

*Micrathena clypeata*, Sundevall, Consp. Arachn. p. 14; Koch, Arachn. iv. p. 38, pl. 119. f. 272 (1837).

*Plectana clypeata*, Walckenaer, Apt. ii. p. 197. n. 74 (1837-39).  
Pará, Santarem, Ega (*Bates*). B.M.

2. MICRATHENA BREVISPINA.

*Acrosoma brevispinum*, Keyserling, Sitzungsber. der Isis zu Dresden, p. 70, pl. 2. f. 3 (1863, edit. 1864).

"Bogota" (*Keyserling*).

Seems chiefly to differ from *Micrathena clypeata* in having four short spines on each side of the abdomen, and in the dark colour of the anterior two thirds of its upper surface.

3. MICRATHENA? TRISERRATA.

*Plectana triserrata*, Walckenaer, Apt. ii. p. 158. n. 13 (1837).

*Aranea tetracantha*, Pallas (nec Linn.), Spic. Zool. fasc. ix. pl. 3. f. 16, 17.

Guyana, Surinam.

Seems to be a *Micrathena*.

4. MICRATHENA? ARGOIDES.

*Plectana argoides*, Doleschall, Natuurk. Tijd. Nederlandsch-Indië, xiii. p. 425 (1857).

"Amboina" (*Doleschall*).

Somewhat like *Acrosoma elongatum* in appearance.

5. MICRATHENA BUFONINA.

*Micrathena bufonina*, Simon, Rev. et Mag. de Zool. p. 20 (1867).  
Gilolo (*Simon*).

6. MICRATHENA? SQUAMMOSA.

*Micrathena squamosa*, Simon, Hist. Nat. des Araign. p. 293. f. 137 (1864).

"Brazil" (*E. Simon*).

More like *Cærostris* than the type of *Micrathena*.

7. On the Tail-Feathers of *Momotus*.

By OSBERT SALVIN, M.A. &c.

[Received April 1, 1873.]

In a valuable paper on the Motmots, recently published in 'The Ibis' (1872, p. 383), Dr. Murie throws doubts upon the reputed fact that such of these birds as possess racket-shaped terminations to the central rectrices themselves remove the webs of these feathers. He briefly refers to the subject thus:—

"The story has found credence that they (*i. e.* such Motmots as possess this character) nibble off the occasionally absent vanes of the long middle tail-feathers; but this notion has been contradicted."

On this point I have evidence to bring forward which can hardly leave a doubt that Waterton's account of the Motmot nibbling off the vanes thus is substantially true.

Some years ago (1860) this Society possessed a specimen of *Momotus subrufescens* which lived in one of the large cages of the parrot-house all by itself. I have a very distinct recollection of the bird; for I used every time I saw it to cheer it up a bit by whistling such of its notes as I had picked up in the forests of America. The bird always seemed to appreciate this attention; for though it never replied, it became at once animated, hopped about the cage and swung its tail from side to side like the pendulum of a clock. For a long time its tail had perfect spatules; but towards the end of its life I noticed that the median feathers were no longer trimmed with such precision; and on looking at its beak I noticed that from some cause or other it did not *close properly*, but gaped slightly at the tip, and had thus become unfitted for removing the vanes of the feathers. Since the subject has been revived by Dr. Murie, it occurred to me that Mr. Bartlett could hardly have failed to watch this bird during its moults and whilst the tail-feathers were growing. I accordingly wrote to him, and received the following reply:—

“Zoological Society's Gardens,  
Regent's Park, London, N.W.  
November 21, 1872.

“DEAR SIR,—During the several years the Motmot lived here I had many opportunities of watching its habits; and *I have seen the bird in the act of picking off the webs of the central feathers of its tail*, and have taken from the bottom of its cage the fragments of web that fell from the bird's bill. As the bird lived here some years its bill got rather out of order; that is, it did not close properly at the point; and consequently the picking off the web at last was imperfectly performed, and the two sides of the tail-feather presented an unequal and unfinished appearance.

“I noticed also that the Motmot frequently threw up castings after the manner of the Kingfishers and other birds that swallow indigestible substances.

“Yours faithfully,

“Osbert Salvin, Esq.”

“A. D. BARTLETT.”

“P.S. The species we had alive was, I believe, *Momotus subrufescens*.”

