thomas, Ann. and Mag. Nat. Hist., (7), 16, p. 423, 1905.

*Dobsonia m (oluccensis) magna* K. Andersen, Cat. Chiro., 1, p. 825, 1912.

TERRITORY OF NEW GUINEA: Marienberg, forty miles up the Sepik River (F. M. No. 31850–54), four males, one female, May 17, 1929.

#### ***Dobsonia praedatrix* K. Andersen.**

*Dobsonia praedatrix* K. Andersen, Ann. and Mag. Nat. Hist., (8), 4, p. 532, 1909.

BISMARCK ARCHIPELAGO: New Britain (A. M. No. 79824-25), two males (79825 skin only), March 21, 1928; New Ireland (A. M. No. 79860), juv., Jan. 12, 1928.

**Dobsonia nesea** K. Andersen.

*Dobsonia nesea* K. Andersen, Ann. and Mag. Nat. Hist., (8), 4, pp. 532-533, 1909.

SOLOMON ISLANDS: Wainoni Bay, San Christoval (M. C. Z. No. 17213), one (alc.), 1916.

**Nyctimene scitulus** K. Andersen.

*Nyctimene scitulus* K. Andersen, Ann. and Mag. Nat. Hist., (8), 6, p. 623, 1910.

SOLOMON ISLANDS: Malapa Island (A. M. No. 75197), male, April 21, 1927; Choiseul Island (A. M. No. 99914-15), male, female (alc.), Nov. 4, 1929, (A. M. No. 99916-17), juv. male, female (skins only), Sept. 21, 25, 1929.

Also known from Shortland, New Georgia, Florida, and Guadalcanar Islands in the Solomons.

**Nyctimene geminus** K. Andersen.

*Nyctimene geminus* K. Andersen, Ann. and Mag. Nat. Hist., (8), 6, p. 623, 1910.

LOUISIADE ARCHIPELAGO: Goodenough Island (A. M. No. 79805), male, Nov. 22, 1928, (A. M. No. 79830), one (alc.), Nov. 18, 1924.

**Macroglossus lagochilus lagochilus** Matschie.

*Macroglossus lagochilus* Matschie, Megachir., p. 96, 1899.

PHILIPPINE ISLANDS: San Ramon, Mindanao (F. M. No. 33027), male, July 31, 1929.

The mandible of this specimen shows another abnormality for the genus as there is but one incisor on each side and  $m_3$  on the left side is but half the size of the right molar. The forearm measures 38.6 mm.

**Macroglossus lagochilus microtus** K. Andersen.

*Macroglossus australis* (pt., nec Peters), Thomas, P. Z. S. Lond., p. 476, 1888.

*Carponycteris nana* (pt., nec Matschie), Trouessart, Cat. Mamm., Suppl., p. 65, n. 560, 1904.

*Macroglossus lagochilus microtus* K. Andersen, Ann. and Mag. Nat. Hist., (8), 7, p. 642, 1911.

SOLOMON ISLANDS: San Christoval Island (A. M. No. 99944-45), two females (alc.), Nov. 1929.

This species is known from two specimens from Guadalcanar, the type locality, and from one other taken on Florida. These two



from San Christoval appear to be the first recorded since the description by Andersen in 1911.

### ***Nesonycteris woodfordi* Thomas.**

*Nesonycteris woodfordi* Thomas, Ann. and Mag. Nat. Hist., (5), 19, p. 147, 1887.

SOLOMON ISLANDS: Pavuvu or Russell Island (A. M. No. 79912), male, Aug. 6, 1927.

This specimen appears to be a little darker in color than indicated by the original description. It is new from this island.

### ***Notopteris macdonaldi* Gray.**

*Notopteris macdonaldi* Gray, P. Z. S. Lond., p. 38, 1859.

FIJI ISLANDS: Colombo Cave, near Suva, Viti Levu Island (F. M. No. 31571-31610), fifteen males, nineteen females, six juv. (F. M. No. 31164-31340), eleven adult males, forty-three juv. males, sixty-seven adult females, forty-six juv. females (alc.), March 22, 1929.

