

Head of *Cervus pudu*, ♂.

a pair of small straight horns, without any branches, measuring about 2 inches in length.

Dr. Gray exhibited a series of glass models of *Actinæ*, made in Dresden, which had been presented to the Trustees of the British Museum by the Rev. Robert Hudson.

The following papers were read:—

1. On the Habits of the Prongbuck (*Antilocapra americana*), and the Periodical Shedding of its Horns. By COLBERT A. CANFIELD, M.D.*

“Monterey, California,
September 10, 1858.

“SIR,—Your report on the Mammalia of this western coast, and more especially the description and account of the Prong-horned Antelope (*Antilocapra americana*) in vol. viii. of the ‘Railroad Reports,’ has induced me to send you the results of my own observations on this Antelope, believing that I can furnish you some new facts that will sufficiently interest you to repay you for the trouble of learning them. I take the liberty of saying this because I have observed the Antelope for several years, have hunted them and killed a number of them (perhaps 150 of all ages and sexes), have caught and raised young ones, and am as familiar with them as most people are with goats and sheep. In the region where I have observed them (in the south-eastern part of the county of Monterey, California) they run in bands of from six or eight up to hundreds. I lived several years in a valley, half a mile wide and several miles long, surrounded by open, dry grass-hills, the favourite habitat of the Antelope. Scarcely a day passed that Antelopes did not pass by in sight of the house, or did not come down to the water (100 yards

* A letter addressed to Prof. Baird, Assistant Secretary to the Smithsonian Institution, Washington, F.M.Z.S., and communicated by him to the Society.

from the house) to drink. It was not difficult, when they came to drink, to kill them with a Colt's revolver.

From the first of September to the first of March Antelopes run in bands, the bucks, does, and kids all together. At the end of that time the does separate themselves from the band, one by one, to drop their kids; they produce two at a birth. After a little the does collect together with their young ones, probably for mutual protection against the Coyotes. The old bucks, in the meantime, go off alone, each one by himself, or at most two together, leaving the young bucks and young does together in small bands. The old bucks now for a month or two wander a great deal, and are seen in the timberlands and in other places where they never go at any other part of the year, evidently tired of 'the world,' and fleeing from society. After two or three months the young bucks and does join the old does and their kids; and finally, by the first of September, the old bucks and all are together once more in bands of hundreds or thousands. Any particular band of Antelopes does not leave the locality where they grow up, and never ranges more than a few miles in different directions. In the summer months they sometimes wander a little distance from their customary range for the sake of water, at which time they drink once a day, or sometimes twice in three days. But when there is any green food for them to eat they do not drink water; and this is the case the greater part of the year. When there is scarcely a blade of grass to be seen anywhere, I have been very much surprised to see the stomachs of Antelopes full of green food.

"A band of Antelopes, when frightened, never run directly away from you, but cross over in front of you, running across your path from one side to the other repeatedly, and keeping about 100 yards ahead. On this account it is sometimes easy on a smart horse to run into a drove of them and catch one of them with a noose.

"When an Antelope is alone, and is watching a person or animal, and becomes frightened, it makes a sort of shrill blowing noise like a whistle, and then commences bounding off. On the neck it has a heavy, thick, chestnut-coloured mane, 5 or 6 inches long, and on the rump a white patch of coarse hair; and when the animal is frightened it always erects the mane and the hair of the white spot on the breech, thus giving it a very singular and characteristic appearance as it runs bounding away from you. The Antelope has a very peculiar odour, strong and (to some persons) offensive. This comes principally from the glands in the white patch on the breech. One of these is placed over each prominence of the *ischium*, below and each side of the tail; and one over the junction of the *sacrum* with the spine, 6 or 8 inches anterior to the tail. From these glands a yellow saponaceous substance is secreted, which has a very powerful odour. In the males this odour is often much greater than in the females; so that it sometimes gives the meat of the bucks, when poor, a very rank flavour, offensive to most people; but on the whole I consider the meat of the Antelope to be very excellent, much better than that of the Black-tailed Deer. Of the pelage I can add only that there is frequently a very sparse

crop of woolly hairs among, and about two-thirds the length of, the coarse ones, and that the winter coat has a bluish or purplish cast when it first appears, and afterwards fades to a lighter colour. It is easy to catch the kids of the Antelopes while yet small, while only a few days old. If a week old, it is difficult to catch them, and they will not live if caught. One I obtained under very singular circumstances. I shot a doe Antelope very heavy with young, and broke one of her hind legs; I chased her down without much difficulty, and, immediately cutting her throat, opened the belly to empty it of its contents, when I perceived that one of the two foetuses with which she was pregnant was still alive. I instantly delivered it from the uterus and membranes and tied the umbilical cord. The kid (a male) breathed and was lively, and I carried it home three or four miles. It sucked readily an artificial teat supplied with cows' milk, and throve well for several days. At the end of that time, being obliged to leave home, I left it (with one or two other little Antelopes) to be taken care of by other persons. For want of care they all died in my absence. Kids a day or two old, when chased, run a little way and throw themselves flat down on the ground to hide themselves. In three different seasons I caught some twenty little ones, but of all these I was able to raise only two males. Almost all young Antelopes, upon exercising a little patience towards them, will suck an artificial teat, and after a while learn to drink. I used a horn like a powder-horn, but open at the large end, and with a quill inserted in the small end so that it projected an inch, and wrapped around with soft cloth; I fed them on cows' milk, new and sweet. At first, for a few days, they are exposed to have an attack of diarrhœa or dysentery. If they escape this they live a long time, one, two, or three months, growing slowly; but at the end of this time all the female kids and almost all the male ones become diseased, have scrofulous inflammation of the joints, get a cough, become lame and poor, and finally die, after lingering some weeks. I never yet have known of a *female* Antelope being raised artificially; the males are more hardy, and with care nearly all can be raised. I think that cows' milk is not sufficient nutrition for them; for the milk of the Antelope is very rich and sweet, like that of the goat; and I should expect to succeed better in raising them on goats', or even by enriching cows' milk with sugar, boiled cornmeal, &c. In the spring of 1855, of seven or eight that I caught, I succeeded in starting only two kids, a buck and a doe. They both grew well for several months, were gentle and great pets, when the doe became diseased with the scrofulous trouble of which I have spoken, and, after three or four weeks, died of *phthisis pulmonalis*, as a *sectio cadaveris* showed. The male, however, continued in good health; and in July or August his horns began to appear, very small at first, conical, and concealed in the hair of the forehead. They grew to be perhaps $\frac{3}{4}$ of an inch long and quite blunt, when they dropped off, in the month of December I think, leaving small mammillary knobs that projected from the frontal region about $\frac{1}{2}$ an inch, and were slightly villous with silky hairs. Within a day or two, or a week at most, these

protuberances began to be tipped with a point of horn once more, that grew from the base, and increased in size for a year. They dropped off in January, I think, being about 5 inches long, slightly curved inwards at the tips, cylindrical, and the substance of the horn hard and well developed. The knobs that remained were about $1\frac{1}{2}$ inch long, slightly hairy, as before, and nearly concealed in the long hair that grows around the base of the horns at that time of the year. Sharp points immediately began to form as before; the knobs changed from a rounded form to an oval outline, longer from before backward; and, directly, another protuberance began to be developed at the base of each horn, in front; and each of these at length became tipped also with horn. These were the anterior prongs, not as yet connected with main horn, but which very soon became consolidated. This was the condition of the animal's horns in October 1857, or when he was two years and a half old. They were about 9 inches long, measuring in a straight line from the frontal bone to the extreme curve of the points. At that time he received a kick from a mule, that broke one of his fore legs. I splinted and bandaged the leg, and he ran about with it so for more than three months, when he was killed, I suppose, by a pack of wolves. It was a great pity that he did not live two or three years longer, so as to have made further observations on the growth of his horns. But I think that the phenomena exhibited by his horns while he did live, and those exhibited by other Antelopes, have furnished me with data sufficient to establish the proposition that I now make, viz. that *their horns drop off annually!* When I began to be acquainted with the Prong-horned Antelope, I believed (as you and all the scientific world do) that they have permanent horns like goats and sheep; but after knowing them a year or two I became convinced that they shed their horns every year! And to convince you of this singular fact is my principal object in making you this communication. As the buck grows older his horns change their form, until, the second time of shedding them, they are cylindrical and slightly curved inward at the tips. After the prong appears, the points of the horns become more and more incurved, until in the oldest bucks they are remarkably hooked, some of them almost as much so as a fish-hook, and very sharp and hard. In the months of December and January I have never killed a buck with large horns; and at that time of the year all the bucks appear to be young ones, because their horns are so small; whereas in the spring and summer months almost all the bucks appear to be old ones, for their horns are large and noticeable. Another proof of my proposition is the following:—In the summer months I have noticed that the line of demarcation is very apparent and abrupt between the horn and the skin from which it grows, but that in the winter there is no demarcation, the horn being very soft at its base, passing insensibly into cuticular tissue, and the soft horny substance being covered thinly with hair. The horns of Antelopes are very loosely set on the medullary base, and are susceptible of considerable movement in all directions. So 'loose,' apparently, have I seen them, that it

would not appear very strange that a little force should make them fall. Again, all the *Cavicornia*, so far as I know, have rings on their horns, and each year add one very perceptible width to the horn at its base. Even the horns of Goats and Sheep are so; but the Antelope is an exception. The horns, although rough, tuberculated, and warty, and sometimes having longitudinal striæ or furrows, *never* show any circles or transverse rugæ. This fact appears to me a very strong proof of the truth of my proposition. I think that my observations *prove beyond a doubt*, then, that these animals shed and renew their horns every year until they get full-grown ones—say, until they are four or five years old or more,—and, furthermore, that it is *very probable* that they renew them annually after that age; but I have no positive proof of this. The does frequently have horns, sometimes 4 inches or even more in length, but very much incurved—so much so that in two specimens that I killed the points or distal extremities of the horns were concealed in the hair of the forehead. In my opinion, it is easy to determine pretty nearly the age of a male Antelope by the shape and size of his horns. Thus, in plate 25 of the 'U. S. P. R. R. Ex. and Surveys,' No. 1912 is (as you say) the horn of a young buck; 1081 is a new horn of a young male; 890, a three-year old buck with new horns; 2-2 (at the lower left-hand corner), a three-year-old buck with old horns; 655, new horns of an older buck than the last; 2471, old horns of a buck of the same age as 655; 963, a still older buck; C, a & b, horns of a very old buck, the oldest in the lot, except perhaps B; B, a new horn of a very old buck, or else an abnormal condition of the horns. By the way, there is scarcely a good specimen of horns in the plate, I might kill a dozen bucks, every one of which would have better horns than those in your plate. It cannot be objected to my facts that my pet Antelope was in an artificial condition, and that on account of debility he lost his horns; for he, on the contrary, was always very large for his size, much larger than the young wild Antelopes. He was so gentle and playful that he was saucy and troublesome. He always fed within sight of the house, and slept near the house at night. He used to follow the ranch dogs; and in the night, if they chased Coyotes, he would run after Coyotes also, always ahead of the dogs, for nothing could outrun him. He was the most salacious animal that I have ever seen. When three months old he commenced to leap upon the other pet Antelopes, the dogs, young calves, sheep, goats, and even people sitting down or bent over to pick up anything from the ground; and as he grew older the more salacious he became. He always raised himself on his hind feet, and thus walked up behind the animal that he wished to leap on; and without sustaining himself at all by his belly or fore legs he continued walking around, directing the erected penis only by movements of the body poised on the hind feet; until having introduced the penis, he instantly gave one convulsive or spasmodic thrust, at the same instant of the thrust claspings spasmodically the female with the fore legs, which he had before held up in the air without touching her. He would in this way go to anything that was held for him. After he was a year old he would

chase small animals about, making a noise like a ram when rutting, and sometimes made the same rutting noise when going to leap on an animal. He liked very much to have any one play with his head and horns; but would not allow any other part of his body to be handled or touched, and was very skittish and untractable, though apparently so gentle. He would follow the dogs all day in the hills with me when hunting; but if separated from me by accident would immediately go to the house. He thus returned home alone, one day, a distance of twelve miles. He frequently ran out to meet the Antelopes that were crossing the valley, or that were coming in to drink; and although he sometimes went off with them to the hills, he always returned immediately to the valley. I raised also another little buck Antelope; but he was very wild, and ran away when eight or nine months old, after the older one was killed; so that I learnt nothing from him, except that his first little horns fell off in November, when he was six months old or more.

