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ON MAMMALS FROM THE RAHENG DISTRICT, WESTERN SIAM.

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Introduction.

By C. BODEN KLOSS.

During the period April-July, 1924, Mr. K.G. Gairdner, C.M.Z.S., and I shared the services of a Dyak collector of mammals and birds: he accompanied Mr. Gairdner on one of the latter's tours so that his work was done under supervision.

The area explored is in Western Siam: collecting was done during the journey up the Me Ping River from Paknambo to Raheng, but the bulk of the specimens came from the country about the latter town and above it.

Mr. Gairdner's journey was made up a river which, flowing from the north-west, enters the Me Ping at Raheng: it appears to be called on most maps the Me Thot, but Mr. Gairdner refers to its upper course above Me Taqua (a river entering it on its eastern side) as the Me Taw.

Of certain of the collecting localities Mr. Gairdner writes as follows:—

“ Paknambo to Raheng.

The Me Ping is a broad sandy river varying from a quarter to half a mile in width and with a narrow belt of semi-evergreen jungle on the banks, with gardens, etc.

Raheng, 450 ft.

A hot dry station surrounded by deciduous jungle, but with

a large swamp (old river-bed) running parallel with the Me Ping half a mile to the east.

Ta Chang Tai, 666 ft.

On the east side of the river ¹ above Raheng, situated at the southern base of a big mass of mountains which, within a four mile radius of Ta Chang Tai, are nearly all deciduous and subject to annual jungle fires.

Me Taqua, 833 ft.

Above Ta Chang Tai at the mouth of the Hue Me Taqua, which enters the Me Taw from the north. To the east are low foothills from the big range of mountains separating the Me Taw from the Me Ping, all deciduous nearly to the summit. To the west hills rise sharply and by a walk of an hour and a half evergreen forest can be reached.

Hua Nya Pla Camp, 2,837 ft.

South-east of Me Taqua on a western tributary of the Me Taw.

Some knife-edged ridges are semi-deciduous; others, flatter and with more earth, are heavily evergreen: the jungle there is delightfully mixed and on the oceanic watershed at 3,300 to 3,900 ft. one may emerge from dark evergreen forest on to a plateau covered with grass, bracken and azaleas. But there is very little flat country—sharp ridges and deep valleys are the rule.

Owing to the high valleys of the Hua Me La Moun and Hue Sameurn² running westwards on the other side of the watershed, the Me Taw has good perennial feeders on its west bank, whereas on the east side it has no perennial streams below Hua Padeng, three miles below Sikortur.

Sikortur ³, 1,500 ft.

At the headwaters of the Me Taw about 40 miles N.W. of Raheng. From Me Taqua to Sikortur the foothills are never more than a hundred yards from the bed of the Me Taw and generally rise very abruptly to 2,000 ft. On the west bank of the Me Taw a flat shelf occurs at 2,000 ft., on which the Karens make their

1. Me Thot, or Me Taw.

2. Tributaries of Thoung Yeen, flowing to the Salween River.

3. The Sikawtur of Journ. N. H. S. Siam, III, pp. 49-82.

"rai" cultivation: here is a boundary of the semi-evergreen and heavy evergreen forest, but the hill clearings often extend up to 2,800 ft. In the valleys the evergreen extends down to Sikortur, but on the ridges to the west half an hour's walk will take one to 2,300 ft. and the semi-evergreen. To the east the foothills are lower and mostly deciduous."

Sikortur was the most northerly camp reached from Raheng. A few specimens were obtained from other places than those mentioned above, but I have been unable to trace the precise localities.

These places are Ban Tong Teng, Ban Dong and Ban Pong: it may be that Ban Dong is the same as Ban Pong.

Two species, a bandicoot-rat and a mole, which we found difficulty in dealing with owing to lack of material, were sent to the late Oldfield Thomas who considered both to be distinct. He named them:—

Bandicota savilei curtata

Talpa klossi

The birds obtained at the same time as the mammals have been discussed by us in this journal in 1928.

ACCOUNT OF THE COLLECTION

1. *Hylobates lar entelloides* Geoffr.

H. entelloides Geoffr., Voyage de Jaquemont, iv, 1844, pp. 9, 13.

Hue Nya Pla 5 ♂, 2 ♀; Hue Padeng 1 ♂.