Andersen records specimens from Kalambon Cave, R. Wainimanu, and from caves at Kolobo, both localities probably synonymous with Colombo Cave, but the correct spelling could not be found. All these specimens from Colombo Cave were taken with a few shots fired simultaneously. The roof of the cave was about sixty feet high and in the dark no idea could be gained of how many bats were hanging there. Besides those saved, the natives took some home to eat.

### ***Emballonura semicaudata* (Peale).**

*Vespertilio semicaudata* Peale, U. S. Expl. Exped., Mammalia, p. 23, pl. iii, fig. 2, 1848.

*Emballonura semicaudata* Wagner, Suppl. Schreb. Säugeth., 5, p. 698, 1855.

FIJI ISLANDS: Suva, Viti Levu Island (F. M. No. 31646-59), eight males, two females, four skulls only (F. M. No. 31512-18), seven (alc.), March 12, 21, 1929, (A. M. No. 69574-76), three (alc.), 1925.

SAMOAN ISLANDS: Tau Island, Manua Group (A. M. No. 68827-34, 68836), nine (alc.), Dec. 26, 1923.

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

*Emballonura nigricans solomonis* Thomas, Ann. and Mag. Nat. Hist., (7), 14, p. 200, 1904.

SOLOMON ISLANDS: Wainoni Bay, San Christoval (M. C. Z. No. 17230-33), large series (three examined) (alc.), 1916; Savo Island (A. M. No. 75175-77), two males, one female, June 3, 1927; Bauro Island (A. M. No. 75178-79), two males (skins only), March 18, 1927; Pavuvu Island (A. M. No.

79861), male (skin only), Aug. 6, 1927; Vella Lavella Island (A. M. No. 79862), female, Oct. 18, 1927.

TERRITORY OF NEW GUINEA: Nissan Island (A. M. No. 99903, 2 specimens, 99905), three (alc.), Aug. 6, 1929.

No locality (A. M. No. 79910, 79993-80000), nine (alc.).

### **Emballonura cor** Thomas.

*Emballonura cor* Thomas, Ann. and Mag. Nat. Hist., (8), 15, p. 139, 1915.  
SOLOMON ISLANDS: Ysabel Island (M. C. Z. No. 17299), one (alc.), 1916.

### **Rhinolophus sedulus** K. Andersen.

*Rhinolophus sedulus* K. Andersen, Ann. and Mag. Nat. Hist., (7), 16, p. 247, 1905.

BRITISH NORTH BORNEO: Tenosa River, Sandakan (F. M. No. 33029), male, Aug. 23, 1929.

This specimen is slightly more grayish than the description of the type but this may be a sexual difference. It was caught in the day-time hanging in a bush in a mangrove swamp.

### **Hipposideros calcaratus** Dobson.

*Phyllorhina calcaratas* Dobson, P. Z. S. Lond., p. 122, fig. 8, 1877.

*Hipposideros calcaratus* Jentink, Nova Guinea, 5, liv. 2, p. 363, 1903.

TERRITORY OF NEW GUINEA: Nissan Island (A. M. No. 99904, 99906-7), three males (alc.), Aug. 6, 1929.

This species is known from Duke of York Island and northwestern New Guinea. It is new to Nissan Island. Jentink (l. c.) says "not recorded from New Guinea since 1872."

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

*Hipposideros diadema oceanitis* K. Andersen, Ann. and Mag. Nat. Hist., (7), 16, p. 497, 1905.

SOLOMON ISLANDS: Ysabel Island (M. C. Z. No. 17215), one (alc.), 1916; Vella Lavella Island (A. M. No. 79869-72), three males, one female, Oct. 18, 1927; Bougainville Island (A. M. No. 79823), male (skin only), (A. M. No. 79876-86), eleven (alc.), Jan. 4, 1928.

### **Hipposideros cervinus** (Gould).

*Rhinolophus cervinus* Gould, Mammals of Australia, 3, text to pl. 34, 1863.

