

**Article XX.**—NEW BATS FROM TROPICAL AMERICA,  
WITH NOTE ON SPECIES OF OTOPTERUS.

By J. A. ALLEN.

During the last three or four years the Museum has received many bats from Central America, northern South America, and the West Indies, aggregating about 600 specimens, but pressure of other work has delayed until now any serious attempt at their identification. On working up this large amount of material it is not surprising to find that it contains a few hitherto undescribed forms.

In this connection I wish to express my great indebtedness to Mr. Gerrit S. Miller, Jr., Assistant Curator of the Division of Mammalogy, U. S. National Museum, whose great familiarity with the American Chiroptera is well known, for valued assistance in determining many of the forms, and for placing at my disposal the large collection under his charge.

About 200 specimens, representing most of our undetermined species, were taken recently to Washington for direct comparison with the identified material of the National Museum.

***Molossus coibensis***, sp. nov.

Type, No. 18731, ♂ ad., Coiba Island, Republic of Panama, June 3, 1901; J. H. Batty.

Much smaller and much blacker than *M. obscurus* but with more massive skull and much heavier dentition.

Above deep blackish brown, a little lighter beneath; many shades darker throughout than any specimen of *M. obscurus* in a series of nearly a hundred specimens from Suapure and vicinity, Venezuela. Forearm 35 mm. (34.5–36 in three specimens), against 38 in *obscurus*; first metacarpal 37 (40 in *obscurus*); same proportional differences in other external measurements.

The skull, as compared with that of *M. obscurus*, is relatively broader and shorter, with broader and shorter braincase, broader and heavier rostrum, and heavier dentition, especially noticeable in the upper incisors. The infraorbital foramen is lower and opens more anteriorly.

Based on four specimens from Coiba Island, Panama, formerly referred (*antea*, p. 78) to *M. obscurus*, but on re-examination they prove to be distinctly different.

The ventral surface of *M. coibensis* is as dark as the dorsal surface in the darkest specimens of *M. obscurus*, while the dorsal surface is nearly black. The difference in size, and the strongly marked cranial differences, readily distinguish it from *M. obscurus*, the only species with which it needs comparison.

***Molossus bondæ*, sp. nov.**

Type, No. 23661, ♀ ad., Bonda, Santa Marta, Colombia, Feb. 10, 1900; Herbert H. Smith.

Intermediate in size between *Molossus pretiosus* and *M. obscurus*, but nearer the latter. Above (type) reddish brown, clouded with darker; below paler, light reddish brown, slightly mottled with darker. Forearm and metacarpal III respectively 3 and 4 mm. (about one-twelfth) longer than in *M. obscurus*, and all the other external measurements proportionally greater. The skull is much larger, and relatively very much broader, with larger braincase, much wider palatal fossa, in correlation with the greater breadth of the skull. Compared with a large old skull of *obscurus*, the measurements are as follows: Total length, 18 mm. (in *obscurus* 16, in *pretiosus* 20.5); zygomatic breadth, 13 (in *obscurus* 11); width of braincase, 9.5 (in *obscurus* 9); width of palatal fossa, 3 (in *obscurus* 2.5). The dentition is correspondingly heavier, but the first premolar is conspicuously relatively much enlarged. The disparity in size is also especially striking in the lower jaw, which is one tenth longer in *bondæ*, with a corresponding increase in depth and in the size of the teeth. In respect to volume, the skull of *obscurus* is about one-half that of *bondæ*, and the skull of *bondæ* about one-half that of *pretiosus*.

Represented by the type (skin and skull) and three topotypes (in alcohol), collected by Mr. Francis C. Nicholas. The latter are dark brown, showing that the species is dichromatic, like *M. pretiosus*.

***Promops barbatus*, sp. nov.**

Type, No. 17570, ♂ ad., La Union, Venezuela, Sept. 27, 1901; S. M. Klages.

Near *Promops milleri* Allen, from Guayabamba, Peru, but smaller, with much narrower skull and lighter dentition.

Above brownish black, the basal portion of the fur paler; below dark brown, considerably lighter than the dorsal surface; a large pale axillary area. Ears and membranes blackish, the extreme tip of the wing lighter; posterior border of forearm and basal portion of metacarpals slightly furred; edge of upper lip strongly bearded. Ears medium, thick and heavy, the outer border slightly concave; antitragus with rounded border, higher posteriorly than anteriorly.

*Measurements.* — Forearm, 55 mm.; thumb, 5; third finger: metacarpal, 57, first phal. 25, second phal. 25, third phal. 75; tibia, 16; hind foot, 12; calcar, 17. *Skull*, total length 23; width of braincase, 10.2.