“The doe Antelopes almost invariably bring forth two kids at a birth. It is very rare (in fact I never have known) that a female has been killed pregnant with only one fœtus; and, on the other hand, they never have *more* than two at a birth. In this respect they are very different from the females of the Black-tailed Deer (*Cervus columbianus*), which frequently bring forth only one at a birth, and not uncommonly *three*. It is not rare to see a doe Deer with three fawns following her; and I am assured by reliable hunters that they have killed, occasionally, doe Deer pregnant with three fœtuses. In this respect, as in many others, the Antelope is much more regular in his habits, much more conformable to fixed rules, than most other wild animals. For example, the female Antelopes all bring forth their kids about the same time, within the space of about a month; whereas female Deer are dropping their fawns for three or four months. Doe Antelopes are always ‘in good order,’ except when giving milk, though they never get *very fat* as do the bucks sometimes. The fat of the Antelope is very hard, like spermaceti, and makes excellent candles. The Antelope trots, gallops, and bounds, and is the swiftest animal in North America. The greyhound cannot catch it in a fair chase; a fast horse can hardly overtake one with one leg broken. I chased a buck three miles on one occasion, having broken his forearm, and the ball having penetrated to the lungs; my horse was an excellent one, fast and ‘long-winded;’ but it required all my efforts to overtake the buck in that distance. The hide of the Antelope is thin and weak, but makes soft and pliable ‘morocco’ or dressed leather.

“In your report you say nothing of the existence of the Antelope on this side of the Sierra Nevada; but I can assure you that they abound everywhere in all the plains and valleys of the western slope, down to the Pacific Ocean.

“Much more could be added to the above, relative to the habits, &c., of the Prong-horned Antelope; but this must suffice; and if what I have written you will be of any value to science, you are at liberty to make such use of it as you think proper.”

2. Revision of the Genera of *Phyllostomidæ*, or Leaf-nosed Bats. By DR. JOHN EDWARD GRAY, F.R.S., V.P.Z.S., &c.

The *Phyllostomidæ* may be defined as the Leaf-nosed Bats, with well-developed intermaxillary bones, bearing permanent cutting-teeth; they have two bony joints in the index finger, and are confined to the warmer part of the western hemisphere.

The dentition of the different genera of this family is very similar. They, like other Bats, have normally three grinders on each side of each jaw; but in one large tribe the hinder grinder is small, rudimentary, and early deciduous, or altogether wanting; and in another genus that lives entirely on the blood of animals, and has very peculiar digestive organs, the two hinder grinders in each jaw are deficient, and the one that is present is reduced to a small size.

They generally have two premolars in front of the molar in the upper jaw, and three in the lower. The hinder premolar, which is probably analogous to the flesh-tooth in Carnivora, is always present; but the front one is often very small and deciduous, and in some genera entirely absent.

The more normal genera have four cutting-teeth in each jaw; but sometimes the hinder tooth on each side of the jaw is early deciduous, being pressed out by the enlargement of the canine, or, if present, is sometimes in front of that tooth, especially in the lower jaw.

The number of the premolars has been extensively used in dividing the species into groups; and considerable weight has been attached to the presence or absence of the lateral cutting-teeth: but in studying this character care should be taken as to the age of the specimen under examination; in some specimens these teeth are shed when the canines enlarge, instead of being retained in front of them.

The family, since I wrote upon them in 1842, has received considerable attention. MM. Gervais and De Saussure have written on them; the former has figured the skulls and teeth of many of the species and genera.

Mr. Tomes has published a revision of the species of *Vampyrus*, a description of the very curious genus *Lonchorhina*, and some other genera.

Dr. Peters has for years been paying great attention to them, having a monograph of them in the press illustrated with plates, and has very lately published a revision of the genera and species of the genus *Vampyrus* for the purpose of his monograph, of which the paper above referred to must be regarded as the forerunner. Dr. Peters has examined many of the typical specimens described by Natterer, Wagner, and others in the continental museums, and has thus got rid of a large number of nominal species.

I am very much pleased to observe that, in his last paper, Dr. Peters has placed considerable reliance in his generic characters on the form and disposition of the warts on the chin, as this confirms

the opinion that I formed when I published my paper on the "Genera of Bats" in the 'Magazine of Zoology and Botany' in 1837, more especially as the use of these warts to distinguish the groups and species was a source of considerable amusement to my zoological associates. Yet the genera now used are in several instances only names given to the sections that I proposed in 1837.

Dr. Peters, in his paper, has described one or two genera, or rather subgenera, that are not in the Museum Collection. They are marked with an asterisk in this table.

Mr. Tomes and Dr. Peters have divided the family into a few genera, each containing several subgenera. This seems to me to necessitate the use of three names when only two are enough; and several of the forms which they have regarded as only subgenera seem to me (and this is particularly the case as regards Dr. Peters) to be deserving of a higher position according to their own theory of nomenclature. I have therefore been induced to publish the arrangement here given, the tribes occupying the places which these zoologists give to genera, and showing, by making the groups tribes, where I think they have overlooked the importance of certain forms.

The colour of the fur in some species, and perhaps in most, seems to be of little importance for their distinction. I have found it the same in the Horseshoe Bats. There are in the British Museum specimens of the large *Fer de Lance* of Brazil (*Phyllostoma hastatum*) entirely sooty black, black above, and more or less blackish grey or grey beneath, reddish brown above and more or less pale beneath, and bright red bay above and beneath. These different colours are not confined to specimens of one sex. Other species also vary, but the Museum specimens do not show so large a series of differences. This may arise from the fact that we have not so many specimens of other kinds, the *Fer de Lance* being a large and conspicuous Bat, and therefore collected and sent home by many persons.

In skinning Bats the tail is often entirely, and sometimes partially withdrawn from the skin, and sometimes even the skin of it withdrawn into the body. In drying the skin the position of the wings on the feet or ankles is often altered, being either drawn down too low or pulled up too high, and sometimes even the form of the nose-leaf is changed. Several species, and even some genera, have been described from specimens so altered.

SYNOPSIS OF GENERA.

Section I. *Nostrils in the front of a disk which is expanded behind into an erect, free, lanceolate leaf.*

Subsection 1. *Head elongate; margin of the lips entire. True grinders 3/3, the hinder well developed, short, transverse (except in Carollia); premolars 2/2 or 1/2.*

A. *Tongue moderate, flat, smooth on the sides, and with a group of recurved spines in the middle of the front part; lower cutting-teeth in a continuous series.*

A. *Nose-leaf produced behind, entire; interfemoral membrane well developed. Tail distinct (except in Rhinops).*

a. *Front plate of the nose-leaf with an elevated edge and a central process in front; lower lip with two small triangular warts.*

Tribe 1. LONCHORHININA.

1. LONCHORHINA. *Tail elongated to the end of the produced conical interfemoral membrane. False grinders 2/2. L. aurita.*

b. *Front of the nose-leaf simple, with a thin flat front margin more or less closely applied to the surface of the nose.*

a. *Wings narrow behind, from the knee to the ankle.*

Tribe 2. MACROPHYLLINA. *Tail elongate to the end of the very long truncated interfemoral membrane.*

2. MACROPHYLLUM. *Chin with warts. Cutting-teeth 4/4; false grinders 2/2. End of nose hairy. M. newwiedii.*

β. *Wings broad behind, extending to the feet.*

Tribe 3. VAMPYRINA. *Lower lip slightly notched. Chin with two triangular warts in front. Nose hairy, with porous tubercles.*

* *Tail none; interfemoral membrane very long, truncated. Nose and chin only slightly hairy, with scattered glands; nose-leaf subtridentate at the tip.*

3. VAMPYRUS. *The nose-leaf free in front. Wings to the base of the toes. False grinders 2/3. V. spectrum.*

** *Tail short; ending on upper surface of the large truncated interfemoral membrane.*

† *Wings from the base of the toes.*

4. CHROPTERUS. *Ears very large. Cutting-teeth 4/2; false grinders 2/3. C. auritus.*

†† *Wings from the ankles. Lower cutting-teeth 2, with a groove in front.*

5. LOPHOSTOMA. *Ears large. Cutting-teeth 4/2; false grinders 2/3. L. bidens.*

6. MICRONYCTERIS. *Ears long, rounded. Nose-leaf moderate. Cutting-teeth 4/4; lower small, equal. Heel-bone long. Premolars 2/3. Chin-wart elongate, longer than broad. M. megalotis.*

7. MIMON. *Ears large. Nose-leaf very long. Cutting-teeth 4/2; lower with longitudinal grooves in front; false grinders 2/2. Chin-wart short, broad, transverse. M. bennettii.*

*** *Tail elongate, produced behind to the edge of the truncated interfemoral membrane. Wings to the end of the shins.*

8. MACROTUS. Ears very large. Nose-leaf hairy, attached to the nose on each side in front, and with a row of glands on each side of its base. Cutting-teeth $4/4$; false grinders $2/3$. *M. waterhousii*.

Tribe 4. PHYLLOSTOMINA. The lower lip with a triangular disk, with two or three warts surrounded by one or more series of warts, and with a series of conical glands on each side of the base of the nose-leaf. Tail short (in *Rhinops* wanting).

* *Interfemoral membrane elongate, truncated. Tail short.*

† *Wings from the base of the toes.*

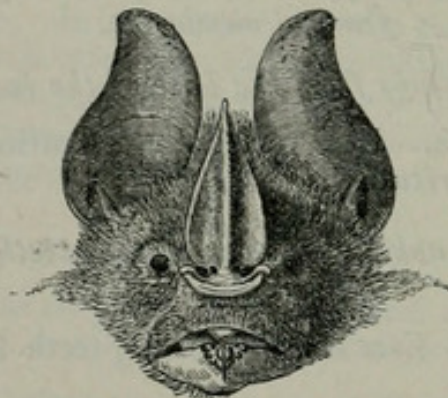
9. TYLOSTOMA. Nose hairy, without any glands in front of the nose-leaf. Cutting-teeth $4/2$; premolars $2/2$. *T. childrenii*.

10. GUANDIRA. Nose with a series of glands in front of the nose-leaf. Cutting-teeth $4/4$; premolars $2/3$. *G. cayanensis*.

†† *Wings from the ankles.*

11. PHYLLOSTOMA. Nose-leaf ovate, lanceolate, front part flat, front edge close on nose; upper lip hairy; lower lip with a smooth triangular space with a series of round warts on each side. Cutting-teeth $4/4$; premolars $2/2$. *P. hastatum*.

12. ALECTOPS. Nose-leaf lanceolate, with a very strong central ridge, front part concave, with a raised front and side edge; upper lip hairy, not glandular; lower lip with a triangular disk, with three warts, the central one being oblong and longitudinal, and edged with a series of oblong diverging warts. *Alectops ater*. Fur deep black; forearm $2\frac{1}{2}$ inches. Surinam.



Alectops ater.

** *Interfemoral membrane moderate; hinder edge more or less concavely cut out. Tail short (or none?).*

13. CAROLLIA. Nose not warty; lower lip with three long warts, with a series of broad warts on each side of it. Interfemoral mem-

brane short, reaching to the knee. Tail short. Wings from the ankles. The third upper grinder small, oblong. *C. brevicaudata*.

14. SCHIZOSTOMA. Nose not warty; lower lip with a long smooth triangular space, with a series of small oblong radiating warts on each side. Interfemoral membrane rather large. Cutting-teeth 4/4, lower equal; premolars 2/3. Tail short. Wings from the ankles. First joint of index shorter than second: *S. elongatum*. First and second joint of index equal: *S. minutum*.

15. RHINOPS. Face elongate, slender. Nose hairy, not warty; lower lip with a triangular space with a series of oblong radiating warts on the sides. Interfemoral membrane moderate; hinder edge arched. Cutting-teeth 4/4; lower two middle large, truncated; lateral small. Tail none? *R. minor*, n. s.

*16. RHINOPHYLLA. Face short, broad; lower lip with three warts, the centre largest, with a series of oblong warts on the sides. Interfemoral membrane moderate; hinder edge arched. Tail none. Wings from base of toes. Cutting-teeth 4/4; middle broad, bifid; grinders compressed, last upper small, circular; premolars 2/2, front upper minute. *R. pumilio*.

N.B. The third upper grinder of *Carollia*, as also that of *Rhinophylla* in a greater degree, resembles that of the *Stenodermina*, as these genera also do in the small size of the interfemoral.

Tribe 5. TRACHYOPINA. The end of the nose and chin flattened, bald, with elongated fleshy processes; front of the nose-leaf soldered on to the nose.

17. TRACHYOPS. Wings from the ankles. Interfemoral membrane elongate, truncated. Cutting-teeth 4/4; premolars 2/2. *T. cirrhosus*.

B. *Nose-leaf scarcely raised behind, and bifid, separated from the nose by a deep groove behind and on the sides; end of nose hairy. Interfemoral membrane small, margining the legs. Tail very short, or none. The third upper grinder long and broad.*

Tribe 6. BRACHPHYLLINA.

18. BRACHYPHYLLA. Tail very short. Lower lip with a smooth triangular space bearded on the edges. Premolars 2/2; the third upper grinder large, oblong, like the first and second. *B. cavernarum*.

B. *Tongue elongate, slender, exerted, with a band on each side formed of many series of recurved spines. Lower lip with a narrow deep notch in front. Lower cutting-teeth in two groups, divided by a space in the middle.*

Tribe 7. GLOSSOPHAGINA.