*Hipposideros cervinus* Jentink, Nova Guinea, 5, liv. 2, p. 363, 1903.

NEW HEBRIDES: (A. M. No. 79968), one (alc.) (skull removed) (A. M. No. 79969-82), fifteen (alc.), 1926; Espiritu Santo Island (F. M. No. 31611-35), twelve males, thirteen females (F. M. No. 31441-31511), sixty-one (alc.), April 1, 5, 1929; Efate Island (A. M. No. 73620-21), two, July 15, 1926; Malo Island (A. M. No. 73622), one, Aug. 27, 1926.

SANTA CRUZ ISLANDS: Fenualoa Island (A. M. No. 75180), one, Oct. 11, 1926.

TERRITORY OF NEW GUINEA: Marienberg, forty miles up the Sepik River (F. M. No. 31817-21), five skulls only, May 18, 1929.

### *Hipposideros tricuspidatus* (Temminck).

*Rhinolophus tricuspidatus* Temminck, Monogr. Mamm., 2, p. 20, pl. XXXII, figs. 11-12 (skull), 1835-41.

*Hipposiderus tricuspidata* Trouessart, Cat. Mamm., Suppl., p. 70, 1904.

SOLOMON ISLANDS: Ugi Island (F. M. No. 31660), female, April 10, 1929.

SANTA CRUZ ISLANDS: Santa Cruz Island (A. M. No. 75181-82, 75185), three males, Feb. 25, 26, 1927.

No data (A. M. No. 79911), one (alc.).

### *Anthops ornatus* Thomas.

*Anthops ornatus* Thomas, Ann. and Mag. Nat. Hist., (6), 1, p. 156, 1888; P. Z. S. Lond., p. 477, pl. 22, fig. 1, 1888.

SOLOMON ISLANDS: Choiseul Island (A. M. No. 99908), female (alc.), Sept. 16, 1929.

This is apparently the first specimen taken since the collection of the type series from Guadalcanar.

### *Leuconoe moluccarum* Thomas.

*Leuconoe moluccarum* Thomas, Ann. and Mag. Nat. Hist., (8), 15, p. 170, 1915.

TERRITORY OF NEW GUINEA: Sepik River, Koragu (F. M. No. 31822-23), one female, one juv. (F. M. No. 32576-32604), twenty-nine (alc.), May 23, 25, 1929; Nyomonga, south of Koragu (F. M. No. 52572-75), four (alc.), May 23, 1929; Nissan Island (A. M. No. 99901-2), two males, four females, (3 specimens on each number), Aug. 6, 1929.

In an adult female skull, one of five removed from the Field Museum alcoholic series,  $p^3$  is in the toothrow and is visible from without, instead of being internal and in the angle between  $p^1$  and  $p^4$ . Likewise  $p_3$  is less crushed between  $p_1$  and  $p_4$ . In a very young skull the molars are about half through and, on one side, the canine and  $p^1$  and  $p^4$  are just appearing in the upper jaw. In the mandible the incisors and  $m_1$  have the greatest development. The specimens from Koragu and Nyomonga were found in pots, drums, and other utensils in the native houses. A few miles down the river at Marienberg they were not seen. This seems strange when they were collected on Nissan Island, although the season might account for it.

### *Myotis muricola* (Gray).

*Vespertilio muricola* Gray, Cat. Mamm., etc., Nepal and Thibet, p. 4, 1846.

*Myotis muricola* Thomas, Jour. Bomb. Nat. Hist. Soc., 23, No. 4, p. 609, 1915.

BRITISH NORTH BORNEO: Sandakan (F. M. No. 32689), male, July 5, 1929.

The forearm of this specimen measures 36 and the total length of the skull 13. It was found hanging on a bush.

**Pipistrellus papuanus papuanus** Peters and Doria.

*Pipistrellus papuanus* Peters and Doria, Ann. Mus. Genova, 16, p. 696, 1881.

TERRITORY OF NEW GUINEA: Sepik River, Koragu (F. M. No. 31824), male, May 25, 1929.