Only two of these animals are in the dark phase. We do not consider that the northern white-handed gibbons are the same as those inhabiting the southern part of the Malay Peninsula. For the former the name *entelloides* based on three animals in the pale phase, probably from the neighbourhood of Tenasserim Town, is available.

The skins before us have been studied in detail by Kloss and are discussed at greater length in his recent paper on Gibbons (Proc. Zool. Soc. 1929, p. 117.)

2. *Pithecus argenteus* (Kloss).

Presbytis argenteus, Kloss, Journ. Nat. Hist. Soc. Siam, iii, 1919, p. 338: E. Siam.

Ta Chang Tai 1 ♂, 6 ♀; Hue Padeng 1 ♀.

This is a silvery mouse-grey leaf-monkey with contrasting brownish-black hands and feet. It has sometimes been referred to *P. phayrei* Blyth, of Arakan.

3. *Macaca irus* F. Cuv.

K.*, iii, pp. 49, 346.

Paknampo 1 ♂.

This example is very light: the upper parts have a conspicuous ochraceous, almost yellow, tone and there is no trace of blackening, even on the forehead or at the base of the tail. Hands and feet pale.

4. *Macaca* sp.

Hue Nya Pla 1 ♀ imm.; Ta Chang Tai 1 ♀ juv.

Both these young macaques belong to that section of the genus in which the tail is about half as long as the head and body.

The immature animal is possibly the young of *siamica* (Kloss, ii, 1917, p. 247, : from Me Ping rapids, below Chiangmai, N. Siam. It has the tail evenly furred and with a terminal pencil: on the upper parts the annulations are so fine that they may be ignored.

A few stiff black hairs over the eyes and on the face. Upperparts from forehead to root of the tail and outer side of forelimbs almost uniform and between isabella colour and buffy brown; the bases of the hairs on the back drab. Tail slightly paler. Flanks, hindlimbs and inner side of forelimbs buffy-grey. Sides of the neck and upperparts pale grey: hands and feet concolorous with the limbs.

This female differs from the male type of *siamica* in being more uniform above and especially in lacking the annulations. The shoulders lack the grey tinge and the rump and upper thighs the bright ochraceous-orange colour so conspicuous in the type: the forelimbs are also much less grey.

The juvenile from Ta Chang Tai is much more richly coloured above and the dorsal side of the tail is dark.

5. *Felis pardus* Linn.

Ta Chang Tai 1 ♂.

*K is an abbreviation of "Kloss, Journ. Nat. Hist. Soc. Siam."

This is a fine adult with a large sagittal crest and in colour like a skin from Sriracha, S. E. Siam. The centres of the rosettes are rather darker than the ground colour of the upper parts.

Collector's external measurements:—head and body 1080, tail 805, hind-foot 227, ear 67.

Skull:—greatest length 219, basal length 179, palatal length 91, zygomatic breadth 131 mm.

6. *Felis viverrina* Bennett.

Raheng 3 ♂.

These animals are all adult. The amount of the ochraceous wash on the middle of the back is variable. Blanford (*Fauna Brit. Ind., Mamm.* 1, p. 55) included the Malay Peninsula in the range of this species and some later uncritical writers have followed him, but we know of no record south of Ratburi.

If the data before us are correct there seems to be some discrepancy in the hitherto recorded proportions of this cat.

The collector's external measurements of our series are:—head and body 777, 780, 725, tail 310, 340, 325, hind-foot 162, 171, 151, ear 51, 51, 44 mm.

On these figures the tail is considerably more than one-third the length of the head and body: in two cases it is nearer one-half (cf. Wroughton, *Journ. Bombay Nat. Hist. Soc.*, xxvi, 1918, p. 41).

Skulls:—basal length 128, 127.5, 127; palatal length 56.4, 56, 59; zygomatic breadth 99, 94.5, 99 mm.

The narrow and pinched up nasals are a marked feature in these skulls: the character seems accentuated as the animal ages.

7. *Martes flavigula flavigula* (Bodd.).

Sikortur 1 ♂.

Collector's external measurements:—head and body 575, tail 425, hind-foot 106, ear 39 mm.

Skull:—greatest length (condylo-incisive) 105, basal length 95, zygomatic breadth 58.5 mm.