19. GLOSSOPHAGA. Interfemoral membrane large, truncated.

Tail short, with tip in upper surface of membrane. Front of nose-leaf soldered to the nose. Lower lip with a triangular groove edged on the side with round tubercles. Premolars $2/3$. *G. soriana*.

20. MONOPHYLLUS. Interfemoral membrane distinct, deeply and angularly cut out. Tail very short, free at the tip. Premolars $2/3$. Lower lip with two small triangular warts. *M. redmanni*.

21. ANOURA. Interfemoral membrane merely edging the legs. Tail none. Premolars $3/3$. Lower lip with two triangular grooves, fringed or bearded on the edges. *A. geoffroyi*.

Subsection 2. *Head short, broad; margin of the lip crenated, inner edge bearded. Interfemoral membrane small, angularly cut out, or only margining the legs. Tail none. True grinders $3/3$; the hinder small, circular, early deciduous or entirely wanting in one or both jaws.*

Tribe 8. STENODERMINA.

These Bats are nearly of the same colour, with a more or less distinct streak on the sides of the crown and cheeks; some have a dorsal streak. Some of the genera can only be determined by the skull and teeth.

* *Wings from the base of the toes. Interfemoral membrane moderate, with the hinder edge angular or arched from the heel to near the pelvis.*

† *The palate produced and contracted behind; the hinder nasal opening on a level with the middle of the zygoma. Shoulders without any white tufts.*

‡ *Upper cutting-teeth broad, bifid; the upper jaw regularly arched on the side; grinders oblong, transverse. Nasal bone perfect; nasal aperture entire, transverse.*

22. ARTIBEUS. Lower lip with a transverse triangular space with three tubercles nearly in a transverse line; the middle largest, edged on each side with round tubercles. The upper grinders oblong, transverse, the second smaller than the first, hinder absent; last lower grinder very minute. *A. jamaicensis*.

23. VAMPYRUPS. The lower lip with three round warts surrounded by a series of small ones. The upper grinders nearly square; the second rather larger than the first; hinder minute or wanting. Middle upper cutting-teeth broad, entire. Nose-leaf with a lamina behind. *V. vittatus*.

*24. URODERMA. "Like *Vampyrops*; but upper cutting-teeth broad, bifid. *U. personatum*."

†† Upper cutting-teeth elongate, simple; the upper jaw rather flattened on the sides, converging in front; upper grinders oblong, transverse, second larger than the first. Nasal bone very narrow, having a central notch on upper part of nose.

25. CHIRODERMA (*Mimetops*, Gray, MS.). *C. villosum*. *C. pictum*.

†† The palate short, broad; the hinder nasal opening before the end of the tooth-line. Upper cutting-teeth bifid. Nasal bone complete. Shoulders without any white tuft.

26. ARITEUS. Front edge of the nose-leaf attached to the lip by a narrow space in the middle; greater part of the sides free. Lower lip with a round tubercle above and two below it, forming a triangle, and with a series of round tubercles along the outer edge of the lip; inner edge bearded. Wings from the base of the toes. Lower phalange of the index-finger flattened, arched. Upper cutting-teeth two-lobed. *A. flavescens*.

††† The palate very short, broad; the hinder nasal opening just behind the tooth-line. Upper cutting-teeth conical, acute, isolated. The foot rather more free from the wings. Shoulders with white epaulets (over glands?).

27. PYGODERMA. Lower lip with a transverse disk, and a central tubercle edged by a series of round tubercles. Face of skull high. Nasal opening oblong, large. *P. leucomum*.

28. AMETRIDA. Lower lip triangular, high, with three tubercles in a triangle edged with a series of very small round ones. Face of skull depressed. *A. centurio*.

** Wings from upper part of ankles. Interfemoral membrane small, only margining the legs, hairy above.

29. STURNIRA. Front edge of nose-leaf attached to the lip by a broad space in the middle, free on the sides. Lower lip with three oblong warts in a broad triangle edged with warts on the sides. Interfemoral membrane very narrow. Wings from the ankles; lower phalanges of index finger slender, cylindrical, straight. Legs and feet hairy. *S. lilium*.

Subsection 3. The head short, broad; lips entire. Nose-leaf small, bifid behind. The grinders small, rudimentary; true grinders $1/2$, compressed. Upper cutting-teeth 2, large, conical; lower separated into two groups, trifid. Cardiac end of the stomach assuming the form of an elongated cæcum. (See Huxley, P. Z. S. 1865, p. 386.)

Tribe 9. DESMODINA.

30. DESMODUS. Lower lip with a triangular space with simple sides. Nose-leaf small, bifid behind. *D. rufus*.

*31. DIPHYLLA. Tail none. Premolars 0/1 (*Peters*), or 1/1 (*Gervais*). *D. ecaudata*.

Section II. *Nostrils in the concavities of a small disk, with prominent side edges. The face with symmetrical erect cartilaginous ridges. Interfemoral membrane marginal. Tail none. Ears with an expanded lobe on each side, hooding the face.*

Tribe 10. CENTURIONINA. Face with a small flat nasal disk, lobed on the sides, having an erect sinuous process behind it, and with a crescent-shaped palate on the forehead in front of a frontal pore. Tragus small, distorted. Middle finger four-jointed. Chin with transverse ridges.

32. CENTURIO. Chin with three transverse elevated leathery bands, the lowest one largest and covered with hair. *C. senex*.

*33. TRICHOCORYTES. "Chin with five transverse elevated bands; the two front ones smaller, and placed in front of the three former in *Centurio*." *T. macmurtrii*.

3. Note on the Genus *Brahmæa* of Walker.

By ARTHUR G. BUTLER, F.Z.S.

In laying before the Society the result of my investigations with regard to these figures, which were prepared for Mr. Adam White, formerly Assistant in the Zoological Department of the British Museum, and intended to illustrate a paper in the Society's 'Proceedings,' I wish it to be thoroughly understood that I have seen none of the specimens from which they were taken, and that I am therefore compelled to depend upon the drawings alone for the descriptions of the species. There are two examples of the old species *B. certhia* in the National Collection.

Genus BRAHMÆA, Walker.

Section 1.

1. BRAHMÆA CERTHIA. (Fig. 1.)

Bombyx certhia, Fabricius, Ent. Syst. iii. 1. p. 412 (1797).

Brahmæa certhia, Walker, List Lep. Het. Brit. Mus. pt. vi. p. 1316 (1835); F. Moore, Cat. Lep. Mus. East Ind. Comp. ii. p. 410. desc. 932 (1858-9).

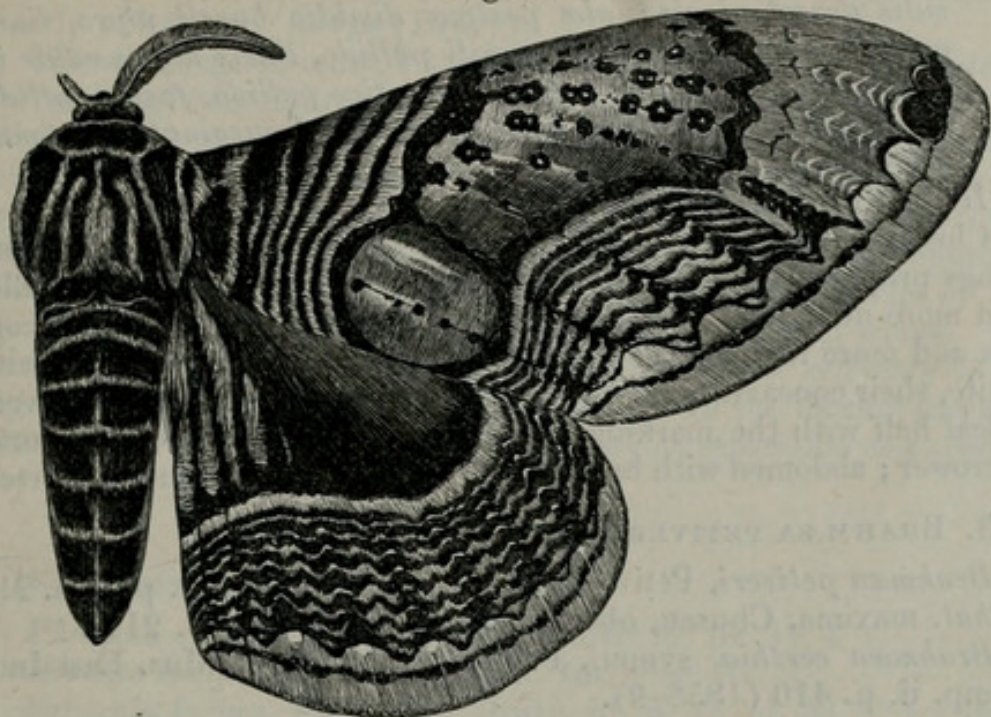
Bombyx wallichii, J. E. Gray, Zool. Misc. p. 39 (1832).

Bombyx spectabilis, Hope, Trans. Linn. Soc. xviii. p. 443, pl. 31. f. 3 (1841).

Hab. Sylhet; Nepal (*Moore*).

B.M.

Fig. 1.

*Brahmæa certhia.*

2. BRAHMÆA WHITEI, sp. n. (Fig. 2.)

Corpus supra luteo-fuscum, rivulis pallidis variegatum: alæ anticæ integræ, concolores, basi rivulis octo nigris; medio paulo magis fuscescente, linea nigra utrinque irregulari incluso, maculisque parvis in venas dispositis; apice antico lineis continuis, lunulatis, nigris, albo marginatis; margine postico pallido, maculis apud apicem duabus, nigris, introrsum albo mar-

Fig. 2.

*Brahmæa whitei.*

ginatis, maculisque sex albis submarginatis; apice postico rivulis decem nigris: alæ posticæ dimidio basali nigro, lineis pallidis pilosis; dimidio apicali pallido, lineis nigris valde irregularibus interrupto; margine postico pallido, fascia pallida, introrsum convexitatibus novem elevata submarginato: antennæ bipectinatæ, breves.

Hab. North-western India?

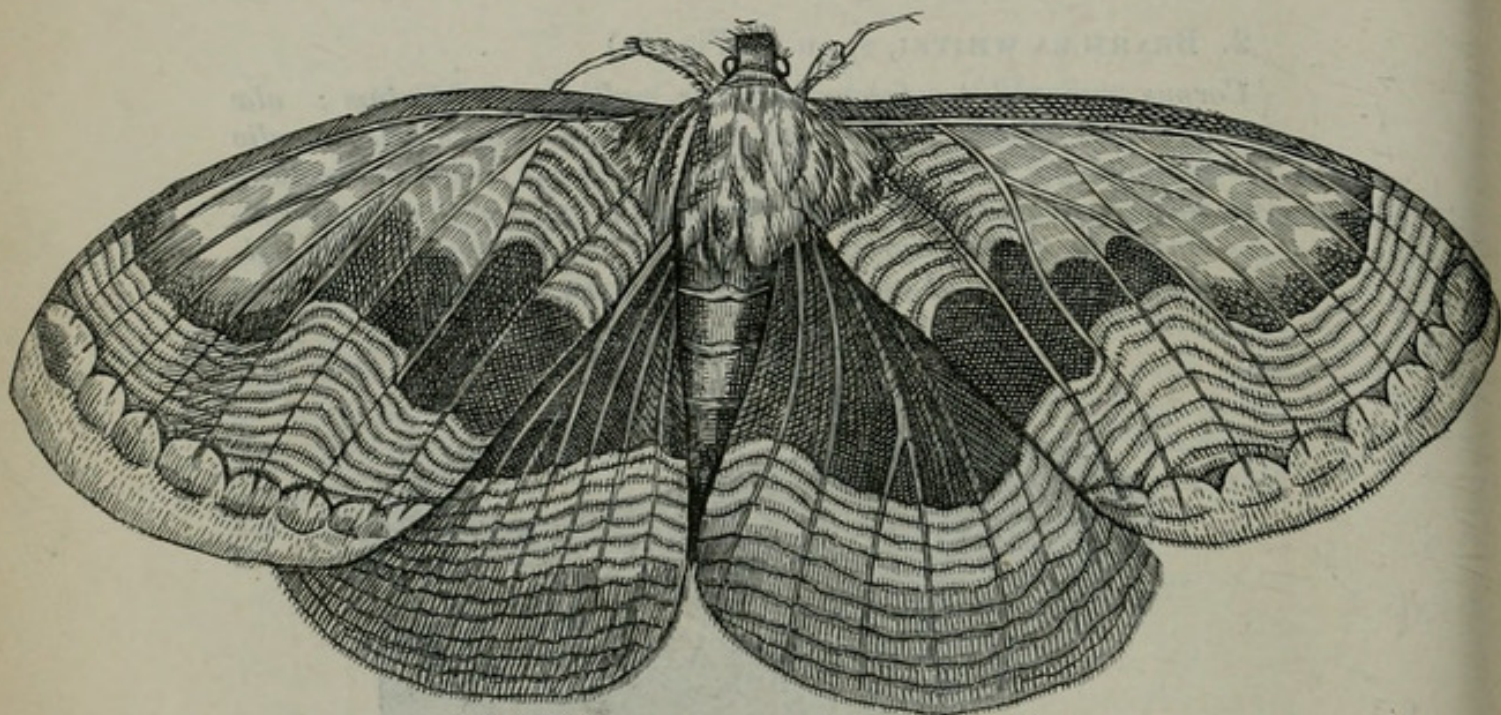
Closely allied to *B. certhia*; differs from it as follows:—Front wings proportionally narrower; central band narrower, with smaller and more numerous black spots; inner edge of pale apical patch convex and more regular, the lunulate lines entire, black margined with white, their concavities reversed. Hind wings shorter and narrower; apical half with the markings much more elongate. Body: thorax narrower; abdomen with broader pale bands; antennæ much shorter.