The point is further elucidated by the examination of skins in our collection. We have a number of specimens of various species in which the central tail-feathers were growing when the birds were shot. The drawings now exhibited show some of them. Figure 1 (p. 431) represents the tail of a young *Momotus lessoni* in its first plumage: the central tail-feathers are here untouched; they merely show the reduction in the breadth of the web in the part which is subsequently denuded; of this more anon. Figure 2 shows the growing feathers of the tail of a specimen of *Momotus mexicanus*; in this a few vanes have

been removed from the left-hand feather. Figure 3 (p. 432) shows the process of denudation still further advanced. In all these three birds it will be noticed that the feathers in question have grown symmetrically, both being of nearly equal length. Figure 4 (p. 432) represents the tail of a *Prionirhynchus platyrhynchus*, where these feathers have not grown symmetrically, but the left-hand one has been developed sooner than the right-hand one. What has happened? The bird expecting to find *two* feathers upon which to operate has commenced to nibble not only the left central rectrix but also the next rectrix on the right-hand side! But it seems to have not felt very certain about the state of its tail, for it has wandered off to one of the others and commenced nibbling it also. When, however, the proper right-hand feather appeared these mistakes have been discovered and the work recommenced in the usual way. I can interpret in no other way the state in which the feathers on the right-hand side of the tail of this bird appear.

Fig. 1.

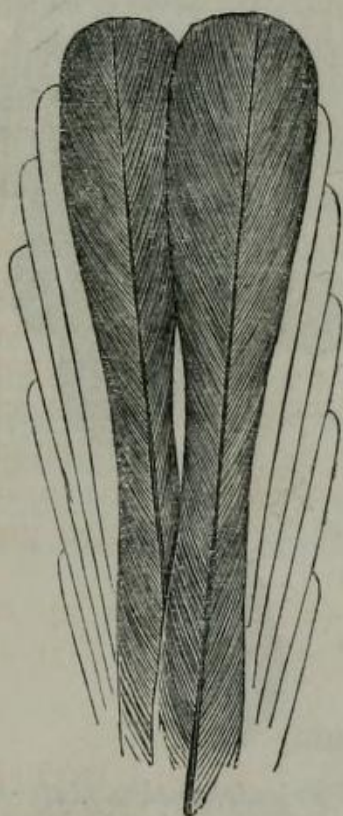
Tail of *M. lessoni*, jr. ; two central rectrices shaded.

Fig. 2.

Tail of *M. mexicanus*; the central rectrices, not fully grown, are shaded.

It will be seen that the growing feathers before they are stripped have naturally narrower webs at the place where they are subsequently denuded. This perhaps arises from the constant attrition of the webs in the growing feathers weakening their development; and if so, we see that by constant perseverance on the part of the birds in stripping this portion of their tail-feathers, a permanently bare place in the rachis might ultimately be produced, and that at last, in the course of many generations, feathers would grow with

perfectly formed spatules without any intervention on the part of the birds themselves.

In naturally denuded shafts the web gradually tapers towards the bare part. If the character has been produced in the manner suggested, we should expect such ultimately to be the case; for those webs nearest the untouched part would not always be removed with the same certainty as those half-way towards the spatule. The probability of their being removed would vary as the distance from

Fig. 4.