8. *Capricornis sumatraensis annectens* Kloss.

Capricornis sumatraensis annectens Kloss, iii, 1919, p. 391.

Ta Chang Tai 1 ♀; Loc? 1 skull and head skin.

General colour black, the bases of the hairs on the back and sides white. Mane apparently entirely black, but when the pelage is disturbed some of the hairs are seen to have white bases. Ears thinly clad with white hairs inside and rufous externally at the base. Lips white. A large rufous spot on each side of the muzzle adjacent to the snout: an elongate mixed rufous and white patch about three and half inches long extends back from the corners of the mouth and is almost confluent with the white of the lower lip. A small isolated rufous patch on the throat. Forelimbs, below the knees, rufous except for a blackish line down the front of the shank: a few rufous hairs above the knee. Hindlimbs almost entirely rufous below the hocks but the front line darkened as in the forelimbs. Tail mixed black and rufous.

Collector's external measurements:—head and body 1400, tail 160, hind-foot 330, ear 205, height at the shoulder 940, girth 965 mm.

Skull (adult):—greatest length 298, basal length 268, upper tooth-row (alveoli) 98, zygomatic breadth 126 mm.

Largest horn along the curve 174 mm.

The separate skull and head skin are those of a smaller and younger animal (last molar not up). It differs from the specimen described above in that the patch on the jaws is white and broadly confluent with the white areas on the upper and lower lips. The grizzling at the base of the ear, externally, is also more buffy than rufous. Mr. Gairdner notes that the adult female which was obtained on 13th July was in milk and contained a fully developed, but hairless, male foetus "Glands in all feet and beneath the eye."

9. *Muntiacus muntjak curvostylis* (Gray).

Cervulus curvostylis Gray, Cat. Rum. Brit. Mus., 1872, p. 94. ("Pachebone" i. e., Petchabun, northwest of Korat).

Muntiacus muntjak curvostylis Lydekker, Cat. Ung. Mamm, Brit. Mus., iv, 1915, p. 19.

Muntiacus muntjac subsp., K., iii, p. 394.

Me Taqua 1 ♂, 2 ♀; Me Taw 1 ♂; Ta Chang Tai 1 ♂.

These specimens agree with a flat skin from the Me Wang forest: all are pale "yellowish" animals separable at sight from the

richly coloured *peninsulae* of the Malay Peninsula and also from examples from Koh Lak in S. W. Siam which are near *peninsulae* but not quite typical (vide Kloss, l. c. s.)

Although agreeing in their general pallid coloration the series is variable in general tone. The palest animal is a fine male from Me Taw and next comes the male from Me Taqua. Another from Me Taqua and the specimen from Ta Chang Tai are rather more richly coloured but are still much paler than the Koh Lak specimens mentioned above.

All but one have the inside of the ear quite white and without tawny patches and the border of the ear narrowly white externally: on the outside of the ear, at the base, there is a whitish patch.

The pale area on the crown is concolorous with the back. The nape is in all cases darkly grizzled from about the line of the ears back to the shoulders but the degree of grizzling is variable and in one skin the back of the neck is uniformly dull brown.

In three skins the legs are pale and concolorous with the back and flanks and in one of these there are whitish patches above the hoofs: in the remaining two the fronts of the legs are largely greyish brown below the knees and hocks.

The only really aged animal has the antlers bifurcated at the tip and so worn that in many places the white polished inner tissue is exposed: it seems difficult to believe that these antlers have been renewed annually. A somewhat similar case has been recorded of the Sze-chuan muntjac (vide "The Game Animals of India, etc." Lydekker and Dollman 2nd ed., 1924, p. 262.): we have also seen a tendency to such bifurcation in a specimen from Sumatra.

Mr. Gairdner's external measurements of the largest animal are:—head and body 1041, tail 152, hind-foot 283, height at shoulder 585, height at rump 687 mm. The skull is imperfect.

Two specimens from Tenasserim town, are not separable in any respect from the series before us.

10. *Petaurista lylei* Bonhote.

Bonhote P. Z. S., 1900, p. 192 (near Chiengmai).

Me Taqua 1 ♀; Sikortur 1 ♂.