3. BRAHMÆA PETIVERI, sp. n. (Fig. 3.)

Brahmæa petiveri, Petiv. Gazoph. Cat. Class. et Top. p. 2. n. 213 (*Phal. maxima*, Chusan, obscura, fusca, &c., 18. 3, C. 212).

Brahmæa certhia, synonym., F. Moore, Cat. Lep. Mus. East Ind. Comp. ii. p. 410 (1858-9).

Fig. 3.



Brahmæa petiveri.

Alæ anticæ basi rivulis decem nigris; medio lineis angularibus brevibus albis maculato, pone fusco ad costam coarctato; area apicali rivulis decem fuscis; margine postico pallido, maculis octo pallidis submarginato: alæ posticæ dimidio basali nigro; apicali pallido, lineis multis fuscis, ex æquo distantibus interrupto.

Hab. Island of Chusan (China).

Note.—In the markings of the front wings this species seems more nearly allied to *B. lucina* (Drury).

The above insect must, I think, be quite distinct from *B. certhia*; for, although the figures in Petiver's book are undoubtedly quite out of date, it seems unlikely that any artist in making a representation of a species would go so far out of his way, to make the likeness a bad one, as to neglect characters in the hind which he had not overlooked in the front wings, as, for instance, we find in the figure by Petiver that the submarginal spots, common to the species of this genus, are represented in the front, but not in the hind wings. The numerous other differences will be at once seen by reference to the figures; and I think, taken in conjunction with the locality in which this species was captured, they fully justify its separation as a species.

Section 2.

4. BRAHMÆA LUCINA. (Fig. 4.)

Phalæna attacus lucina, Drury, Illustr. iii. pl. 34. f. 1.

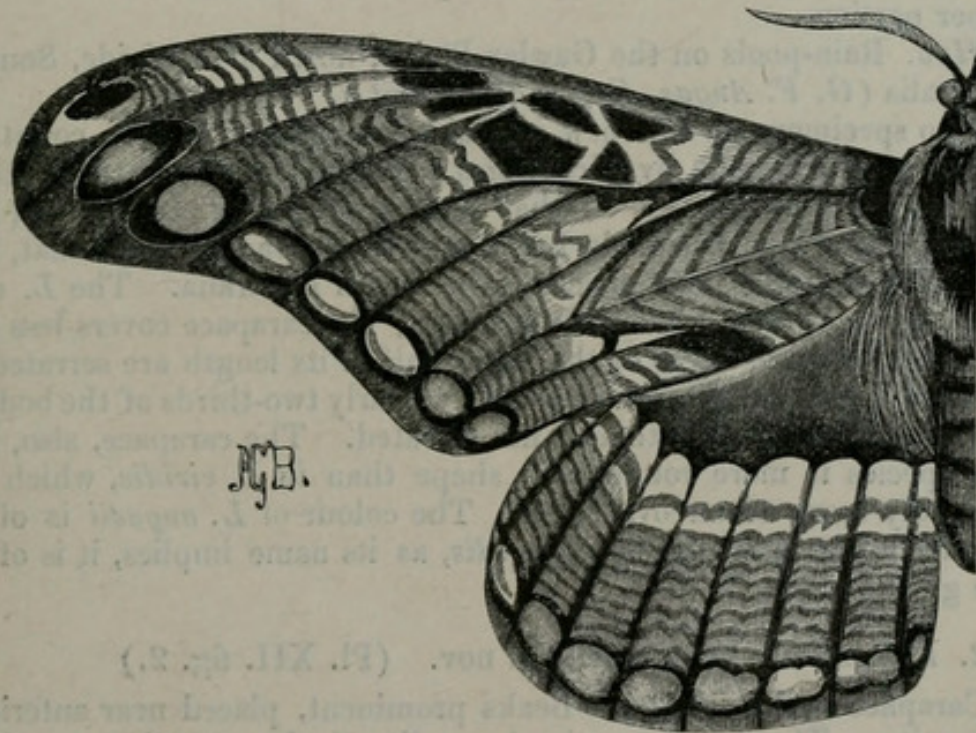
Bombyx lucina, Oliv. Enc. Méth. Ins. v. p. 31. 27.

Saturnia lucina, Westw. ed. Drury, iii. p. 45, pl. 34. f. 1; Proc. Zool. Soc. Lond. (1849) p. 56. n. 25.

Brahmæa ?lucina, Walker, List Lep. Het. Brit. Mus. pt. vi. p. 1316. n. 2.

Hab. Sierra Leone.

Fig. 4.



Brahmæa lucina.

4. Description of Two New Species of Phyllopodous Crustaceans. By W. BAIRD, M.D., F.L.S., &c.

(Plate XII.)

1. *LEPIDURUS ANGASII*, sp. nov. (Pl. XII. fig. 1.)

Animal, including flap of tail-segment, about an inch long. Carapace rounded, oval, of a pale horny colour (in spirits), covering more than two-thirds of the abdomen. Central keel somewhat blunt or obtuse for two-thirds of its length, becoming, near the extremity, sharp and prominent. It is quite smooth and free from dentations. Lunated notch at the extremity of the carapace rounded and finely toothed on its margin. The edges of the carapace are smooth, except for a very short distance at the posterior extremity, not dentated or serrated, but of a rather thicker consistence, and of a darker colour than the rest of the carapace. The dentations at the posterior extremity are very small and blunt, requiring a good magnifying-power to see them. The rings of the abdominal portion of body are beset with a few stout spines, curved downwards. The flap of the tail-segment has a fine keel running down its centre, with a few spines on its anterior half; and its edges are distinctly, but very finely, toothed or serrated. The filaments of the tail are rather more than half the length of the body, and are densely clothed with numerous very short fine setæ. The appendages of the first pair of feet are short, each articulation being shortly toothed on each side at the upper portion.

Hab. Rain-pools on the Gawler Plains, north of Adelaide, South Australia (*G. F. Angas, Esq.; Mus. Brit.*).

Two specimens of this new animal were brought to this country from South Australia by Mr. Angas. In 1850 I described, in the 'Zoological Proceedings' of that year, a species of *Lepidurus* (*L. viridis*) from Van Diemen's Land, which approaches somewhat, in general appearance, this species from South Australia. The *L. viridis*, however, is about double the size; the carapace covers less of the body, and the edges of the lower half of its length are serrated; while in *L. angasii* the carapace covers nearly two-thirds of the body, and the edges are smooth and not serrated. The carapace, also, in this species is more rounded in shape than in *L. viridis*, which is decidedly more of an oval form. The colour of *L. angasii* is of a pale horny hue; whilst in *L. viridis*, as its name implies, it is of a fine green.

2. *ESTHERIA NEWCOMBII*, sp. nov. (Pl. XII. fig. 2.)

Carapace oval in shape. Beaks prominent, placed near anterior extremity. The dorsal margin slopes directly down to the posterior extremity, which is nearly as broad as anterior extremity. Ribs of carapace about sixteen in number, narrower at the beaks, and becoming broader as they descend towards the ventral margin. The intervals of the ribs are dotted with punctations, which are small





M & N. Farbart. imp.

ANUROSTOMUS PARVULUS

J. Smit del, et lith.





J. Smit del.

STENOPSIS RUFICERVIX

M. & N. Harcourt imp.

3/4

and very numerous, and run into each other so as to produce a sort of running pattern.

Length nearly $\frac{1}{2}$ inch; breadth about $\frac{1}{4}$ inch.

Hab. California (*W. Newcombe, Esq.; Mus. Brit.*).

DESCRIPTION OF PLATE XII. figs. 1 & 2.

Fig. 1. *Lepidurus angasii*, p. 122.

1 a. Whole animal, natural size.

1 b. Anterior portion seen from beneath.

1 c. Abdominal portion, to show the spines.

1 d. Abdominal portion, to show tail-flap.

Fig. 2. *Estheria newcombii*, p. 122.

2 a. Natural size.

2 b. Dorsal view.

2 c. Ventral view.

2 d. Portion of carapace highly magnified to show the structure.

5. Notes upon the American *Caprimulgidæ*. By P. L. SCLATER, M.A., Ph.D., F.R.S., Secretary to the Society.

(Plates XIII., XIV.)

In the notes upon the American representatives of this family of birds which I have to offer to the Society I shall confine my remarks to such specimens as I have had an opportunity of examining myself, not venturing in this very difficult group to give any opinion upon species unknown to me.

The principal authorities I have to refer to upon the subject are (1) Mr. G. R. Gray's list of the specimens of this family in the British Museum*, published in 1848, (2) Mr. Cassin's 'Catalogue of the *Caprimulgidæ* in the Collection of the Academy of Natural Sciences of Philadelphia' (1851), and the same naturalist's critical remarks upon the American species published in the 'Proceedings' and 'Journal' of the same Academy†, and (3) Burmeister's account of the Brazilian species of this family in his 'Syst. Uebersicht d. Thiere Brasiliens' (vol. ii. p. 370 *et seq.*). As regards the northern species, our best authority is of course Professor Baird's 'Birds of North America.'

Before, however, I speak of the American species of *Caprimulgidæ* known to me, I will commence with a few preliminary observations upon the whole of the family, and its geographical distribution.

The *Caprimulgidæ*, as they are usually limited, present us with two very different types of structure in their feet, which enable us to separate them readily into two divisions. The first of these affords us one of the few known instances of deviation from the normal rule

* List of Specimens, &c., part 2, sect. I., *Fissirostres*.

† "Notes on an Examination of the Birds of the Family *Caprimulgidæ*, &c." (Proc. Acad. Phil. v. p. 175, 1851); and "Monograph of the Birds composing the Genera *Hydropsalis*, Wagler, and *Antrostomus*, Nuttall" (Journ. Acad. Phil. ser. 2. vol. ii. p. 113).

as regards the number of the phalanges of the digits in the class of Birds—the fourth or outer toe having only four phalanges, like the third or middle one. This peculiarity is accompanied by the presence of the well-known pectination of the inner edge of the claw of the long middle toe. This structure of the feet is met with in all the typical *Caprimulgidæ*—that is, in all the forms allied to our common *Caprimulgus europæus*. (See figs. 1, 2.)

Fig. 2. Fig. 1.

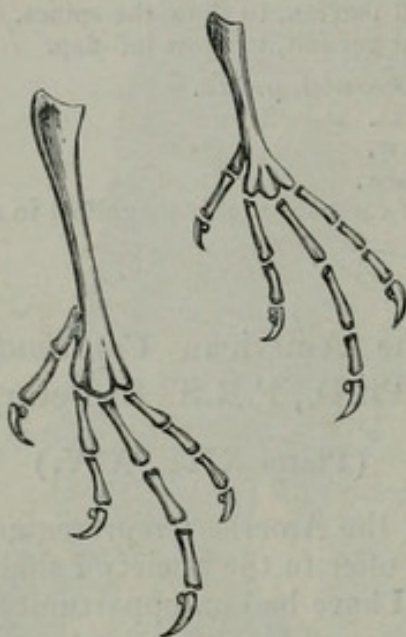


Fig. 1. Left foot of *Antrostomus vociferus*.
2. Left foot of *Nyctidromus albicollis*.

In the second division, containing the genera *Steatornis* and *Nyctibius* of the New World and *Podargus*, *Batrachostomus*, and *Ægotheles* of the Old World, the pectination of the medial claw is wanting, and the outer digit has the normal number of *five* phalanges. (See figs. 3, 4, and 5.)

A second part of the skeleton of the *Caprimulgidæ*, which presents us with some very important characters, is the sternum. The great differences between the sterna of *Caprimulgus* and *Podargus* have been well pointed out by M. Blanchard*, and may be seen at a glance on reference to the two sterna of *Caprimulgus stictomus*, Swinhoe, and *Podargus plumiferus*, Gould, which I now exhibit. (See figs. 6 and 8.) They are such as scarcely occur in any other natural family of birds, and may probably ultimately necessitate the separation of the forms allied to *Podargus* into a distinct family†. Of the sternum

* *Ostéologie des Oiseaux*, p. 94.

