

FURTHER OBSERVATIONS ON THE GEE'S LANGUR, *PRESBYTIS GEEI* KHAJURIA¹, WITH REMARKS ON THE CLASSIFICATION OF INDIAN COLOBIDAE (MAMMALIA PRIMATES)

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(With 2 Text-figures and 1 Plate)

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I—INTRODUCTION

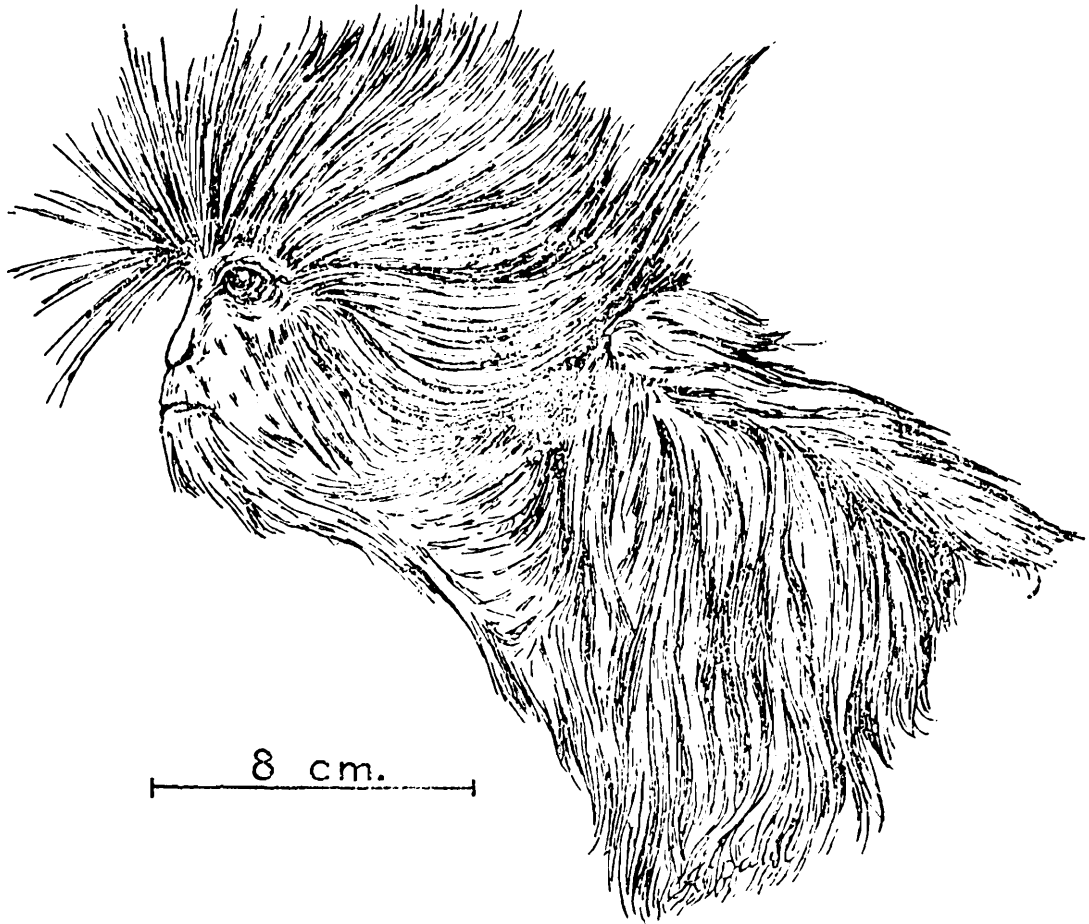
The present study embodies certain observations on the morphology, affinities, distribution and habits of the Gee's Langur, *Presbytis geei* Khajuria, from Assam. Of special interest is the information on the colour of the newly born young and that of the adult in winter obtained through various sources and especially by a fresh collection of topotypes made by Mr. R. V. Sherard of the Zoological Survey of India early in December, 1955. Studies on the external genitalia and osteometry were also undertaken and proved to be quite instructive. In the light of these investigations a further elucidation of the affinities of the species has been offered. Some suggestions on the subgeneric classification of Indian Colobidae have been given on the basis of the characteristics of scrotal sacs—an important character which has hitherto been overlooked.