The male from Sikortur agrees well with two other males from the same place and also with others from N. Siam (Kloss, ii, 302; iii, p. 55).

The female from Me Taqua is darker below. It has the under side of the limbs black and the ground colour of the underparts nearer to sienna than to tawny: chin, throat, breast and middle line of the abdomen unevenly brownish. A darkened median zone is thus formed on the underparts.

Skull (adult male):—greatest length 77; condylo-basilar length 68; palatilar length 36; diastema 16.5; upper molar row (alveoli) 18.2; median nasal length 26; interorbital breadth 17; zygomatic breadth 51.8 mm.

P. lylei, *annamensis* and *barroni* are probably races of *P. petaurista*.

11. *Petaurista barroni* Kloss.

Petaurista annamensis barroni Kloss, Journ. Nat. Hist. Soc. Siam, ii, 1916, pp. 33, 81.

Ban Pong 1 ♀.

This skin from a locality about five miles east of Raheng must be placed with *barroni* described from Hup Bon near Sriracha, S. E. Siam and also obtained at Pitsanulok in C. Siam (about 60 miles due E. of Raheng).

It differs from the examples of *lylei* from Me Taqua and Sikortur and others from North Siam, in being paler above and below with the tips of the hairs on the upper surface creamy rather than grey: in having the membranes brighter and less black-edged; white patches on the shoulders and the front of the adjacent membrane bright ferruginous, the proectote paler and less rufous, and the tail largely whitish with only the last few inches black.

Skull (adult female):—greatest length 80; condylo-basilar length 69.5; palatilar length 36; diastema 17; upper molar row (alveoli) 18; nasals (median length and greatest combined breadth) 23.6 x 14.2; interorbital breadth 17; zygomatic breadth 52 mm.

12. *Hylopetes phayrei laotum* (Thōmas).

Sciuropterus phayrei laotum Thomas, Journ. Bom. Nat. Hist. Soc., xxiii, 1914, p. 18 (North Siam.): Kloss, iii, p. 56.

Ban Peng 1 ♀ (subadult).

Hind-foot 34 mm.

13. *Ratufa bicolor phaeopepla* Miller.

Ratufa phaeopepla Miller, Smiths. Misc. Collns., 61, p. 25 (1913) Kloss, ii, pp. 81, 305.

Ban Tong Teng 2 ♀; Raheng 1 ♀; Hue Padeng 1 ♂; Ta Chang Tai 1 ♀.

Kloss has suggested (Journ. Nat. Hist. Soc. Siam, ii, 1917, p. 306) that the brown colour of *phaeopepla* is only a dry season phase of a black-backed squirrel and this small series seems to confirm the suggestion.

There are considerable differences in colour in the skins before us and as the pelage in the parti-coloured specimens is most obviously in a stage of moult they cannot be regarded as intermediates between *phaeopepla* and *marana* (from Mt. Popa, dry zone of Burma) which latter form is stated to differ from *phaeopepla* by reason of its black colour.

Largest skull (♀):—Condyllo-basal length 65, palatilar length 28, least interorbital breadth 32, postorbital processes 44, zygomatic breadth 49, upper molar row (alveoli) 15 mm.

Upper Surface.

April 9th. Crown, forelimbs and a patch on each shoulder confluent with the latter, glossy black. Lower back and hind limbs dull brownish black. Fore part of back near russet, becoming buffy on the neck.

April 9th. Uneven blackish brown above, darkest posteriorly but the crown russet with a small black centre. Blackened pelage showing on the flanks and a yellowish brown bar about an inch wide across the middle of the back: the hairs on this band are annulated with yellowish buff.

May 2nd. This is the darkest of the series and except for a brownish patch between the ears it is completely black above although the colour ranges from dull brownish black to shiny black. The pelage, however, is slightly worn and, as in the case of the other examples of the series, we believe that the complete, unworn pelage would be uniformly deep black.

May 26th. This is perhaps the most interesting skin. Although the upper parts are between seal brown and black the pelage is obviously worn and on the head, shoulders and neck a new, glistening, and intensely black pelage is making its appearance.

August 1st. Forelimbs, crown and some irregularly placed patches on the hind neck glossy black: hind limbs and feet dull black. Remainder of upper surface well bleached and varying in colour from verona brown to warm sepia. This is the palest of the series.