† Dr. Cabanis has proposed (*Orn. Not. in Wiegmann's Arch.* 1847, p. 343) to remove the *Podarginæ* into the family *Coraciidæ*, but without giving any very good reason for so doing. At the same time, he leaves *Nyctibius* with the *Caprimulgidæ*. Dr. Cabanis considers that the *Podarginæ* are most nearly allied to the *Eurylæminæ*, which, however (except *Peltops*, which is a Muscipine form allied to *Monarcha*), I agree with Mr. Wallace in placing next to the American *Cotingidæ*. It seems to me that wherever *Podargus* and its allies go *Nyctibius*

Fig. 3.

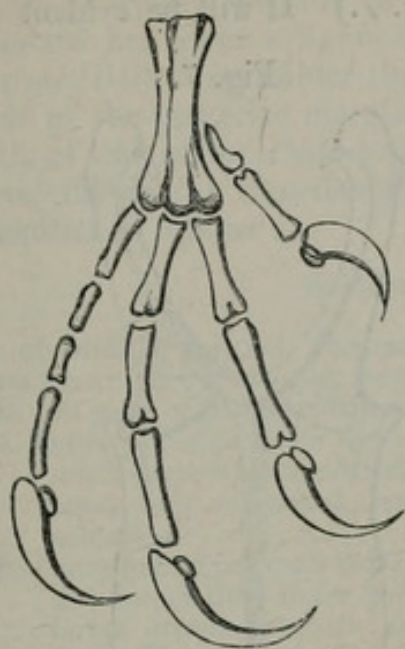


Fig. 4.

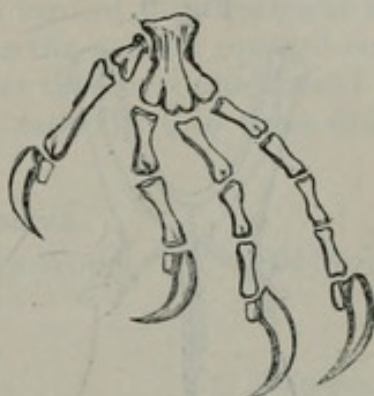


Fig. 5.

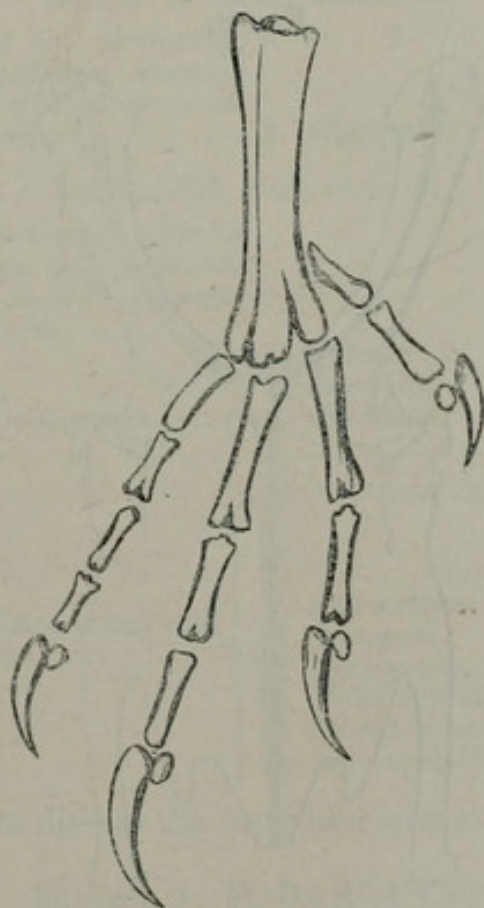


Fig. 3. Right foot of *Steatornis caripensis*.
 4. Left foot of *Nyctibius jamaicensis*.
 5. Right foot of *Podargus cuvieri*.

must follow. But *Steatornis*, being undoubtedly allied to *Nyctibius*, offers us a transition between the two extremes which renders it difficult to place them at any distance apart.

of *Nyctibius* I am likewise enabled to exhibit a specimen, through the kindness of Mr. Eyton. (See fig. 7.) It will be evident that

Fig. 6.

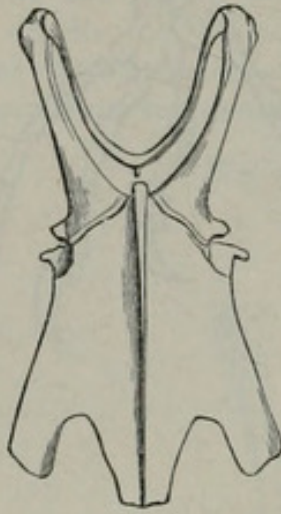


Fig. 7.

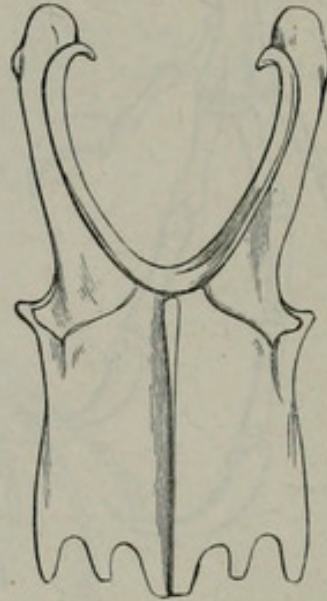


Fig. 8.

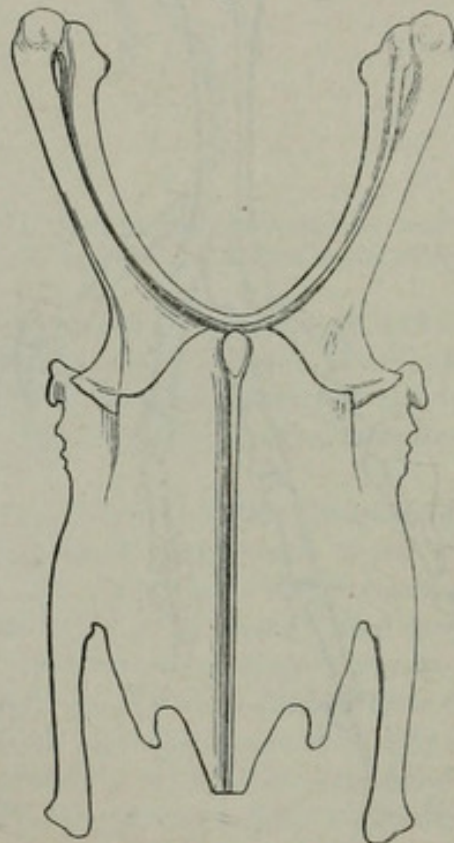


Fig. 6. Outline of sternum of *Caprimulgus stictomus*.
7. Outline of sternum of *Nyctibius jamaicensis*.
8. Outline of sternum of *Podargus plumiferus*.

this form represents the *Podargi* in the New World. Its sternum has the same shortened squared shape as that of *Podargus*, and has also the two posterior fissures, although the outer pair are not deeply

cut in beyond the inner pair as in *Podargus*. Unfortunately I am not able to show a sternum of the curious form *Steatornis*; but M. Blanchard has given a figure of it (*Ostéologie*, pl. 3. f. 3), whereby it appears that it resembles that of the typical *Caprimulginae* in the outline of the posterior margin, but has the general squared conformation of that of the *Podarginae*. Under these circumstances I think we may divide the *Caprimulgidae* very naturally into three different subfamilies as follows:—

Subfam. I. PODARGINÆ.

	New World.	Old World.
Claw of middle toe not pectinated; outer toe with five phalanges; sternum with two pairs of posterior fissures.		
a. Outer pair of posterior fissures much deeper than inner pair; tarsus long and naked; eggs colourless.....	{ 1. <i>Podargus</i> . 2. <i>Batrachostomus</i> . 3. <i>Ægotheles</i> .
b. Outer pair of posterior fissures not deeper than inner pair; tarsus extremely short, and feathered; eggs coloured ..	4. <i>Nyctibius</i> .	

Subfam. II. STEATORNITHINÆ.

Claw of middle toe not pectinated; outer toe with five phalanges; sternum with one pair of shallow posterior fissures; eggs colourless* 1. *Steatornis*.

Subfam. III. CAPRIMULGINÆ.

Claw of middle toe pectinated; outer toe with four phalanges only; sternum with one pair of shallow posterior fissures; eggs coloured.

a. <i>Glabrirostres</i> : rictus smooth..	{ 1. <i>Podager</i> . 2. <i>Lurocalis</i> . 3. <i>Chordeiles</i>	4. <i>Lyncornis</i> . 5. <i>Eurystopodus</i> .
b. <i>Setirostres</i> : rictus armed with strong bristles	{ 6. <i>Caprimulgus</i> . 7. <i>Scotornis</i> . 8. <i>Macrodipteryx</i> . 9. <i>Antrostomus</i> . 10. <i>Stenopsis</i> . 11. <i>Hydropsalis</i> . 12. <i>Heleothreptus</i> . 13. <i>Nyctidromus</i> . 14. <i>Siphonorhis</i> .	

I now proceed to discuss the American species of these three subfamilies:—

Subfam. 1. PODARGINÆ.

Of this subfamily there is but one genus in the New World, namely

NYCTIBIUS, Vieill.

Besides the very short and feathered tarsi, this genus is distinguish-

* Cf. Des Murs, *Rev. Zool.* 1843, p. 33; et *Trait. d'Ool. Orn.* p. 259 *et seq.*

able from the Old-World *Podarginæ* by the singular form of the bill (which has a strong tooth on the margin of the upper mandible), and by other peculiarities. I have seen specimens of *five* very distinct species of this genus, which may be shortly distinguished as follows:—

1. NYCTIBIUS GRANDIS.

Caprimulgus grandis, Gm. (ex Buff. Pl. Enl. 325); Max. Beitr. iii. p. 295.

Nyctibius grandis, Vieill.; Gray & Mitch. Gen. Birds, i. pl. 16; Jard. & Selby, Ill. Orn. ser. 1. vol. ii. pl. 89; Schomb. Reise, iii. p. 711; Burm. Syst. Ueb. ii. p. 374.

Albo-cinereus, partim rufescens, nigro vermiculatus; axillis nigris, humeris rufis: subtus dilutior, fascia pectorali indistincta nigra: long. tota 19, alæ 14, caudæ 10 poll. Angl.

Hab. Cayenne (*Buff.*); British Guiana (*Schomb.*); littoral of S.E. Brazil (*Max.*); Upper Ucayali (*Bartlett.*).

Easily distinguished from all its relatives except *N. æthereus* by its dimensions. It is well figured in Gray and Mitchell's 'Genera' (*l. c.*) about two-thirds of the natural size. The egg of this bird is described by Burmeister in Cabanis's Journal (i. p. 171), and has been figured by Thieneman.

2. NYCTIBIUS ÆTHEREUS.

Caprimulgus æthereus, Max. Beitr. iii. p. 303.

Nyctibius æthereus, Cassin, Cat. Capr., et Pr. Acad. Phil. v. p. 184; Burm. Syst. Ueb. ii. p. 375.

Rufus, nigro striatus, subtus dilutior, magis ochraceus; maculis pectoris rotundis et striis in ventre nigris: long. tota 20, alæ 13, caudæ 12.

Hab. Littoral of S.E. Brazil, province of Bahia (*Max.*).

This large species is easily distinguishable from *N. grandis* by its shorter wings and longer tail, by the rufous colouring above, the large black terminal spots on the breast-feathers, and the longitudinal black striæ on the belly. There is a specimen in the British Museum, and others in Mr. Eyton's and Mr. Salvin's collections.

Mr. Cassin (Pr. Acad. Nat. Sc. Phil. v. p. 184) says very truly according to my ideas) that this species is a "much larger bird" than the next following, "being about the size of *N. grandis*." But the figure given by Mr. Cassin in the 'United States Exploring Expedition,' Atlas, Ornithology, pl. 14, and stated (p. 191) to be "of the natural size," is of much smaller dimensions than those assigned to it, and in some other respects more nearly resembles *N. longicaudatus*.

3. NYCTIBIUS LONGICAUDATUS.

Caprimulgus longicaudatus, Spix, Av. Bras. ii. p. 1, pl. 1.

Nyctibius longicaudatus, Tsch. F. P. p. 124; Cassin, Cat. Capr., et Pr. Ac. Phil. v. p. 184.

Rufus, nigro vermiculatus; maculis pectoris rotundis et striga subriectali distincta nigris; alis caudaque subtus distincte nigro

transvittatis; crisso et plaga humerali pallide fulvis: long. tota 18, alæ 12·2, caudæ 10.

Hab. Forests of the River Japura (*Spix*); Eastern wood-region of Peru, prov. Maynas (*Tsch.*).

Easily distinguishable from *N. æthereus* by its smaller size, brighter rufous colouring, especially below, and the distinct broad black bars on the wings and tail. Specimens are in the British Museum and in Mr. Eyton's collection.