In comparison with *P. milleri* the skull is about one millimeter shorter, and the braincase one millimeter narrower; it is more constricted interorbitally, with the rostral portion relatively much broader as compared with the braincase; palatal region narrower, with the palatal fossa much narrower, in correlation with the greater interorbital constriction; teeth narrower, but the small premolar relatively larger than in allied forms; lower canines slightly separated. It is much smaller than *P. abrasus*, and differs from it in cranial characters in much the same way as it does from *P. milleri*. These three forms, however, are closely related.

#### ***Dermonotus suapurensis*, sp. nov.**

Type, No. 17573, ♀ ad., Suapure, Venezuela, Oct. 26, 1901; S. M. Klages.

Similar in general features to *D. davyi* but very much larger. Forearm 51 mm., as against 45.5 in topotypes of *D. davyi*, and proportionate differences in other measurements, or about one tenth greater. *Skull*, total length, 17.2 (15 in *davyi*); zygomatic breadth, 10 (9 in *davyi*); width of braincase, 9 (8 in *davyi*); interorbital constriction, 4.5 (4 in *davyi*); height of braincase, 7.3 (6.5 in *davyi*); length of lower jaw, 8.2 (7 in *davyi*).

In bulk the skull is fully one third larger than in *davyi*, and nearly twice as great as in *D. davyi fulvus*. In the single known specimen the pelage is dark fulvous on the head, shoulders, and fore neck, much paler on the flanks and abdomen. Probably, however, it is dichromatic, like its allies of the Mormoopinae.

***Lonchophylla thomasi*, sp. nov.**

Type, No. 16120, ♂ ad., Cuidad Bolivar, Venezuela, Jan. 26, 1900; S. M. Klages.

Much smaller and much darker colored than *L. mordax* Thomas, from the coast near Bahia, Brazil; nose-leaf broader and shorter; skull smaller, rostral portion shorter, broader, and less tapering; braincase more convex and higher.

Above dark russet brown, the basal two thirds of the fur pale buffy whitish; under parts similar, little if any lighter than the dorsal surface; ears and membranes blackish brown.

*Measurements.*—Forearm, 30 mm.; thumb, 7.5; third finger: metacarpal 32, first phal. 12, second phal. 15, third phal. 6; fifth finger: metacarpal 29, first phal. 8.5, second phal. 8; tibia, 12; hind foot, 9; calcar, 5; ear above crown (dry), 8. *Skull*, total length, 21; width of braincase, 8.

Through the kindness of Mr. Gerrit S. Miller, Jr., I have had the opportunity of comparing the present specimen with a topotype of *Lonchophylla mordax* Thomas in the collection of the U. S. National Museum, from which it differs strikingly in coloration, and also in respect to the size and general conformation of the skull, which is much smaller than that of *mordax*, and very different in proportions, but with which it agrees in details of dentition and the undeveloped condition of the zygoma. Unfortunately it is represented by only a single specimen.

Named for Mr. Oldfield Thomas, the distinguished mammalogist of the British Museum.

***Artibeus rusbyi*, sp. nov.**

Type, No.  $\frac{1}{2}$  1885, ♂ (?) ad., Yungas, Peru (alt. 6000 ft.), Sept., 1885;

Dr. H. H. Rusby. Named in honor of Dr. Rusby, the distinguished botanist, who collected the type.

Size large, one of the largest species of the genus; skull very elongate; prominent face-streaks.

Above dark seal brown from the shoulders posteriorly; head, neck, and shoulders much lighter; ventral surface nearly as dark as the back; fur basally lighter, dull grayish white, showing at the surface on shoulders and neck; face with four distinct, conspicuous white stripes — a pair from the posterior base of the nose-leaf to the upper anterior base of the ears, and one on each side from the angle of the mouth to the lower anterior base of the ears; ears and membranes dark brown,

the wings lighter apically, becoming yellowish white at the extreme tips. Wing membrane from the base of the toes. Proximal two thirds of fore arm above and upper surface of tibia heavily furred; interfemoral membrane wholly naked below, as are the wing membranes, except a narrow band of thin woolly fur along the proximal half of the forearm.

*Measurements* (from dry skin). — Forearm, 71 mm.; third finger: metacarpal 69, first phal. 24, second phal. 39, third phal. 24; tibia, 26; hind foot, 19; tragus, 4; nose leaf, 6 x 11. *Skull*: total length, 32; zygomatic breadth, 18.5; width of rostrum at canines, 9; width of braincase, 14; width at first molars, 14; postorbital constriction, 7. The braincase is gently convex, long, and low.