14. *Sciurus caniceps caniceps* Gray.

Kloss ii, pp. 18, 83; iii, pp. 58, 362.

Sciurus epomophorus fluminalis Wr. & Rob., Journ. Fed. Malay States Mus., iv, 1911 p. 233 (Meping Rapids, 600 ft., N. Siam).

Paknampo 1 ♀; Ban Dong 1 ♂, 2 ♀; Hue Nya Pla 3 ♀; Ta Chang Tai 1 ♂ juv.

All the specimens from Ban Dong (4th April) retain a large amount of the bright winter pelage: the three from Hue Yah Pla, taken between 10th and 23rd May and the single skin from Ta Chang Tai (22nd July) are in the dull summer pelage although one is washed with fulvous on the lower back.

Skull of adult female:—greatest length 60; condylo-basilar length 50.3; palatilar 25.3; diastema 14; upper molar row (alveoli) 11.5; median nasal length 17.5; least interorbital breadth 22; zygomatic breadth 35.5 mm.

We may here remark that *Callosciurus erubescens* Cabrera (Bol. de la Real Soc. Espan. de Hist. Nat., xvii, 1917, p. 518: Selangor, Federated Malay States) is a pure synonym of *Sciurus caniceps concolor* Blyth, from Malacca.

15. *Sciurus atrodorsalis thai* Kloss.

Sciurus atrodorsalis thai Kloss, Journ. Nat. Hist. Soc. Siam, ii, 1917, p. 285: Raheng.

Ban Dong 1 ♀; Me Taqua 6 ♂, 6 ♀; Hue Nya Pla 1 ♂, 2 ♀; Sikortur 2 ♂, 1 ♀; Ta Chang Tai 1 ♂, 1 ♀.

These specimens all have black vibrissae and illustrate the

characters given in the original description except that some of them have a grizzled median line on the chest.

A very uniform series above, varying only in the extent of the black dorsal patch which is large and conspicuous in all except a juvenile and two females from Me Taqua (although even in the latter the dark area is discernible) and the amount of white at the end of the tail.

The underparts are as variable as the upperparts are constant. The range of colour is from cinnamon rufous through ferruginous to chestnut. In all cases the chin at least is buffy grey but the throat may be coloured like the rest of the underparts.

Skulls of the two largest adult males:—greatest length 52.5, 52; condylo-basilar length 45, 44; palatilar length 22.5, 22.5; diastema 12, 12; upper molar row (alveoli) 10, 10.2; median nasal length 16, 15.7; interorbital breadth 19, 20; zygomatic breadth 31, 32.2 mm.

This race has been obtained at Paknampo, Central Siam, by Mr. C. J. Aagaard (♀ 2 Sept. 1926).

16. *Sciurus ferrugineus sinistralis* Wroughton.

Sciurus bocourti sinistralis Wr., Ann. Mag. Nat. Hist., 8, ii, 1908, p. 399.

Sciurus bocourti dextralis Wr., tom. cit., p. 400.

Paknampo 1 ♀; Ban Tong Teng 1 ♂; Raheng 1 ♂, 3 ♀.

This is a very variable series and on descriptions three are nearest to *sinistralis* and the others to *dextralis*: both forms are represented from Raheng.

The squirrels of the Menam River generally regarded as a distinct species under the name of *bocourti* should all be regarded as races of *ferrugineus*.

Extending northwards up the Menam river system two races, *sinistralis* and *dextralis*, have been described by Wroughton. The following relevant extract is from an unpublished manuscript by Robinson and Kloss in which the squirrels of this group are reviewed. In addition to the considerable material available locally the review was based on the entire collection of the group in the British Museum of Natural History.

"We have examined and measured the whole of the material on which the forms [i. e. *sinistralis* and *dextralis*] are based and while admitting that they can as a mass be separated from the southern *C. f. siamensis** by the fact that they never so far as is known acquire a white belly or a black back, and from the northern *S. f. lylei* by their smaller size we cannot recognise two forms *inter se* in view of the great variation shown in the large series of *lylei* in our possession. The form will have therefore to stand by page priority as *C. f. sinistralis* (Wr.). So far as is known the range is comparatively limited: it does not extend south much beyond Pichit. At Raheng to the N. W. it is showing very strong convergence toward its geographical neighbour *lylei*."