The writer is indebted to the Forest Range Officer, Raimona for help rendered in various ways during the study and to Drs. M. L. Roonwal and B. Biswas of this department for their useful suggestions.

¹ The name *Presbytis geei* (Gee, 1956) is here considered as *nomen nudum*.

II—MORPHOLOGY

The distinguishing characters of the pelage of *P. geei*, which were given in the original description are now illustrated (Text-fig. 1).



TEXT-FIG. 1.—Head and neck of the holotype of *Presbytis geei* seen in profile.

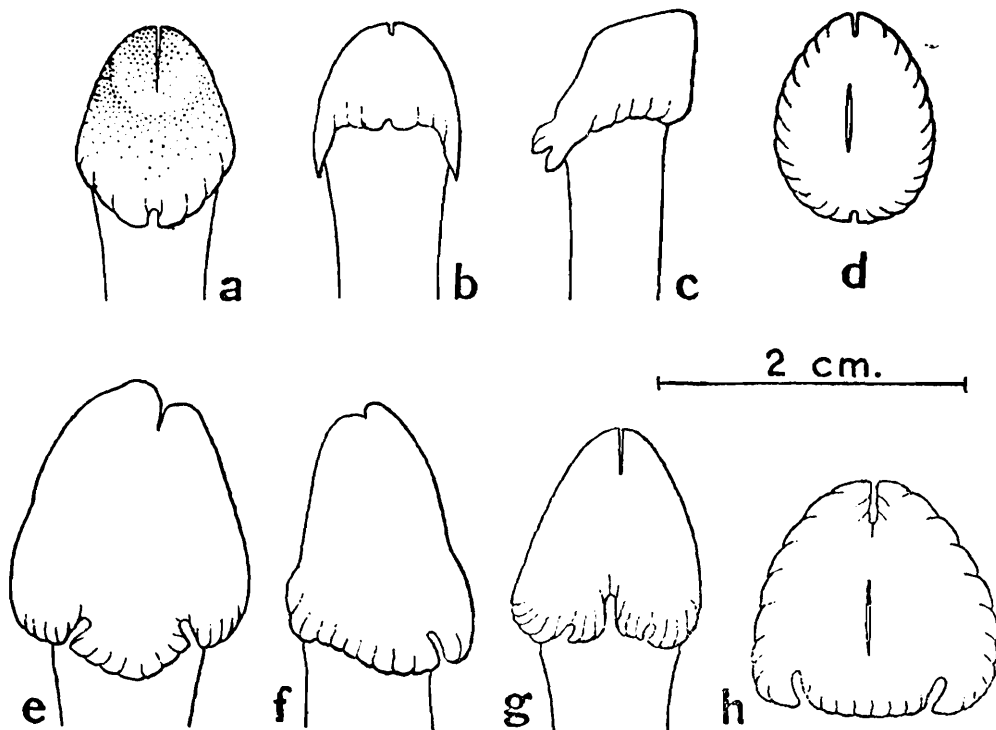
Coloration.—In the original description (Khajuria, 1956a) the general colour of *P. geei* has been recorded as creamy white on the dorsal aspect. Gee (1956), however, asserts that the colour, as observed by him in November, appears 'bright golden' in sunlight. In fact, the species is known locally to many visitors as the 'golden langur'. In view of the different observations regarding the coloration, eight adult topotypes were collected in December, 1955 by Mr. R. V. Sherard and these reveal that *P. geei* has, in fact, two colour forms: golden red in winter and creamy white in summer.

In these specimens the ventral and lateral sides of the head, the neck and the trunk and the inner sides of the limbs show various shades of orange or golden red with traces of the same coloration on the upper parts where at least the bases of hairs have become orange red. On the dorsal side the posterior part of the trunk is much redder. The parts least affected by redness up to the time of the collection are the crown, the distal parts of the tail, and the outer upper parts of the legs and the arms. Isolated patches of red may be present on various parts of the body, including the fingers and the toes. In younger individuals the colour is paler. The hairs below the callosities are paler than those around.