This species is nearly related to *A. palmarum* of Trinidad and adjoining parts of northeastern South America, but differs in the lower, less convex, and more spreading braincase, broader palate and heavier dentition, the upper toothrow (canine and molar-premolar series) having a length of 11.5 mm. against 10.2 in *A. palmarum*; also in more prominent face stripes and darker general coloration.

It needs no comparison with any of the much smaller West Indian species, nor with *A. intermedius* of Costa Rica, characterized also by small size, but especially by a short, high-arched skull.

### ***Artibeus insularis*, sp. nov.**

*Type*, No. 19579, ♂ ad., Island of St. Kitts, W. I.

Size large; coloration pale, including membranes. Dorsal surface pale reddish brown, paler below; membranes pale brown; no head stripes. Nose-leaf large.

*Measurements* (alcoholic specimen). — Head and body, 82 mm.; nose-leaf, 13.5 x 8; width of interfemoral membrane, 13; ear from crown, 15; forearm, 61; thumb, 15; third metacarpal, 58; third finger, first phal. 18, second phal. 40, third phal. 20; tibia, 25.5; foot, 16.5. *Skull* (imperfect): Width across  $m^2$ , 13; width of rostrum at base of canines, 8.6; upper toothrow ( $c-m^2$ ), 11; length of lower jaw, 19.6; height at coronoid, 8; toothrow, 11.

Based on a single alcoholic specimen, a very old male, in excellent preservation, but with the skull badly broken. In external measurements it agrees very well with *A. jamaicensis*, in which the forearm ranges in five adults from 60–62

mm., averaging about 61. It is thus much larger than *A. parvipes* of Cuba, the forearm in which (in eight adults) ranges from 55–57 mm., averaging 5 mm. less than in *A. jamaicensis*. The skull, however, in *A. insularis* is much larger than in *A. jamaicensis*, the width across  $m^2$ – $m^2$  being 1 mm. (about one tenth) greater, and the rostrum at the base of the canines is also a millimeter wider, or about one eighth wider. This indicates a much larger and more massive skull than in *A. jamaicensis*, while the external measurements are about the same. The mandibular rami are straighter or less bowed and relatively slenderer. On the other hand, the skull is very much smaller than in *A. palmarum*, as are also the external measurements. It needs no comparison with *A. coryi*, which is a small species, about the size of *A. parvipes*.

***Artibeus yucatanicus*, sp. nov.**

Type,  $\frac{111111}{111111}$ , ♂ ad., Chichenitza, Yucatan, March 17, 1896; Frank M. Chapman.

Differs from *A. intermedius* from southern Mexico and Central America in smaller size and absence of head stripes, in both these respects resembling the West Indian forms of the genus, especially *A. parvipes* of Cuba, from which it is not readily distinguishable. Forearm, 55 mm.; third metacarpal, 57; tibia, 24; foot, 14. Three skulls average: Total length, 27 (type, 27.5); zygomatic breadth, 17 (type, 17.5); mastoid breadth, 14.4 (type, 15); interorbital constriction, 7.2 (type, 7). Four skulls of *A. parvipes* measure the same in total length, but a little less in zygomatic breadth.

As previously stated (this Bulletin, IX, 1897, p. 4), the Yucatan form closely resembles the Cuban form,—much more than it does specimens from southern Mexico (Isthmus of Tehuantepec and Jalisco), these latter being referable to *A. intermedius* of Costa Rica, though not typical.

Specimens from the lower Orinoco, Merida (Venezuela), and Santa Marta (Colombia) are not satisfactorily separable from *A. palmarum* of Trinidad, although Merida examples have a rather broader and more massive skull. Specimens from western Colombia are darker, but in size and cranial characters are not satisfactorily separable from *A. palmarum*. A rather different type, however, occurs at Yungas, Bolivia,

as noted above. Probably a large amount of material, from widely separated localities, would disclose a greater or less number of additional fairly recognizable forms.

In this connection it may be worth noting that in many skulls of *A. planirostris* examined, from various localities,  $m^3$  is found to be present on both sides in hardly more than fifty per cent. of the specimens; it is sometimes present on one side only, as has been noted by previous authors, being represented on the other side by the alveolus of the fallen tooth, while in fully one third of the skulls examined only the alveolus remains on either side. It may here be added that the specimen recorded above (*antea*, p. 79) from Boqueron, Chiriqui, as *A. intermedius* proves, on reëxamination, to be an example of *A. planirostris* with the third molar on each side absent.