Skulls of three adults:—greatest length 51, 51.5, 51.4; condylo-basilar length 43.6, 44, 43; palatilar length 21.8, 21.5, 21.5; upper molar row (alveoli) 20.5, 20.5, 21; least interorbital breadth 19, 20, 18.2; zygomatic breadth 31, 32, 30.5.

17. *Dremomys rufigenis* subsp.

Hue Nya Pla 2 ♀.

On locality these should be typical *rufigenis* described from Mt. Muleyit in Central Tenasserim, but one specimen is exactly like *belfeldi* from the mountains of the Malay Peninsula: the other, a younger animal with bluff ear patches, has slightly redder feet and is a little richer on the cheeks.

18. *Tamiops macclellandi kongensis* (Bonhote).

Tamiops barbei kongensis, Kloss, ii, p. 360,

Sciurus macclellandi kongensis, Bonh., P. Z. S., 1901, p. 55 (Raheng): Kloss, iii, p. 60.

Raheng 8 ♂, 2 ♀; Me Taqua 2 ♂; Ta Chang Tai 2 ♂, 3 ♀.

These specimens were taken in April, July and August and are much duller and paler than the female from Muang Pre, N. Siam, taken on 28th April and described by Kloss in Journ. Nat. Hist. Soc. Siam, ii, 1916, p. 84.

* The earliest name for the race occurring at Bangkok, Ayuthia, Petchaburi, etc. is *siamensis*, Gray (syns. *bocourti*, *leucogaster*, *leucocephalus*, *floweri*).

The examples from Ta Chang Tai (July) are slightly fresher-looking than the others (nine in April, one in August). The Raheng skins are very dull and in one animal the dark dorsal stripes are grizzled to such an extent that they are almost as pale as the flanks.

19. *Menetes berdmorei consularis* Thomas.

M. b. consularis Thos., Journ. Bom. Nat. Hist. Soc., xxiii, 1914, p. 24; Nan, N. Siam.

Kloss, iii, p. 374.

Raheng (April) 2 ♂; Sikortur 1 ♂; Me Taqua (June) 1 ♂, 1 ♀; Ta Chang Tai (July, November) 2 ♀, 1 ♀.

With the exception of the two males from Raheng which are very pale (in worn pelage) these specimens resemble examples of *consularis* from Muang Pre, N. Siam.

The Raheng males are almost identical with the pale skins from Hua Hin, Pran, S. W. Siam described by Kloss in Journ. Nat. Hist. Soc. Siam, iii, 1919, p. 372.

The probability of there being a very pale race extending from Raheng southwards into S. W. Siam is therefore increased, but we know little of the ranges of the races already described and the seasonal changes in these squirrels.

All the specimens listed above are devoid of dorsal stripes and all have white underparts.

20. *Rattus sabanus* subsp.

Hue Padeng 1 ♀; Sikortur 1 ♀.

Both these rats are immature and therefore impossible to determine subspecifically with any certainty. The example from Sikortur is remarkable on account of its brown underfur. On locality they are probably *Rattus sabanus herberti* (Kloss, ii, p. 25; iii, p. 375).

21 *Rattus surifer siarma* Kloss.

Rattus rajah siarma Kloss, Journ. Nat. Hist. Soc. Siam, iii, 1918, p. 75; Sikawtur, 40 miles N. W. of Raheng, W. Siam.

Hue Nya Pla 1 ♀; Sikortur 1 imm. ♀.

R. rajah is now known to be the Bornean representative of the "*pellax*" group of spiny-backed rats: *surifer* is the prior name for the species in which the underfur is grey.

22. *Rattus concolor concolor* (Blyth).

Kloss, ii, p. 62; iii, p. 380.

Raheng 1 ♂, 5 ♀.

23. *Rattus rattus thai* Kloss.

Rattus rattus thai Kloss, Journ. Nat. Hist. Soc. Siam, ii, 1917, p. 286: Raheng, (West?) Central Siam.

Sikortur 2 ♂, 4 ♀; Ta Chang Tai 1 ♂; Me Taqua 1 ♂.

The characteristic ochraceous-tawny colour of the dorsal surface when compared with *jalorensis* is well marked in this series.