4. NYCTIBIUS JAMAICENSIS.

Caprimulgus jamaicensis, Gm. S. N. i. p. 1029.

Nyctibius jamaicensis, Gosse, B. Jam. p. 41; Ill. pl. 6; Cassin, Pr. Acad. Phil. v. p. 185.

Caprimulgus cornutus, Vieill. Nouv. Dict. x. p. 245, et Enc. Méth. p. 538 (ex Azara, no. 308).

Nyctibius cornutus, Burm. Syst. Ueb. ii. p. 376; Tsch. F. P. 123.

N. urutao, Lafr. Mag. de Zool. 1837.

N. pectoralis, Gould, Icon. Av. pl. 8.

Fusco-cinereus, nigro striatus et maculatus, axillis nigris, humeris rufo indutis: subtus dilutior, scapis plumarum omnium et maculis pectoris rotundis nigris: long. tota 15 ad 13, alæ 12 ad 9·5, caudæ 8·5 ad 6·5.

Hab. Jamaica (*Gosse et Osburn*); Guatemala (*Constancia*); Ecuador, near Quito (*Fraser*); wood-region of Eastern Peru (*Tsch.*); Paraguay (*Azara*); S.E. Brazil (*Burm.*).

I agree with Mr. Cassin (Pr. Acad. Sc. Phil. v. p. 185) in considering all the names given above referable to one widely distributed and somewhat variable species. Hitherto (see Cat. of American Birds, p. 278) I have kept the Jamaican bird distinct, but merely on account of its larger size. But Mr. Salvin's Guatemalan specimen is larger than any Jamaican I have met with; and, as will be seen by the subjoined table, in which the measurements of nine individuals are given, there seems to be every gradation of size when a series is examined. However, it is possible that more extensive research may enable the southern species to be discriminated.

Gosse's *Nyctibius pallidus* (B. Jam. p. 49, et Ill. pl. 7) is commonly regarded as only a variety of this species. But I am rather doubtful whether this is correct. Mr. March (*in litt.*) states that he believes it to be distinct.

Measurements of *Nyctibius jamaicensis*.

Patria.	Mus.	Long. tota,	alæ,	caudæ.	Lat. rostri.
1. Jamaica	P. L. S.	14·5	11·4	8·0	2·1
2. Jamaica	P. L. S.	14·0	11·1	7·7	1·9
3. Jamaica	Eyton	14·0	11·0	7·9	2·0
4. Guatemala	O. Salvin.....	15·0	12·0	8·5	2·1
5. Andes near Quito ..	P. L. S.	13·5	10·6	7·6	1·7
6. South America	P. L. S.	13·0	9·9	6·5	1·7
7. Ign.	Eyton	14·0	10·2	7·2	1·9
8. Ign.	Eyton	13·0	9·5	6·8	1·6
9. Ign.	P. L. S.	13·0	10·0	7·0	1·7

5. NYCTIBIUS LEUCOPTERUS.

Caprimulgus leucopterus, Pr. Max. Beitr. iii. p. 311.

Nyctibius leucopterus, DesMurs, Icon. Orn. pls. 49, 50; Burm. Syst. Ueb. ii. p. 377.

Cinereus nigro maculatus, axillis nigris, humeris pure albis: long. tota 11, alæ 8·3, caudæ 5·2.

Hab. Coast-region of S.E. Brazil, Caravellos, and Bahia (*Max.*).

At once distinguishable by its small size and the snowy-white patch on the middle coverts. The only example I have seen of this species has been kindly lent to me by Mr. Eyton.

I have not yet met with examples of two other species, which are apparently valid, namely—

6. NYCTIBIUS BRACTEATUS.

Nyctibius bracteatus, Gould, P. Z. S. 1846, p. 1; Cassin, Cat. Capr., et Pr. Acad. Sc. Philad. v. p. 184.

Castaneo-fuscus, scapularium apicibus et abdomine maculis albis, quasi bracteis, ornatus: long. tota 9·5, alæ 6, caudæ 5·5 (Gould).

Hab. New Granada, Bogota.

Mus. Reg. Inst. de Liverpool et Acad. Philadelphicæ.

This must be a scarce species. In the thousands of Bogota skins I have examined I have never met with it.

7. NYCTIBIUS RUFUS.

Nyctibius rufus, Cab. in Schomb. Guian. iii. p. 711.

Hab. British Guiana (*Schomb.*).

Apparently well marked by its rufous general colouring and small size.

Subfam. II. STEATORNITHINÆ.

Of this subfamily there is only a single known representative, namely,

STEATORNIS CARIPENSIS.

Caprimulgus steatornis et *Steatornis caripensis*, Humboldt.

Steatornis caripensis, l'Herminier, Ann. d. Mus. ser. 3. iii. p. 321, t. 15; E. C. Taylor, Ibis, 1864, p. 88.

This remarkable bird was discovered by Humboldt and Bonpland in 1799, near the Mission of Caripé in the province of Cumana, Venezuela. It also inhabits the caves beneath the ravine crossed by the celebrated "Natural bridge" of Pandi near Bogota, and the "Quebrada negra" of Guaduas in the same neighbourhood*, the chasm called the Hoyo del Aire, fourteen miles N.N.E. of Velez in New Granada†; and in all probability other similar localities in New Granada and Venezuela.

* Roulin, Compt. Rend. iii. p. 94 (1836).

† Holton's New Granada (New York, 1857), p. 263.

Mr. E. C. Taylor (*l. s. c.*) has lately given us an interesting account of his excursion to the caves inhabited by this bird in Trinidad, and I am indebted to that gentleman for one of the specimens procured on that occasion. Its existence in Trinidad was first determined by M. Hautessier. (See Bory St. Vincent in *Compt. Rend.* viii. p. 474, 1838.)

Mr. G. R. Gray (*Gen. of Birds*, i. p. 44) states that the *Steatornis* is also found in Guadeloupe; but this I believe is an error, originating in the fact that M. l'Herminier, who has so well described the bird in the 'Annales du Musée,' lived in Guadeloupe. But M. l'Herminier expressly tells us that he obtained his specimens from Caripé; and I believe the form to be strictly a continental one—Trinidad belonging zoologically to the neighbouring terra firma, and having nothing to do with the Antilles. M. l'Herminier does not mention in his description that the tibiæ as well as the tarsi of this eccentric bird are naked, being covered only by a smooth horny skin, and that there is no appearance of tarsal scutes.

There can be no doubt that this singular form is purely frugivorous. Dr. Funck, who visited the cavern of Caripé in 1843, gives us (*Bull. Acad. Brux.* xi. pt. 2. p. 373) the names of the fruits upon which it feeds.

Subfam. III. CAPRIMULGINÆ.

We now come to the more typical *Caprimulgidæ*, which are always distinguishable by the outer toe having only four digits, and by the pectinated claw of the middle toe. The American species of this subfamily are easily divisible into two sections. The *Caprimulginae glabrirostræ* containing the genera *Chordeiles* and its allies, do not possess the strong bristles springing from the edge of the upper mandible at its base and covering the gape, which distinguish the more typical section or *Caprimulginae setirostræ*. The genera of this subfamily may be briefly distinguished as follows:—

Sect. I. CAPRIMULGINÆ GLABRIROSTRES.

- A. Tarsis validis, digito medio longioribus, omnino nudis. . (1.) *Podager*.
 B. Tarsis modicis, digito medio brevioribus, plus minusve vestitis.
 a. Cauda brevi, fere quadrata (2.) *Lurocalis*.
 b. Cauda elongata, paulum furcata (3.) *Chordeiles*.

Sect. II. CAPRIMULGINÆ SETIROSTRES.

- A. *Aerææ*: tarsis brevibus, plus minusve vestitis.
 a. Alis normalibus; remigibus ii^{do} et iii^o longissimis.
 a'. Cauda modica, apice rotundata. (4.) *Antrostomus*.
 b'. Cauda elongata, apice æquali (5.) *Stenopsis*.
 c'. Cauda longissima, furcata aut bifurcata . . (6.) *Hydropsalis*.
 b. Alis in mari abnormalibus; rem. vi. primis fere æqualibus (7.) *Heleothreptus*.
 B. *Terricolæ*: tarsis elongatis, nudis.
 a. Rostro modice lato: narium apertura vix exstante. (8.) *Nyctidromus*.
 b. Rostro latissimo: narium apertura longe eminente. (9.) *Siphonorhis*.

Sect. I. CAPRIMULGINÆ GLABRIROSTRES.

Genus 1. PODAGER.

PODAGER NACUNDA.

Caprimulgus nacunda, Vieill. (ex Azara, sp. 312).

Podager nacunda, Schomb. Reise, iii. p. 711; Burm. Syst. Ueb. ii. p. 400.

Caprimulgus diurnus, Max. Beitr. iii. p. 326.

C. campestris, Licht. Doubl. p. 59; Temm. Pl. Col. 182.

♂. *Fuscus, nigro vermiculatus et maculatus, gula, abdomine et caudæ apice albis; primariis nigris, late albo vittatis: long. tota 11·5, alæ 8·8, caudæ 4·3, tarsi 1.*

♀. *Caudæ apice concolore.*

Hab. Paraguay (*Azara*); S.E. Brazil (*Max. & Burm.*); Brit. Guiana (*Schomb.*); Bolivia (*Bridges*); Lower Ucayali (*Bartlett*).

The egg of this species is described by Burmeister in *Cab. Journ. f. Orn. i. p. 170.*

Genus 2. LUROCALIS.

This form is most nearly allied to *Chordeiles*, but easily distinguished by its short square tail. The tarsi are short, feathered in front down to the toes, but naked behind. There is no white bar on the wings or tail, but a narrow white throat-band. There are only two known species of this genus, which differ little from each other, except in size. These are—

1. LUROCALIS SEMITORQUATUS.

Caprimulgus semitorquatus, Gm. (ex Pl. Enl. 734).

Lurocalis semitorquatus, Cassin, Proc. Acad. Phil. v. p. 189.

Podager gouldi, Gray & Mitch. Gen. B. pl. 18.

Chordeiles semitorquatus, Burm. Syst. Ueb. ii. p. 397.

Minor: long. tota 7, alæ 6·7, caudæ 3.

Hab. Cayenne (*Buff.*); Cameta, South Brazil (*Mus. Berol. teste Burmeister*).

2. LUROCALIS NATTERERI.

Caprimulgus nattereri, Temm. Pl. Col. 107.

Lurocalis nattereri, Cassin, Proc. Acad. Phil. v. p. 190.

Chordeiles nattereri, Burm. Syst. Ueb. ii. p. 398.

Major: long. tota 7·8, alæ 7·8, caudæ 3·2.

Hab. S.E. Brazil, near New Freiburg (*Burm.*).

A skin of a species of this genus in Mr. Eyton's collection, which for the present I am inclined to refer to this species, is much larger than the dimensions above given, measuring, long. tota 9·7, alæ 8·5, caudæ 4. It does not otherwise differ materially from smaller-sized specimens.

Genus 3. CHORDEILES.

The eight species of this genus which are known to me may be shortly distinguished as follows:—

Subgenus I. *Chordeiles*, tarsi in parte summa antice vestitis, postice omnino nudis.

a. Primariis externis albo vittatis.

a'. Primariis v. primis albo vittatis ..

b'. Primariis iv. primis albo vittatis ..

b. Primariis externis non vittatis

Subgenus II. *Podochætes*, tarsi omnino vestitis

- | |
|-------------------------|
| 1. <i>virginianus</i> . |
| 2. <i>henryi</i> . |
| 3. <i>minor</i> . |
| 4. <i>texensis</i> . |
| 5. <i>acutipennis</i> . |
| 6. <i>pusillus</i> . |
| 7. <i>rupestris</i> . |
| 8. <i>leucopygus</i> . |

I have a few remarks to offer on these species.

Subgenus I. *Chordeiles*.

1. CHORDEILES VIRGINIANUS.

Chordeiles virginianus, auctt. plur.

C. popetue, Baird, B. of N. A. p. 151.

Hab. Atlantic States of North America, southwards through Central and South America into Brazil.

I cannot agree with my friend Prof. Baird in rejecting the old and generally adopted name of *virginianus* for this species, although it is no doubt true that Gmelin's *Caprimulgus virginianus* is only in part applicable to it.

This Night-Hawk seems to be widely distributed in America. It extends from the Atlantic northern states, throughout Mexico and Central America, to Panama, whence Mr. M'Cleannan has forwarded specimens. Natterer collected examples in the interior of Brazil (his species no. 93) which I cannot separate from the northern bird. My two specimens, obtained by that naturalist at Araguay in October 1823, are of the dark-coloured variety with little rufous on the back, as in most examples from the northern Atlantic states.

2. CHORDEILES HENRYI.

Chordeiles henryi, Cassin; Baird, *l. c.* p. 153.