BRITISH NEW GUINEA: Wareo (A. M. No. 79773), one, April 12, 1929.

**Scoteinus greyii** (Gray).

*Scotophilus greyii* Dobson, P. Z. S. Lond., p. 372, 1875.

*Scoteinus greyii* Miller, Fam. Gen. Bats, p. 217, 1907.

BRITISH NEW GUINEA: Port Moresby (F. M. No. 33780-81), two, Dec. 1917. Collected by J. T. Zimmer. "Caught in a butterfly net."

Records of this species from New Guinea are few. Besides these two specimens there is one in the Australian Museum from East Cape, Port Moresby, collected by Kendall Broadbent in December 1878. Thomas (Ann. Mus. Genova, 1897, p. 609) records twenty-seven specimens from Kamali, close to the mouth of the Kemp-Welch River, and one from Aroma, collected by Loria. These localities are east of Port Moresby near the coast. Mr. Zimmer's specimens compared with one from Lincoln, North Territory, Australia (U. S. N. M. No. 237973), are much smaller in both skin and skull measurements. A larger series might show some subspecific differences.

**Miniopterus australis** Tomes.

*Miniopterus australis* Tomes, P. Z. S. Lond., p. 125, 1858.

NEW HEBRIDES: Malo Island (F. M. No. 31636-45), five males, five females (F. M. No. 31341-31440), one hundred (alc.), March 30, 1929.

This species is also recorded by Thomas (Ann. & Mag. Nat. Hist., 1925, (9), 16, p. 241) from Villa, Efate Island.

**Miniopterus schreibersii magnater** subsp. nov.

*Type* from Marienberg, forty miles up the Sepik River, Territory of New Guinea. No. 31802 Field Museum of Natural History. Adult male. Collected May 17, 1929, by Frank C. Wonder. Orig. No. 284.

*Diagnosis*.—Much larger and darker than typical *M. schreibersii* from Europe; the largest and darkest subspecies known.

*Color*.—Upper parts uniform Mummy Brown of Ridgway and under parts close to Bone Brown of Ridgway.

*Measurements.*—Skin of type (minimum and maximum of twelve skins and ten spirit specimens in parentheses): Forearm 51.4 (48.4–51.4). Skull of type (minimum and maximum of eleven specimens in parentheses): Condyle basal length 17 (16.5–17.1); zygomatic width 10.1 (9.7–10.1); upper toothrow,  $c-m^2$  7 (6.8–7.1); across  $m^1-m^1$ , externally 7.9 (7.6–7.9).

*Specimens examined.*—Total twenty-seven, twelve skins, ten alcoholics, and five skulls only, all from the type locality.

*Remarks.*—This appears to be the first series of these bats received from northern New Guinea. Dobson lists one specimen and Jentink (Nova Guinea, 5, liv. 2, p. 364, 1903) one. Jentink's specimen, however, had a forearm of only 40 mm. so it may have been *M. pusillus*. The closest named form is *M. s. blepotis* Temminck from Java which has a forearm of 42–44 mm. Compared with a series from Nodoo, Hainan, China, questioningly called *blepotis* by Dr. G. M. Allen, *magnater* is darker, and the skulls average larger, the minimum measurements equaling the maximum in the series from Nodoo, but the forearms are the same. Its large skull and dark color will identify *magnater*. The specimens were collected by a native in a cave about ten miles from Marienberg.

### **Kerivoula hardwicki** (Horsfield).

*Vespertilio hardwickii* Horsfield, Zool. Res. in Java, 1825.

*Kerivoula hardwickii* Gray, Ann. Nat. Hist., (1), 10, p. 258, 1842.

PHILIPPINE ISLANDS: San Ramon, Mindanao (F. M. No. 33028), female, Aug. 2, 1929.

There are but few other records from the Philippines.

### MEGACHIROPTERA DESCRIBED SINCE 1912

*Rousettus (Lissonycteris) crypticola* Cabrera, Bol. Soc. Esp. Hist. Nat., 20, p. 106, 1920. Africa: Fernando Po.