Mammæ 3—3=12.

[Dr. K. W. Dammerman, who has recently examined the types of *Mus neglectus* Jentink, from Borneo, informs me that it is an example of *Mus diardi* of the same author, which has page priority. It is therefore a house rat and *jalorensis* Bonhote is thus still available for the Malaysian field rat in general; *Rattus rattus jalorensis* is the right name for all those rats which of late I have listed as *Rattus rattus neglectus*. C. B. K.]

24. *Rattus rahengis* Kloss.

Rattus griseiventer rahengis Kloss, Journ. Nat. Hist. Soc. Siam, iii, 1918, p. 74: Me Taw 40 miles N. W. of Raheng.

Hue Nya Pla 1 ♂, 1 ♀, 2 juv.

Like the types of this form these animals are darker and more woolly than *diardi* from the Malay Peninsula: they also have longer pointed nasals and larger teeth.

[I am still more doubtful than before that this animal was rightly referred to the house-rat *diardi* (syn. *griseiventer*) C. B. K.].

25. *Rattus berdmorei mullulus* (Thomas).

Epimys berdmorei mullulus, Thomas, Journ. Bom. Nat. Hist. Soc., xxiv, 1916, p. 413 (Thagata, Muleyit Range, Tenasserim); Kloss ii, p. 79.

Sikortur 1 ♂.

This skin is in poor condition but the tail appears to have been light at the tip although this is not certain. Mr. Gairdner's measurements (taken after skinning in this case) are, head and body 205, tail 140 mm.; in the dried skin the hind-foot measures 36 mm.

The skull is so broken that no measurements are possible but we have been able to examine the bullae.

26. *Bandicota savilei curtata* Thos.

Bandicota savilei curtata Thos., Ann. Mag. Nat. Hist. (10) 3, 1929, p. 205.

Raheng 2 ♂, 4 ♀, 3 juv.

The tails of the six larger specimens, according to the native collector's measurements, vary between 134 and 175 mm., whereas those of twenty examples of *B. s. savilei* from Central Burma have a range of 190-230 mm. The head and body lengths of the six Raheng animals are 187-225 mm.

Their long narrow skulls differentiate them from typical *Gunomys* while their six pairs of mammae place them under *Bandicota*.

27. *Cannomys badius minor* (Gray).

Kloss, iii, p. 383.

Sikortur 1 ♀; Ta Chang Tai 1 ♀.

These two specimens are very different in colour and neither can be exactly matched by any of six skins from East, North, and West Siam.

The older animal, that from Sikortur, is very rich in colour, the hairs of the upper parts being tipped with a colour between auburn and Sanford's brown: the under-parts are much duller. The younger specimen lacks all the lively chestnut appearance of the first example. It has the anterior half of the upper parts an indefinite shade of brown, the remainder of the pelage being dark neutral grey, the hairs thinly tipped with brown.

External measurements: head and body 205, 195; tail 65, 70; hind-foot s. u. 30, 31; ear 8, 10 mm.

Skull:—greatest length 49.6, 45.5; condylo-basilar length 44, 40.5; palatilar length 28.5, 26; diastema 18, 16; upper molar series (alveoli) 11.2, 10.6; upper molar series (crowns) 11, 10; nasals 17.6, 15; interorbital breadth 9, 9; zygomatic breadth 34.8, 33; auditory breadth 25, 24.

28. *Acanthion brachyurus klossi* Thomas.

Acanthion klossi Thos., Ann. Mag. Nat. Hist. (8) xvii, 1916, p. 136 (Tenasserim); Kloss, P. Z. S. 1916, p. 60.

Me Taqua 1 ♂.

This fine adult presents certain minor differences in colour when compared with two subadult females said to have come from south-west of Ratburi on the Meklong River (Journ. Nat. Hist. Soc. Siam, iii, 1918, p. 65). The dark portions of the upper parts, including the quill-bands are much blacker and less brown, there is less white in the crest but more on the throat and the white tips to the bristles on the neck above are more conspicuous.

Collector's external measurements:—Head and body 670; tail 142; hind-foot 89; ear 43 mm.

Skull:—upper length 141.5; condylo-basilar length 139; diastema 40; upper molar row (alveoli) 32.5; length of nasals 76; breadth of combined nasals 37; length of frontal suture 35; zygomatic breadth 75.5 mm.