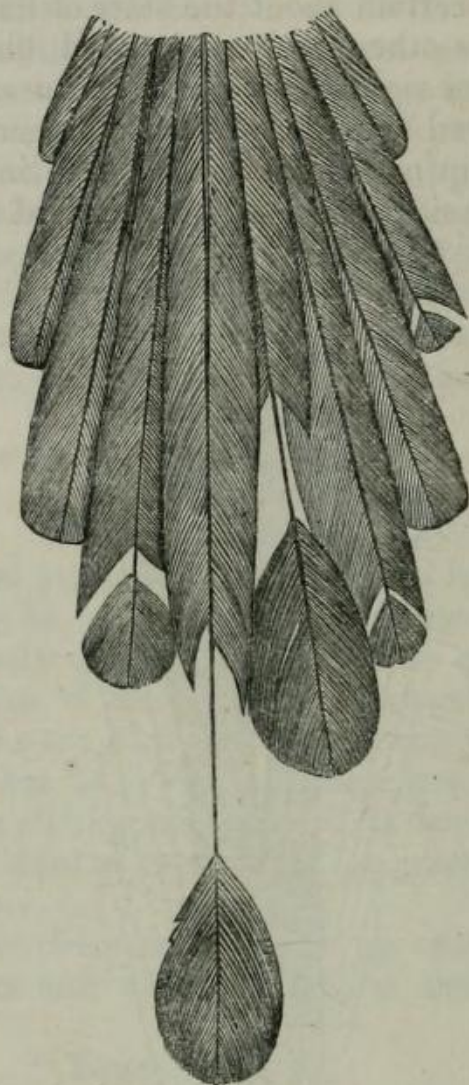
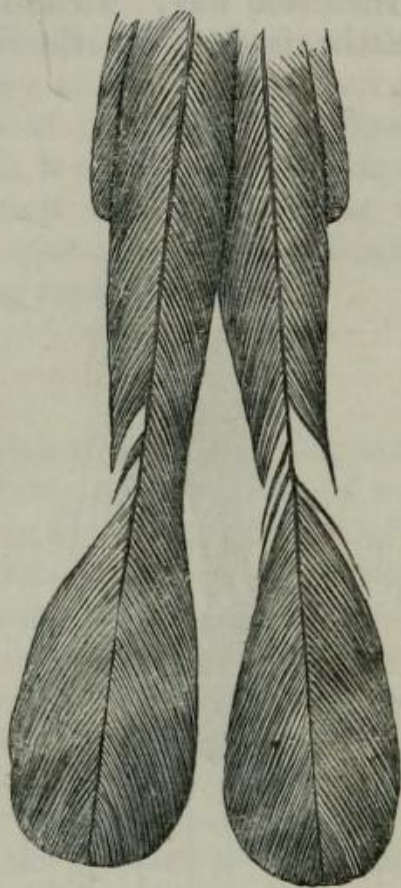


Fig. 3.



Tail of *M. lessoni*, with stems of central rectrices partially denuded.

Tail of *Prionirhynchus platyrhynchus* with central rectrices asymmetrical.

the base of the feather; hence ultimately those nearer the base would be less weakened than those further off, and a gradual diminution of the width of the feather towards the bare part be produced. The same argument applies to the inner edge of the spatule. Further, if this view is correct, the appearance of an abrupt passage of the webbed feather to the naked rachis would of itself indicate the continuation of the nibbling-process on the part of the bird; on the other hand, the gradual passage to the bare rachis would indicate that the habit was discontinued.

This character, in the Motmots at least, is not peculiar to one sex

only, but is possessed in common by both. Its origin, therefore, may not be traceable directly to "sexual selection;" still it may be that an attractive peculiarity in one sex has subsequently been adopted as equally attractive by the other, and hence the habit of nibbling their tail-feathers universally practised by both sexes alike. Anyhow we seem in this instance to be brought into nearer view of the origin of this peculiar feature than is attainable in most other instances of the kind; and we also see certainly a method by which similar racket-shaped tail-feathers, originating in the voluntary act of the bird and fostered by sexual selection, might be produced in one sex or both in a permanent form. In other birds, such as *Steganura*, *Loddigesia*, and *Discura*, amongst Humming-birds, similar features prevail, and also in such cases as *Prioniturus* amongst Parrots, and *Tanysiptera* amongst Kingfishers; but in both of these last, as in the Motmots, the character is common to both sexes.

Referring to *Steganura*, we have a specimen of *S. underwoodi* showing that the rhachis of the tail-feathers (in this case the lateral ones) is clean from the first. Here the process of nibbling the webs may have been carried on till the character has become natural by the gradual weakening of the development of the webs attacked until they were finally eliminated. In *Steganura cissura*, however, the lateral feathers are simply narrowed. This may have arisen from the abandonment of the habit by this particular species after it commenced segregation from the primitive stock of *Steganura*, that stock, as in *Momotus*, not having then acquired the racket tail-feathers in a permanent form.

Whether the same cause has produced the racket-shaped tails in *Prioniturus* and *Tanysiptera* is more difficult to trace, as it would appear that in these birds the rhachis becomes more and more denuded in each successive moult, showing other causes at work. On the origin of such highly complicated structures as the tails and other features of some of the Paradiseidæ the present supposition throws no light.

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May 6, 1873.

Prof. Newton, F.R.S., V.P., in the Chair.

The Secretary read the following report on the additions to the Society's Menagerie during the months of March and April 1873:—

The total number of registered additions to the Society's Menagerie during the month of March 1873 was 68, of which 5 were by birth, 16 by presentation, 41 by purchase, 1 by exchange, and 5 were received on deposit. The total number of departures during the same period by death and removals was 85.

The most noticeable additions during the month of March were as follows:—

1. A second specimen of the Western Ground-Parrakeet of Australia (*Geopsittacus occidentalis*, Gould, Suppl. B. of Austr.