Similis C. virginiano, sed alis extus albo variegatis, et ventre imo crissoque purius albis.

Hab. New Mexico and Northern Mexico.

This seems to me little more than a pale variety of *C. virginianus*, as already suggested by Prof. Baird. Mr. Dresser obtained it at Matamoras, as mentioned in the 'Ibis,' 1865, p. 47, along with *C. virginianus*.

I shall leave it, however, to Prof. Baird, who has much better opportunities than myself for forming an opinion, to say whether this form is to continue to rank as a species or not.

3. CHORDEILES MINOR.

Chordeiles minor, Cab. J. f. Orn. 1856, p. 5; Sclater, Cat. p. 279.

Similis C. virginiano, sed minor: long. tota 7.7, alæ 7, caudæ 4.

Hab. Cuba (*Gundl.*); Jamaica (*Osburn*).

4. CHORDEILES TEXENSIS.

Chordeiles texensis, Lawr. ; Baird, B. N. A. p. 154 ; Sclater, Cat. p. 279.

Hab. Valley of Rio Grande and southwards, west to Gulf of California (*Baird*) ; Mexico ; Guatemala (*Salvin*) ; Nicaragua (*Salvin*).

This species, although very closely allied to the common South-American *Chordeiles acutipennis*, is, I think, distinct. It is of larger size, has longer wings, and has the larger wing-coverts and primaries beyond them, nearly down to the white bar, marked with distinct rufous spots on the outer web. These spots are certainly apparent in the females and younger birds of *Ch. acutipennis*, but are hardly seen in the adult males. I subjoin a table of measurements of a series of the two species in Mr. Salvin's collection and my own :—

		Localit.	Long. tota,	alæ,	caudæ.
<i>C. texensis</i> ,	♂	Guatemala	8·7	7·3	4·5
—	♂	Realejo, Nic.	8·3	6·5	4·0
—	♂	Guatemala	8·3	7·3	4·3
—	♀	Guatemala	8·7	7·3	4·5
—	♀	Guatemala	8·2	6·9	4·3
—	♀	Guatemala	8·4	6·9	4·2
<i>C. acutipennis</i> ,	♂	Brazil	7·7	6·4	4·0
—	♀	Brazil	7·7	6·4	3·6
—	♂	Cayenne	7·8	6·4	3·6
—	♂	Tobago	7·6	6·5	3·9
—	♀	South America	7·3	6·6	3·8

5. CHORDEILES ACUTIPENNIS.

Caprimulgus acutipennis, Bodd. (ex Buff. Pl. Enl. 732).

C. acutus, Gm. S. N. i. p. 1031.

Chordeiles acutus, Cassin, Pr. Acad. Phil. v. p. 188 ; Burm. Syst. Ueb. ii. p. 395.

C. labeculatus, Jard. Ann. & Mag. N. H. 1846, p. 118.

C. acutipennis, Cassin, Cat. Capr.

Caprimulgus sapiti, Natt. in Mus. Vindob. (no. 94) ; Bp. Consp. p. 63.

Hab. Tobago (*Kirk*) ; Cayenne (*Buff.*) ; S.E. Brazil, coast-region (*Burm.*) ; Rio Branco and Rio Negro (*Natt.*).

This is a very common South-American species. It comes nearest to *C. texensis*, but, as I have already shown, is of inferior dimensions, and is not so much spotted with rufous on the outer primaries.

I cannot make out what *Chordeiles brasiliensis*, Cassin (ex Gmelin) (Pr. Acad. Phil. v. p. 187) is. Burmeister also gives a species of *Chordeiles* as Brazilian, under the name *Chordeiles pruinosa* (Syst. Ueb. ii. p. 394), and makes it identical with Cassin's *C. brasiliensis*. Cassin gives no description of his species. According to Burmeister it is very closely allied to the present* ; but he mentions that the five first primaries are barred with white. If this be really the case, the species is probably *C. virginianus* ; but that is a much larger bird than the present. As I have already stated, there is not much difficulty in separating the species of *Caprimulgidæ* when the speci-

* Of *C. acutus* he says, " Gestalt und Grösse ganz wie bei den vorigen Art, i. e. *C. brasiliensis*" (l. c. p. 396).

mens are before one; but it is not easy to reconcile the conflicting opinions as regards the synonyms of the older authors.

Herr von Pelzeln informs me that Natterer's MS. name *sapiti*, concerning which there has been so much discussion, is undoubtedly referable to this species, having been formerly applied to it in Natterer's catalogue. Natterer subsequently identified this species with *Caprimulgus semitorquatus*, Gm. (Pl. Enl. 734); but I follow Cassin and Burmeister in considering that the latter synonym must be referred to *Lurocalis gouldi*.

I consider *Caprimulgus hirundinaceus*, Spix (Av. Bras. ii. pl. 3. f. 1), probably identical with this species. The bill is drawn as if bristled, it is true; but that is also the case in the accompanying figure of *Chordeiles leucopygus*.

6. CHORDEILES PUSILLUS.

Chordeiles pusillus, Gould, P. Z. S. 1861, p. 182.

Hab. S.E. Brazil, Lagoa Santa (*Lund, in Mus. Hafn.*); Fazenda and Corunda, Brazil (*Natt.*, no. 605).

The diminutive size of this little species, together with the white crissum and chestnut shoulders, render it unmistakable. My specimens (from Natterer) measure as follows:—

Localit.	Long. tota,	alæ,	caudæ.
♂. Fazenda, July 1825	6.2	5.3	3.0
♀. Corunda, July 1825	6.0	5.2	3.0

The remaining species of the subgenus varies greatly from the typical coloration. This is

7. CHORDEILES RUPESTRIS.

Caprimulgus rupestris, Spix, Av. Bras. ii. p. 2, pl. 2.

Chordeiles rupestris, Burm. Syst. Ueb. ii. p. 393.

♂. *Supra cinereus, fusco variegatus: subtus albus; pectore cinerascens, fusco vario; ventre fusco maculato: alis nigris, speculo alari et secundariis intus albis: caudæ rectricibus in pogonio interno (nisi duæ mediæ dorso concolores) albis, harum apicibus nigris: long. tota 8.3, alæ 6.7, caudæ 3.7.*

♀. *Mari similis, sed magis rufescens et coloribus minus puris.*

Hab. Rocky Islands of Rio Negro (*Spix*); Lower Ucayali (*Bartlett*).

Subgenus 2. *Podochætes*.

8. CHORDEILES LEUCOPYGUS.

Caprimulgus leucopygus, Spix, Av. Bras. ii. p. 3, pl. 3. f. 2.

Chordeiles leucopygus, Burm. Syst. Ueb. ii. p. 393.

Lurocalis leucopygus, Cassin, Cat. Capr.

Hab. Brazil, vic. of Para (*Mus. Berol.*); banks of the Amazon (*Spix*); Matogrosso, Brazil, Nov. 1826 (*Natt.*, sp. no. 761).

Easily known by the want of any white wing-bar, the square white mark on the three outer pairs of rectrices, and its short tarsi, feathered down to the base.

Cassin (Cat. Capr.) and Burmeister (Syst. Ueb.) refer "*Capr. minutus*, Natt.," Bp. Consp. p. 63, to this species. But Herr von Pelzeln kindly informs me that there is no such name as this to be found in Natterer's MS., and suggests that it may be a misprint for *mixtus*. This specific name of Lichtenstein was attached by Natterer to his no. 357, which is *Antrostomus parvulus*.

Cassin, in his catalogue, refers the present species to *Lurocalis*; but its general form, except as regards the tarsi, is much more that of *Chordeiles*. Spix's specific name is not very applicable, as the rump is not white; but I suppose he refers to the white mark on the tail-feathers.

Sect. II. CAPRIMULGINÆ SETIROSTRES.

Subsect. A. *Aereæ*: tarsi brevibus, plus minusve vestitis; rostro plus minusve compresso.

Genus 4. ANTROSTOMUS.

Of this genus I cannot at present give a detailed account, for want of additional specimens. Nor am I quite satisfied where the line is to be drawn (if it is to be drawn at all) between *Antrostomus* and *Stenopsis*, nor as to any real generic difference between both these groups and some of the shorter-winged *Caprimulgi* of the Old World. Reserving these points for future discussion, I may say a few words about each of the species of this and the following groups which are known to me.

The species of *Antrostomus* may be divided into two sections, as follows:—

Sect. A. Without any white wing-spot.

Sect. B. With a white wing-spot on the second, third, and fourth primaries of the male bird.

I possess examples of nine very distinct species of this genus, besides three skins of females or immature birds which at present I do not venture to introduce into the system.

Sect. A. Speculo alari nullo.

1. ANTROSTOMUS CAROLINENSIS.

Caprimulgus carolinensis, Gm. S. N. i. p. 1028.

Antrostomus carolinensis, Baird, B. N. A. p. 147.

Hab. South-Atlantic and gulf-states of North America (*Baird*); Cuba (*Gundlach*); Jamaica (*March, in litt.*); Guatemala, Dueñas (*Salvin*).

At once distinguishable by its large size, and by the bristles of the upper mandible being bordered with lateral filaments, which I have not observed in any other species.

2. ANTROSTOMUS RUFUS.

Caprimulgus rufus, Bodd. et Gm. (ex Pl. Enl. 735).

Antrostomus rufus, Cassin, Pr. Acad. Phil. v. p. 183, et Journ. ii. p. 120.

A. rutilus, Burm. Syst. Ueb. ii. p. 385.

Caprimulgus cortopao, Natt. Mus. Vindob. sp. no. 741.

Hab. Cayenne (*Buff.*); Para (*Natt.*).

I have a single female example of this species, from Natterer's collection. Mr. Salvin's collection also contains a specimen.

3. ANTROSTOMUS SERICEO-CAUDATUS.

Antrostomus sericeo-caudatus, Cassin, Proc. Acad. Phil. iv. p. 238, et Journ. ii. p. 121, pl. 12.

Hab. South America.

I have a skin, believed to be from Venezuela, which I think may probably be referable to the female of this species. There is a similar specimen in the British Museum, said to be from Bahia.

4. ANTROSTOMUS VOCIFERUS.

Caprimulgus vociferus, Wils.

Antrostomus vociferus, Cassin, Journ. Ac. Phil. ii. p. 122; Baird, B. N. Am. p. 148.

Hab. Eastern United States to the plains (*Baird*); Cuba (*Lemleye*); South Mexico, Jalapa (*De Oca*); Guatemala (*Salvin*).

This species seems to be abundant in Guatemala. Mr. Salvin obtained examples at Coban and San Geronimo, besides other localities in Vera Paz.

5. ANTROSTOMUS MACROMYSTAX.

Caprimulgus macromystax, Wagl. Isis, 1831, p. 533 (?).

Antrostomus macromystax, Sclater, P. Z. S. 1858, p. 296.

Similis A. vocifero, sed paulo major, alis longioribus, rostro longiore et magis compresso: narium aperturis exstantibus; tarsi longioribus et magis denudatis: long. tota 9.7, alæ 6.6, caudæ 5, rostri a rictu lin. dir. 1.4.

Hab. In Mexico merid. La Parada (*Boucard*).

Whether this bird is really Wagler's *C. macromystax* is certainly problematical; but there is no doubt at all of its being quite distinct from *A. vociferus*, although at first sight it is surprisingly like that species in coloration. I have not yet met with a second example of this species.

6. ANTROSTOMUS NUTTALLI.

Caprimulgus nuttalli, Aud.

Antrostomus nuttalli, Cassin, Journ. Acad. Phil. ii. p. 123; Baird, B. N. A. p. 149; Coues, Ibis, 1865, pp. 158 et 538; Dresser, ibid. p. 470.

Hab. High central plains of North America, extending to the Pacific Coast; Kansas and Arizona (*Coues*); Texas (*Dresser*).

Easily distinguishable from *A. vociferus* by its smaller size. It appears also, judging from the specimens in my collection, to have nearly the whole tarsus bare of feathers.

7. ANTROSTOMUS OCELLATUS.

Caprimulgus brasilianus, Max. Beitr. iii. p. 337.

Caprimulgus ocellatus, Tsch. Consp. Av., et Faun. Per. pl. 5. f. 2.
C. brasiliensis, Tsch. F. P. p. 125.

Antrostomus ocellatus, Cassin, Proc. Acad. Phil. v. p. 183; ejusd. Mamm. et Orn. Expl. Exp. p. 187; Burm. Syst. Ueb. ii. p. 386.

Caprimulgus lunulatus, Natt. MS. (no. 518).

Hab. South-eastern Brazil (*Max.*); wood-region of Eastern Peru (*Tschudi*); Ypanema, Brazil (*Mus. Berol.*).

Remarkable for the elongation forwards of the loreal plumes, somewhat as in *Ægotheles*.

Sect. B. Speculo alari albo.

8. ANTROSTOMUS NIGRESCENS.

Caprimulgus nigrescens, Cab. in Schomb. Guian. iii. p. 710.