29. *Lepus peguensis siamensis* Bonhote.

Lepus siamensis Bonhote, Proc. Zool. Soc. Lond., 1902, p. 40: Chiangmai, N. Siam.

Raheng 1 ♂, 2 ♀; Ban Pong 1 ♂.

These four skins agree well with a topotype of *siamensis*: all have the feet strongly buffy. There is a very slight blackening of the edge of the ear at the tip but it is almost negligible.

Broadly speaking the incisor groove is bifurcate with a tendency to complication in the outer branch.

Figs. 2532 (2 specimens), 2538 (right) and 2105 (right) given by Kloss in Journ. Nat. Hist. Soc. Siam, iii, 1919, pl. 7, can be taken to represent the specimens before us in all essentials.

Skulls:—basilar length (from back of large incisor) 71.3, 73, 74.9, 70; diastema 27.2, 28, 27.7, 27; upper molar row (alveoli) 16.5, 16, 17.3, 17; diagonal length of nasals 43.5, 41.9, 40.4, 42.2; anterior frontal constriction 20, 20, 19.7, 18; posterior frontal constriction 13, 15, 13.2, 13.5; zygomatic breadth posteriorly 40.5, 40.2, 41.9, 41.5; zygomatic breadth across anterior processes 42.5, —, 43.5, 45.6 mm.

30. *Tupaia glis belangeri* (Wagn.)

Kloss, iii, pp. 53, 355.

Me Taqua 1 ♂, 2 ♀; Ta Chang Tai 1 ♂.

Like others from the same locality these examples have the upper and lower back alike in colour.

Mammæ 3 pairs: rostral length 20 mm.

31. *Hylomys suillus siamensis* Kloss.

Hylomys siamensis, Kloss, Journ. Nat. Hist. Soc. Siam, ii, 1916, p. 10 (Hinlap, Eastern Siam); iii, p. 55.

Sikortur 1 ♂.

This specimen is slightly different in colour from five examples from Sikortur and Me Taw, two from S. Annam, and one from Pakchan, Peninsular Siam, all of which are *siamensis*.

On the upper parts it is slightly colder in tone although the usual ochraceous wash on the rump is well marked: the top of the head is lighter and the forehead is as bright as the rump.

On the chest are two indistinct streaks which seem to originate near the axillæ (and perhaps in life formed an ill-defined band across the chest) and are continued for about an inch behind the forelimbs on each side of the chest.

External measurements:—head and body 169, tail 26, hindfoot (s. u.) 23, ear 17 mm.

Skull (badly smashed):—zygomatic breadth 20 mm.

32. *Talpa klossi* Thomas.

Talpa klossi Thos., Ann. Mag. Nat. Hist. (10), 3, 1929, p. 206.

Parascaptor leucura, Kloss, Journ. Nat. Hist. Soc. Siam. ii, 1917, p. 299.

Hue Nya Pla 1 ♂.

This, the most southerly known mole, remarkably extending the range of *Talpa*, was taken on 17th May 1924. It differs from the specimen from Doi Nga Chang, S. E. of Chiangmai, N. Siam, which in the absence of a skull, Kloss recorded as *Parascaptor leucura*, in lacking the light brown tinge on the chin, throat and chest, these parts being like the upper parts or perhaps slightly more greyish or silvery.

Although the colour of these animals varies with the incidence of light and exact comparison is difficult it seems that our recent

specimen is, on the underparts, rather the darker of the two. The tail has also a much less conspicuous tuft, the hairs only extending about 7 mm. beyond the end of the tail vertebrae. Held crossways with the light falling from the front the colour is mouse-grey strongly suffused with drab, the result being almost hair-brown almost imperceptibly less brown and more grey on the lower surface. Hands and feet very thinly clad with pale buffy or whitish hairs. The tail tuft very pale buff.

Some external measurements, taken from the dry skin are :—
breadth of hands 13.5, length of hands, including nails, 19.6 mm.

33. *Hipposideros cineraceus* Blyth.

Ta Chang Tai, 1 ♂.

34. *Hipposideros larvatus larvatus* (Horsf.).

Ta Chang Tai; Raheng.

6 ♂, 5 ♀.