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A new species of Bat from Cambodge, *Glischropus rosseti* sp. nov.¹⁾

by

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Dr JUNGE of the „Rijksmuseum van Natuurlijke Historie te Leiden” has been so kind to lend me the following specimens of bats, registered as *Tylonycteris pachypus* (TEMMINCK) (all in alcohol).

reg. no.	273	.....	3 males, 3 females	.....	Java.
.. ..	274	.....	2 females (l, m)	.....	Cambodge.
.. ..	280	.....	4 spec.	.....	Annam.
.. ..	1260	.....	1 male, 1 female	.....	Mt. Dapad, Borneo.
.. ..	1420	.....	4 spec. (v, w, x, y)	.....	Buitenzorg, Java.
.. ..	1645	.....	34 spec.	.....	Malang, Oost-Java.

When examining this material, I discovered that the 2 female specimens l and m of Cambodge (reg. no. 274), were misnamed. The label is reading :

VESPERUS PACHYPUS, ♀ ad. ♀ juv.

Rosset coll. Linnaea 1889. Cambodge.

In the card index of expeditions of our museum we found the name „ROSSET” mentioned only once, in a quotation from *Globus*, vol. LVII, 1890, p. 335 : „Der bekannte Indienreisende C. W. Rosset ist von einer 3-jährigen Forschungs- und Sammelreise, die er in Hinterindien unternommen hat, nach Berlin zurückgekehrt.”

„Linnaea” was a commercial institute at Frankfort a/M. A. Gijzen (1938) wrote : „Met het „Naturhistorisches Institut Linnaea” te Frankfurt a.M. onderhoudt het Museum in de jaren 1881—1883 een levendigen ruilhandel”.

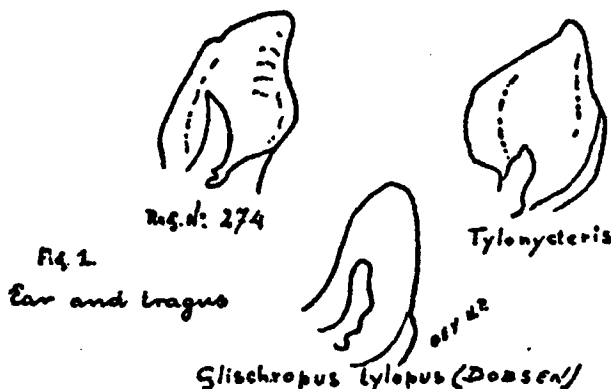
The name *Vesperus pachypus* is a synonym of *Tylonycteris pachypus* (TEMMINCK, 1835). WAGNER (1855) considered *Vesperus pachypus* as belonging to the genus *Vesperus* KEYSERLING and BLASIUS, 1839, but PETERS (1872) took this species as type of the genus *Tylonycteris* (τυλος = knob, knot ; νυκτεγεις = bat, clubfooted bat, from the fact that the undersurface of the base of the thumbs and the soles of the feet expand into fleshy pads).

¹⁾ Received November 12, 1950.

There are only 2 specimens; one of them juvenile (milk-dentition, smaller body and less hairy appearance). These specimens have a long-pointed t r a g u s, different from that of *Tylonycteris*, which is very short and surely not pointed.

P a d s on thumb and foot of the Cambodge specimens are f l e s h y (yellow-coloured in alcohol) with w r i n k l e s. On the other hand the thumb-pads and footpads of *Tylonycteris* are s m o o t h (without wrinkles) and n o t f l e s h y, their colour being grey or yellow.

Comparing these two kinds of pads, we may say that the foot- and thumbpads of *Tylonycteris* are more developed and specialized. Sometimes we see a kind of callosity among other groups of bats, e.g. in specimens of the genus *Pipistrellus*, resembling that of our 2 specimens, but smaller in size and only present at the thumb. We can imagine that the genus *Tylonycteris* is able to "cling to the undersurfaces of large leaves and fruits" (DOBSON, 1878, p. 208) with its smooth pads. More specialized is the genus *Thyroptera* (see REMARKS) having h o l l o w, suctional disks at thumbs and feet. These bats from Africa are able to climb even along smooth surfaces like flies.



The u r o p a t a g i u m (interfemorale membrane) of the Cambodge specimens is n o t attached to the end of the tibia (as is the case in *Tylonycteris*), but to the proximal part of the first digitus.

Dentition. — The dental formula is $\frac{-23.1.-2-4567}{123.1.-2-4567} = 34$ instead of $\frac{-23.1.-2-4567}{123.1.-2-4566} = 32$ (*Tylonycteris*).

The upper inner incisor is bicuspid. The upper outer incisor is larger (especially as to area) than I^1 and unicuspid. The upper canine has no secondary cusp. P^2 has a very low cusp and its position is displaced (out of the toothrow). *Tylonycteris* however, is missing P^2 and its upper canine has a secondary cusp.