***Phyllostomus hastatus panamensis*, subsp. nov.**

Type, No. 18705, ♀ ad., Boqueron, Chiriqui, Oct. 6, 1901; J. H. Batty.

Much larger than true *P. hastatus hastatus* from eastern South America.

Above dark seal brown, lighter and slightly varied with gray on shoulders, sides of neck, and front of head; below lighter brown, the extreme tips of the hairs grayish, giving a slight grayish wash; ears, nose-leaf, and membranes blackish brown. Five other specimens (topotypes) are similar, none showing any tendency to a reddish phase.

*Measurements* (type, from dry skin). — Forearm, 90 mm.; third finger: metacarpal, 83, first phal. 21, second phal. 42.5, third phal. 26; tibia, 34; foot, 24; calcaneum, 24. *Skull*, total length, 39; basal length, 30; zygomatic breadth, 21.2; mastoid breadth, 19; postorbital constriction, 7.5; width of rostrum at base of canines, 9.5; upper tooththrow (c-m<sup>3</sup>), 14.3.

In six specimens (2 males and 4 females), the forearm ranges from 86 to 90, averaging 88; third metacarpal, 80–83.5, averaging 82.5. Four skulls (2 males and 2 females, 2 others being too imperfect for measurement), total length, 37–39 (38.2); zygomatic breadth, 21–22.2 (21.5); mastoid breadth, 18.6–20 (19.3); width of rostrum (6 specimens), 9.2–10 (9.5).

Pallas's *Vespertilio hastatus* was based on Buffon's 'La Chauve-souris Fer-de-lance,' said to be "fort commune en Amerique," which may be construed as the eastern coast

of South America, probably 'Surinam,' which may be considered as the type region of *P. hastatus* of modern authors. Assuming that specimens from the Island of Trinidad and eastern Venezuela (Cuidad Bolivar and Suapure) represent this form, *P. h. panamensis* is readily distinguishable by its much larger size. In six adult specimens—two from Trinidad and four from near Cuidad Bolivar—the skull ranges in total length from 35–37 (36); in zygomatic breadth, 19.5–20.3 (20); mastoid breadth, 18–19, and one old male 19.6 (18.5); width of rostrum, 8.2–9 (8.7). In nine specimens from the same localities the length of the forearm ranges from 80–82 (81); third metacarpal, 73–76 (74.6), as compared, respectively, with an average of 88 and 82.5 in *P. h. panamensis*.

The series of true *hastatus* includes both phases of coloration, the red and the dark; the dark specimens are similar in color to the *panamensis* series.

***Phyllostomus hastatus cauræ*, subsp. nov.**

Type, No. 14473, ♂ (?) ad., Cali, upper Cauca Valley, Colombia; J. H. Batty.

Larger than *Phyllostomus hastatus panamensis*, but apparently not otherwise different.

Type, deep rufous brown, lighter and more golden on shoulders, and sides of neck; ventral surface lighter than back. Of nine other specimens (topotypes) eight are in the red phase—several are like the type and others somewhat darker—and two in the dark phase, or very dark seal brown without rufous.

*Measurements* (type, from dry skin).—Forearm, 93 mm.; third finger: metacarpal 84, first phal. 20, second phal. 42, third phal. 23; tibia, 32; foot, 24; calcaneum, 21. Upper tooththrow (c-m<sup>3</sup>), 14.6. In ten specimens the forearm measures 90–94 (92); third metacarpal, 82–86 (84.5), against 86–90 (88) and 80–83.5 (82.5), respectively, in *panamensis*.

The skulls are too imperfect to measure, all but one (a young adult) lacking the occipital portion. The dentition in both jaws is slightly heavier, and the rostrum is slightly broader than in *panamensis*, indicating a considerably larger skull.

Compared with true *hastatus*, the difference in size is strikingly marked, the forearm being fully one eighth longer,

with corresponding differences in other measurements. It differs much less from *panamensis*, but it apparently may well be recognized as a large Andean form of the *hastatus* group.

#### NOTE ON MEXICAN SPECIES OF OTOPTERUS.

In 1860 Saussure described a bat as *Macrotus mexicanus*, from an alcoholic specimen in poor condition collected at Yautepec, State of Morelos, Mexico. In 1890 Dr. Harrison Allen described *Macrotus bulleri* from slightly immature specimens taken at Bolaños, State of Jalisco, Mexico, and subsequently (*Bats of N. America*, 2d ed., 1894, pp. 41-43, gave a further account of it, based on additional material. These specimens I had previously referred provisionally (this Bulletin, II, 1889, p. 166) to *M. californicus*, and Dr. H. Allen made his comparisons with this species, making no reference to *M. mexicanus* Saussure.