*Pteropus arquatus* Miller and Hollister, Proc. Biol. Soc. Wash., 34, p. 100, 1921. Middle Celebes: Koelawi.

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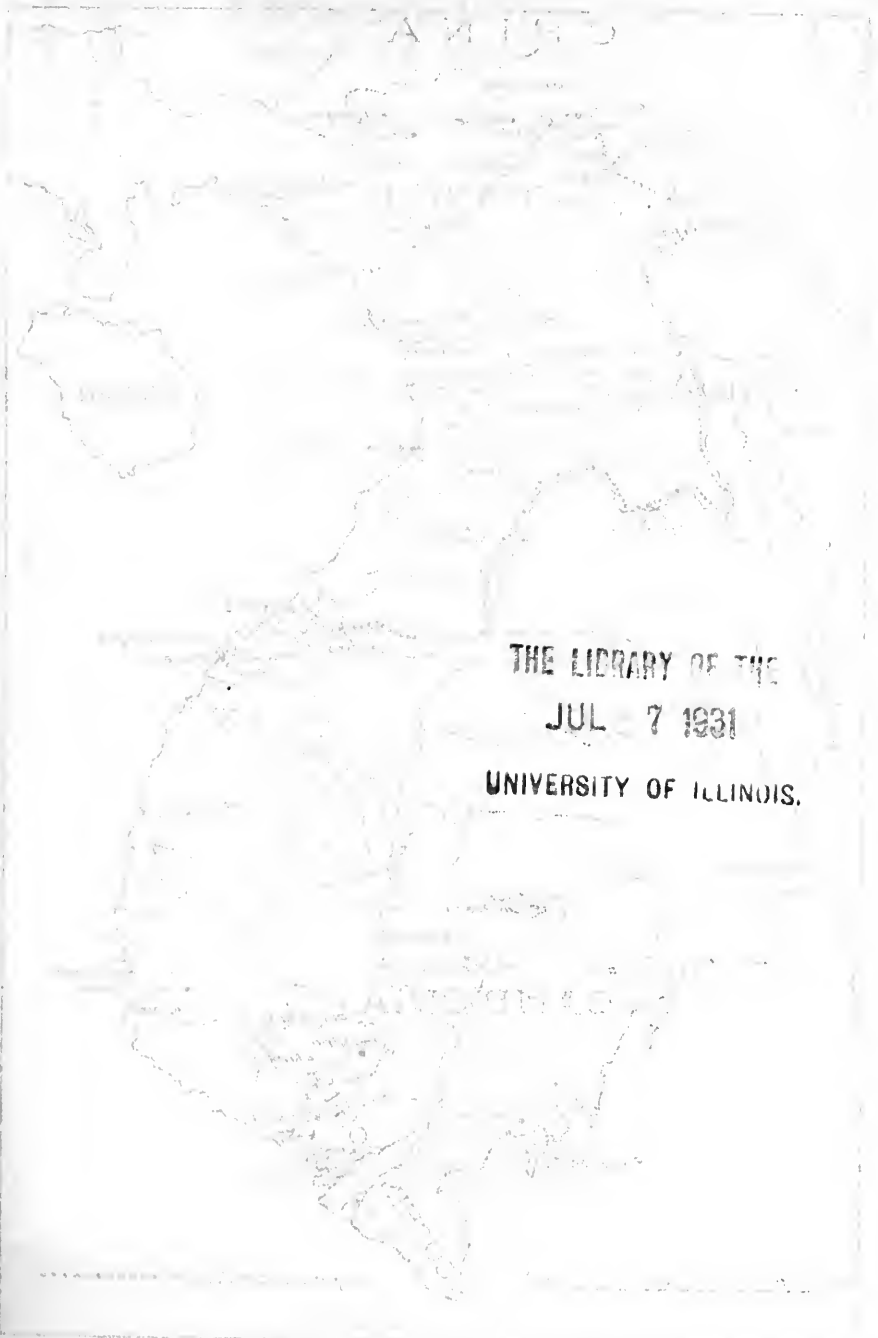
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