The extraordinary f l e t t e n i n g of the skull of *Tylonycteris* is too striking to be overlooked. Our two specimens have a skull which is neither flattened nor broad in appearance. There is much similarity with a *Pipistrellus pipistrellus*-skull, only the braincase of this *Pipistrellus*-skull is shorter and broader. In my opinion the skulls of our Cambodge specimens are more primitive than in *Pipistrellus pipistrellus* or in *Tylonycteris*-skull.

The measurements of the adult specimen of Cambodge are as follows :

Forearm	29.7 mm.
Skull :	
Total length (basal-supraoccipitale bulbus)	12.8 ..
Zygomatic width	7.0 ..
Breadth braincase	6.8 ..
Mastoid width	7.0 ..
Lacrimal width	3.6 ..
Canine width	3.6 ..
C-M ³	4.3 ..

To get a clear picture of the difference in measurements I may refer to TATE's table (1942, p. 293):

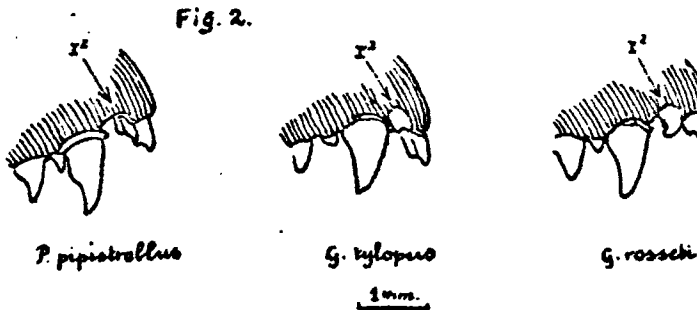
in millimeters	<i>T. malayana</i> Type	<i>T. aurax</i> Type	<i>T. fulvida</i> Cotype	<i>T. fulvida</i> Cotype	<i>T. pachypus</i> Cotype	<i>T. meyeri</i> Cotype	<i>T. robustula</i> Type
Forearm	28,5	27	—	—	25—27	22—24	—
Condylbasal length skull	13,2	11,5	11,1	11,2	11,6	10,2	11,8
Zyg. width	10,0	9,1	9,0	9,1	8,7	7,8	9,6
Br. braincase	8,0	6,8	7,2	7,3	6,7	6,7	7,5
Mastoid width	—	7,5	7,3	7,5	7,4	7,0	8,0
Lacr. width	—	—	—	—	—	—	—
Canine width	—	4,0	4,2	4,1	4,1	3,8	4,3
C-m ³	4,5	4,1	4,1	4,2	3,9	3,7	4,2

Consulting the literature about bats with foot- and thumb-pads I found, that *Glischropus* is the only genus to which our two specimens can possibly belong. (*γλισχροσ* = sticky; *πους* = foot). According to the size of I² we may assume these two specimens to belong to the *Pipistrellus*-group, but because of the distinct pads on foot and thumb I prefer to put them in the *Glischropus*-group. Furthermore, the position of I² is not as usual, it points backwards, while the I² of a *Pipistrellus* points forward. Seen from the side, I² of the Cambodge specimen is broader than the I² of a *Pipistrellus*. Also the skulls are a little different, in any case when compared with *Pipistrellus pipistrellus* SCHREBER.

Usually there is not much difference between *Glischropus* and *Pipistrellus*. Quoting G. S. MILLER (1907) the genus *Glischropus* DOBSON, 1875 is "externally like *Pipistrellus*, but with the callosities on sole of foot and ball of thumb usually more developed. Teeth as in *Pipistrellus* except that outer upper incisor is forced outward instead of backward", p. 205.

TATE (1942) has restricted the genus *Glischropus* to three forms :

1. *Glischropus tylopus* (DOBSON)
2. *Glischropus batjanus* MATSCHIE, probably a synonym of *G. tylopus* (DOBSON), only distinguished from *tylopus* by their average slightly smaller ears.
3. *Glischropus javanus* CHASEN with larger measurements, braincase flatter, P² more displaced and P₂ smaller.



To TATE's measurements (1942), I add the measurements of 1 specimen *Glischropus tylopus* from N. Borneo, taken by myself :

Measurements in mm.	<i>G. tylopus</i>		<i>G. tylopus</i>	<i>G. tylopus</i>	<i>G. javanus</i>	<i>G. batjanus</i>
	Specimen Z. M. A.	Type	Sp. Borneo	Sp. Borneo	Type	Type
Forearm	28,5	30	29	28,5	32,7	28-29
Total length skull	—	12,2	11,7	11,4	12,	—
Zyg. width	—	8,2	7,8	7,2	8,0	—
Breadth braincase	—	6,8	6,5	6,2	6,5	—
Mastoid width	—	7,0	6,8	6,6	7,0	—
Lacrimal width'	—	5,0	4,5	4,1	—	—
Canine width	4,1	4,1	3,7	3,7	—	—
C-m ³	4,7	4,7	4,6	4,4	4,7	—