C. semitorquatus, Gray & Mitch. Gen. Birds, i. pl. 17.

Stenopsis nigrescens, Cass. Cat. Capr.

Antrostomus nigrescens, Cab. et Hein. Mus. Hein. iii. p. 91.

♂. *Nigricans rufo maculatus: subtus niger, albido-rufescente regulariter transvittatus: vitta gulari, macula in remigum ii^{di}, iiiⁱ, et ivⁱ pogoniis internis et rectricum lateralium apicibus albis: long. tota 7.5, alæ 5.5, caudæ 3.7.*

♀. *Mari similis, sed maculis remigum et rectricum nullis.*

Hab. British Guiana (*Schomb.*); Para and Rio Negro (*Natt.* sp. no. 880); New Granada (*Mus. P. L. S.*).

9. ANTROSTOMUS PARVULUS. (Pl. XIII.)

Caprimulgus parvulus, Gould, P. Z. S. 1837, p. 22, et Zool. Voy. Beagle, iii. p. 37.

"*Caprimulgus mixtus*, Licht." *Natt.* no. 357.

♂. *Nigro rufoque variegatus, pileo summo nigro, maculis in tectricum alarium apicibus albis: subtus fulvus, nigro transradiatus: remigum ii^{di}, iiiⁱ, et ivⁱ vitta et rectricum lateralium apicibus albis: long. tota 7.5, alæ 5.3, caudæ 4.*

♀. *Mari similis, sed maculis remigum et rectricum albis nullis.*

Hab. Banks of the Paraná near Santa Fe, La Plata (*Darwin*); South Brazil, Villa Maria, Sept. 1825 (*Natt.*).

I doubt much whether Peale's *C. æquicaudatus* (*Zool. Expl. Exp. Birds*, p. 168) can be identical with this species, as supposed by Mr. Cassin (*Mamm. & Orn. Expl. Exp.* p. 188, *Atlas*, pl. 13. f. 1). It is from Callao, Peru, a very different locality.

The female specimen of my pair (collected by Natterer) agrees perfectly with Mr. Gould's type now in the British Museum, and I have seen another example in Sir William Jardine's collection.

Genus 5. STENOPSIS.

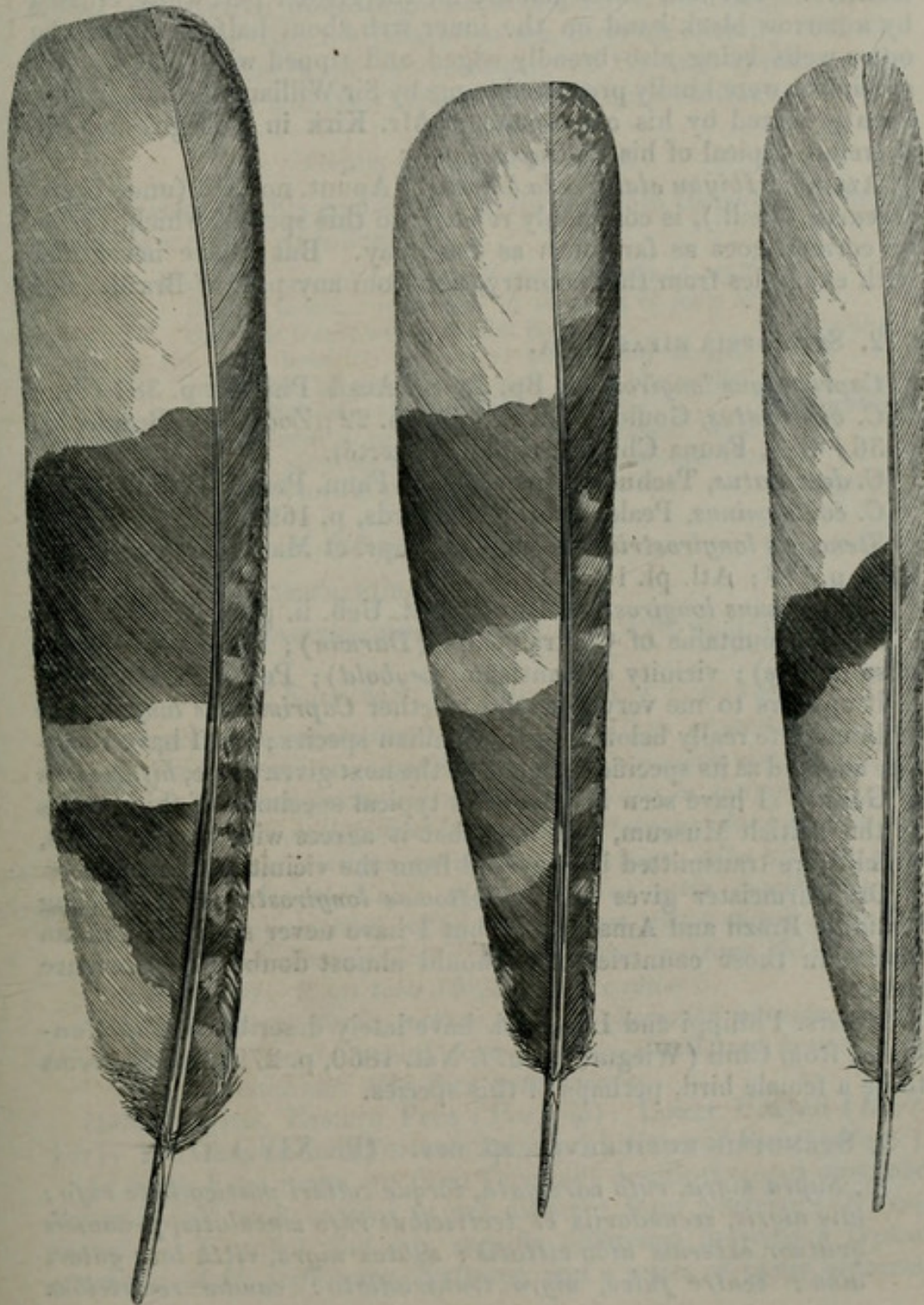
The three species which I refer to this genus all have a broad and distinct white bar across the first four primaries. They may be diagnosed as follows:—

- a. Inner webs of outer pair of rectrices of male white, with a single narrow black cross bar (fig. 9)..... *S. cayanaensis*.
- b. Inner webs of outer pair of rectrices of male black, with a broad terminal and narrow medial bar white.
 - a'. Larger; collar above fulvous; no white basal bar on inner web of outer rectrix (fig. 10)..... *S. bifasciata*.
 - b'. Smaller; collar above rufous; a narrow white basal bar on inner web of outer rectrix (fig. 11) *S. ruficervix*.

Fig. 11.

Fig. 10.

Fig. 9.



1. STENOPSIS CAYANENSIS.

Caprimulgus cayanensis, Gm. S. N. i. p. 1031 (ex Buff. Pl. Enl. 760); Cab. in Schomb. Guian. iii. p. 710.

C. cayanus, Lath. Ind. Orn. ii. p. 587.

C. leopetes, Jard. & Selb. Ill. Orn. ser. 1. pl. 87.

Stenopsis cayanensis, Cassin, Proc. Ac. Phil. v. p. 179.

Hab. Cayenne (*Buff.*); Tobago (*Kirk*).

This species is very easily recognizable by its white outer tail-feathers. The four outer pair are for the greater part white, crossed by a narrow black band on the inner web about halfway down, the outer webs being also broadly edged and tipped with black. My specimens were kindly presented to me by Sir William Jardine, having been procured by his correspondent Mr. Kirk in Tobago, and are therefore typical of his *C. leopetes*.

Azara's "*Ibiyau alas y cola blancas*," Apunt. no. 314 (unde *Capr. leucurus*, Vieill.), is commonly referred to this species, which, if this be correct, goes as far south as Paraguay. But I have never met with examples from that country, nor from any part of Brazil.

2. STENOPSIS BIFASCIATA.

Caprimulgus longirostris, Bp. Journ. Acad. Phil. iv. p. 384 (?).

C. bifasciatus, Gould, P. Z. S. 1837, p. 22; Zool. Voy. Beagle, iii. p. 36; Gay, Fauna Chilena, i. p. 261 (certé).

C. decussatus, Tschudi, Consp. Av., et Faun. Per. p. 126, t. 5. f. 1.

C. conterminus, Peale, Zool. Expl. Birds, p. 169.

Stenopsis longirostris, Cassin, Cat. Capr. et Mamm. & Orn. Expl. Exp. p. 188; Atl. pl. 13. f. 1.

Antrostomus longirostris, Burm. Syst. Ueb. ii. p. 387 (?).

Hab. Mountains of Central Chile (*Darwin*); vicinity of Valparaiso (*Peale*); vicinity of Santiago (*Leybold*); Peru (*Tsch.*).

It appears to me very doubtful whether *Caprimulgus longirostris* of Bonaparte really belongs to this Chilean species; and I have therefore adopted as its specific designation the next given name, *bifasciatus* of Gould. I have seen Mr. Gould's typical specimen of this species in the British Museum, and find that it agrees with my examples, which were transmitted by Leybold from the vicinity of Santiago.

Dr. Burmeister gives his *Antrostomus longirostris* as inhabiting "middle Brazil and Amazonia;" but I have never seen the Chilean bird from those countries, and should almost doubt its occurrence there.

Messrs. Philippi and Landbeck have lately described a *Capr. andinus*, from Chili (Wieg. Arch. f. Nat. 1860, p. 279), which seems to be a female bird, perhaps of this species.

3. STENOPSIS RUFICERVIX, sp. nov. (Pl. XIV.)

♂. *Supra nigra, rufo variegata, torque collari postico læte rufo; alis nigris, secundariis et tectricibus rufo maculatis, primariis quatuor externis albo vittatis: subtus nigra, vitta lata gulari alba; ventre fulvo, nigro transradiato: caudæ rectricibus*

lateralibus vitta lata apicali, altera mediali, et tertia minore basali, in pogoniis internis, albis; reatricibus duabus mediis dorso concoloribus: long. tota 9, alæ 6, caudæ 4.7.

♀. *Vitta gutturali fulva, speculo alari rufescente, et caudæ fasciis albis vix apparentibus.*

Hab. in Nov. Granada int. et rep. Æquatoriali.

Obs. Similis *S. bifasciatæ*, sed minor, et torque collari rufo-castaneo, caudæ pictura et pileo rufo punctato differt.

I have several examples of this very distinct new species of *Ste-nopsis*, all received from Bogota collections. Two examples of the same bird in Mr. Gould's possession are from the vicinity of Quito. The bird is probably the representative of the last species in the Andes of Ecuador and New Granada, but is quite distinct.

Genus 6. HYDROPSALIS.

The species of this genus may be divided into three easily distinguishable sections, as follows:—

- Subgen. 1. Primaries crossed by a broad white wing-band; tail doubly forked; outer pair of rectrices of male of the same length as the medial pair. *Diplopsalis.*
- Subgen. 2. No white band on primaries; tail doubly forked; outer pair of rectrices of male much longer than the medial pair, which are also prolonged. *Hydropsalis.*
- Subgen. 3. No white band on primaries; tail singly forked; outer pair of rectrices of male more than double the length of medial pair, which are the shortest *Macropsalis.*

Subgen. 1. *Diplopsalis.*

1. HYDROPSALIS TRIFURCATA.

Hydropsalis climacocercus, Tsch. F. P. p. 128, pl. 6. f. 1; Cassin, l. c. p. 118 (?).

H. trifurcatus, Natt. MS. no. 779; Tsch. l. c. p. 128.

♂. *Supra fulvescenti-fusca, nigro reticulata et variegata; tectricibus alarum et scapularibus maculis magnis pure fulvis ornatis; alarum primariis nigris, vitta lata in quinque externis alba; caudæ reatricibus lateralibus utrinque duabus ad basin nigris, unius utrinque exterioris basi nigra albo vittata, inde vitta lata longitudinali alba, apicibus ipsis fuscis; duabus utrinque sequentibus albis, ad apicem fusco-nigris; duabus mediis dorso concoloribus: subtus alba, pectore fulvo, nigro vermiculato: long. tota 10.2, alæ 6, caudæ 6.*

♀. *Supra magis fusca, subtus omnino obscurior et nigro magis variegata: cauda quoad formam mari simili, sed brevior, et vitta longitudinali alba fere evanescente.*

Hab. Maynas, Eastern Peru (*Poeppig*); Lower Ucayali (*Bartlett*); Rio Guaporé and Forte do Principe, interior of Brazil (*Natt.*).

As far as I can make out from Tschudi's description and wretched figure, his *H. climacocerca* is not different from Natterer's *H. trifurcata*. I cannot find any specific difference between a typical specimen of *H. trifurcata*, Natterer, and a series of skins obtained



Gray, John Edward. 1866. "February 27, 1866." *Proceedings of the Zoological Society of London* 1866, 104–145.

<https://doi.org/10.1111/j.1469-7998.1866.tb00417.x>.

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