In 1898 Dr. Merriam (*Proc. Biol. Soc. Washington*, XII, 1898, p. 18) compared topotypes of *M. mexicanus* with topotypes of *M. bulleri* and stated that he was "unable to find any characters on which the latter form can stand." I had previously recognized both *M. mexicanus* and *M. bulleri* as distinct species, and gave (this Bulletin, III, 1891, pp. 179-181) in considerable detail the differences that constitute them strongly marked forms; but I took for *M. mexicanus* a series of specimens from Tehuantepec City, State of Oaxaca, and compared them with series from Guadalajara and Bolaños, State of Jalisco. On recently going over the same material again, the two forms still seemed to me unquestionably specifically distinct. I thereupon asked Dr. Merriam to kindly loan me for examination topotypes of Saussure's *M. mexicanus*. These are now before me and confirm Dr. Merriam's statement that *M. bulleri* and *M. mexicanus* are identical, *M. bulleri* being a synonym of *M. mexicanus*. *Otopterus mexicanus* is therefore the small dark form, ranging from the State of Morelos westward to the Pacific coast and the Tres Marias Islands, so that a new name must be sought for the large light form occurring at Tehuantepec. This seems to be

furnished in the *M. bocourtianus* Dobson (1876), based on specimens from Vera Paz, Guatemala, which agree in size and other features with my Tehuantepec examples.

The measurements given by Saussure of his specimens are about all that his description furnishes in the way of diagnostic characters. These, in comparison with measurements of Tehuantepec specimens, of which I have a series of seven well-preserved alcoholic examples, indicate a much smaller animal, comparable with the so-called *bulleri*. Saussure's measurements here follow, with those of an average Tehuantepec specimen of *bocourtianus* in parentheses:

	mm.
Length of head and body.....	55 (61)
“ “ head.....	25 (27.5)
“ “ ears.....	21 (23)
“ “ tragus.....	10 (10)
“ “ nose-leaf, from base.....	7 (9)
“ “ forearm.....	51 (54)
“ “ tibia.....	23 (25)
“ “ calcar.....	10 (12)
“ “ tail.....	31 (35)

The synonymy of the two species will therefore stand as follows:

**Otopterus bocourtianus** (*Dobson*).

*Macrotus bocourtianus* DOBSON, Ann. and Mag. Nat. Hist., XVIII, 1876, 436; Cat. Chiroptera, 1878, 467. Vera Paz, Guatemala.

*Macrotus mexicanus* J. A. ALLEN, Bull. Am. Mus. Nat. Hist., III, 1891, 179-181; *ibid.*, IX, 1897, 48. Tehuantepec City, Oaxaca, Mexico. Not of Saussure.

**Otopterus mexicanus** (*Saussure*).

*Macrotus mexicanus* SAUSSURE, Rev. et Mag. Zool., XII, 1860, 486. Yautepec, State of Morelos, Mexico.

*Macrotus californicus* J. A. ALLEN, Bull. Am. Mus. Nat. Hist., II, 1889, 166. Bolaños, Jalisco, Mexico. Not of Baird.

*Macrotus bulleri* H. ALLEN, Proc. Am. Phil. Soc., XXVIII, 1890, 73; Mon. Bats. N. Amer., 2d ed., 1893 (1894), 41. Based on the Bolaños specimens, cited above.

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*Macrotus bulleri* J. A. ALLEN, Bull. Am. Mus. Nat. Hist., III, 1890, 179; *ibid.*, IX, 1897, 48. The above-mentioned Bolaños specimens, and others from Guadalajara, Jalisco, Mexico.

*Otopterus mexicanus* MERRIAM, Proc. Biol. Soc. Washington, XII, 1898, 18. Tres Marias Islands, Bolaños, Jalisco, and the "State of Morelos," Mexico.

*O. bocourtianus* differs from *O. mexicanus* in much paler coloration throughout, including the ears and membranes as well as the pelage, and in much larger size, the forearm being 3 mm., the third metacarpal 2 mm., the total length of the skull nearly 2.5 mm., and the zygomatic breadth over 1 mm. longer, respectively, than in *mexicanus*. In a considerable number of specimens of each examined, the range of individual variation leaves an unbridged gap between the two forms.