In many specimens our adult Cambodge specimen resembles *Glischropus tylopus* (DOBSON): dentition, pads on foot and thumb, position of the uropatagium, measurements of the skull, forearm and ear. However, there are characters which differ (fig. 2) :

1. I^2 is as long as I^1 , but its area is larger. This we would not have expected according to G. A. DOBSON (1878) p. 236: "outer incisors very short, but in cross-section equal to inner ones, placed in a plane slightly anterior, the single cusp sloping inwards and lying against the cingulum of the inner incisors". I^2 is not displaced either, but still in its toothrow. (compare G. S. MILLER 1907).
2. The ear and the tragus are pointed and not rounded. It should be noted that there is a great difference in length of tragus between *Glischropus* in general and *Tylonycteris*, which is important for identification. (see above).
3. The post-calcaneal lobe is very indistinct, thus marking a difference from *Glischropus tylopus* (DOBSON).

All the facts mentioned above are distinguishing enough to characterize a new species which I propose to name *Glischropus rosseti*. Summarized the characters of the type specimen are :

1. Foot- and thumb-pads as in other *Glischropus* spec.
2. Tragus long-pointed.
3. Uropatagium attached to the proximal part of the first digitus.
4. Dentition as in *Pipistrellus* and other *Glischropus* spec., except :
 - a. I^2 as long as I^1 , but larger in area ; position of I^2 is typical.
 - b. I^2 is still in its toothrow, which is not the case in other *Glischropus* spec.
5. Dental formula as in other *Glischropus* spec. : 34
6. Post-calcaneal lobe indistinct.

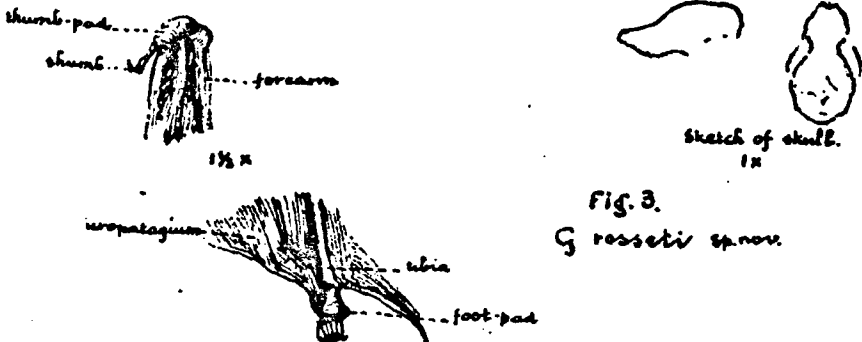


Fig. 3.
G. rosseti sp. nov.

REMARKS:

A. GEOGRAPHICAL DISTRIBUTION OF THE GENUS *GLISCHROPUS*

- G. tylopus* (Dobson) N. Borneo, Malay Peninsula, Sumatra.
G. batjanus Matschie Batchian island (Moluccas).
G. javanus Chasen W. Java.
G. rosseti sp. nov. Cambodge.

B. THUMB- AND FOOTPADS.

This kind of specialization is characteristic enough to be useful for identification. Up to now there are not many genera of bats known with thumb- and footpads. From what I have written above, the difference between *Tylonycteris* and *Glischropus* in this matter should be clear. DOBSON (1878) described *Vesperugo nanus* PETERS (Africa) with thumbs- and footpads too: "Base of thumb swollen, rounded, the surface marked with deep wrinkles; the sole of the foot similarly swollen and wrinkled, but flat, or slightly concave as in *Tylonycteris pachypus*" pag. 237. Compared with his illustration (DOBSON, 1876), this species has thumb- and footpads as in *Glischropus*, only not so well developed. However, G. M. ALLEN (1939) took this species as a *Pipistrellus*. G. H. H. TATE (1942, p. 253) wrote: "*P. nanus*, which formed the basis of *Alobus* PETERS, is, I think, unquestionably a *Pipistrellus* and lacks any trace of the modifications of the thumb- and foot-pads visible in *G. tylopus*". Unfortunately I have not been able to examine specimens of *P. nanus* myself, but in any case *Glischropus rosseti* sp. nov. may be distinguished from *P. nanus* as follows:

1. The tragus of *G. rosseti* sp. nov. (see description above) is different from the tragus of *P. nanus* (compare plate XII fig. 9, DOBSON, 1878).
2. Postcalcanal lobe of *P. nanus* is distinct (DOBSON, 1878, p. 237), which is opposite to that of *G. rosseti*.
3. The 1st of *P. nanus* has the same position as in *Pipistrellus*. (TATE 1942, p. 253).

C. THE RELATION OF *GLISCHROPUS* TO *PIPISTRELLUS*

CHASEN (1940) calls *Glischropus*: Thick-thumbed *Pipistrellus*. In general there is a relation between these two genera. TATE (1942) takes *P. tenuis* with its short praemaxillae as an example of this relation.

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