Pocock (1928, 1934) based his classification of langurs on the coloration of the newly born young ones. Gee (1956) observed that in *P.*

geei the young ones in November appeared a little paler than the adults ('bright golden'). The Forest Range Officer, Raimona, informs me (*in litt.*) that a few weeks old infant captured in early November is entirely white. Mr. Sherard collected three young ones in December, 1955, two of which appear to be about six weeks old (with the second milk premolar fully erupted) and the third less than four weeks old (with second milk premolar in the course of eruption). The colour of the two older infants is white or creamy white, with some cream on the dorsal surface and light orange on the sides of the neck, but the younger infant is 'golden red' all over except the ventral aspects, the inner sides of the limbs, the hands and the feet and the crown which are much paler, the head region being almost white. Under the circumstances, nothing final can be said about the colour of the infant just after birth or the changes that it may undergo subsequently, but as far as our present knowledge goes it may be described as typically white.

External genitalia.—The glans of *P. geei* principally differs from that of *P. p. pileatus* (Blyth) (Text-fig. 2) in being obliquely truncated in front (with major part of terminal slit on the dorsal side), oval in cross-section



TEXT-FIG. 2.—Glans of *Presbytis geei* and *Presbytis pileatus pileatus*.

(a, b and c). Dorsal, ventral, and lateral views of the glans of *Presbytis geei*. (d) Cross-section of the same. (e, f and g). dorsal, ventral and lateral views of the glans of *Presbytis pileatus pileatus*. (h). Cross-section of the same.

and in having much deeper excision on the postero-ventral border. These observations are based on freshly killed specimens, a single adult of *P. geei* and two adults of *P. p. pileatus*. In the latter some minor variations were observed but they do not cover the description given by Pocock (1925, p. 1564) which probably relates to some other sub-species of *P. pileatus*. As in *P. pileatus*, the testes do not descend into a pendulous scrotum in *P. geei*.

The external genitalia of the female are like those of *P. pileatus* and *P. obscurus* (Reid) as figured by Pocock (1925, p. 1552).

Skeleton.—The skull (Pl. 7) resembles that of *P. pileatus*, but the proportions of some other skeletal parts show interesting resemblances with the species of subgenus *Presbytis* (status *vide* Khajuria, 1956b). A comparison of *P. geei* with the species of subgenera *Trachypithecus* and *Presbytis* based on the data provided by Washburn (1942, 1944) is presented in Table 1. Washburn showed that on the basis of the proportions of postcranial skeleton the two groups can easily be distinguished. It will be seen that *P. geei* resembles the species of subgenus *Trachypithecus* in intermembral, femoro-humeral and prognathism indices, but in the case of brachial index it is closer to the subgenus *Presbytis*. In the palatal length given as percentage of basion-nasion length it shows overlapping with both the subgenera. It is interesting to note that except the brachial index which is uniform in both the young and the adult, all other indices in the case of the young ones of *P. geei* fall within the range of the subgenus *Presbytis*.

TABLE 1.—A comparison between *Presbytis geei* and the species of subgenera *Trachypithecus* and *Presbytis* on the basis of the proportions of some skeletal parts.†

| Indices | <i>P. geei</i> | <i>Trachypithecus</i> | <i>Presbytis</i> |
|---|---|--|---|
| <i>Brachial index</i> | 96.6-100.9 (9 specimens) | 106-119 (52 specimens ; 6 species) | 91-101 (52 specimens : 8 species) |
| <i>Intermembral index</i> | 77.1-79.5 (7 ad. & s.ad.) 82.3-84.7 (2 juv.) | 74-80 ,, | 80-85 ,, |
| <i>Femoro-humeral index</i> | 72.7-75.7 (7 ad. & s.ad.) 80.0-81.0 (2 juv.) | 66-74 ,, | 75-82 ,, |
| <i>Prognathism</i> | 117.8-123.7 (3 ♂) 111.7-119.8 (7 ♀) 109.3 (1 s. ad. ♂) 99.7-107.0 (2 juv.) | 115-125,, (♂) 111-122 (♀) | 100-115,, (♂) 103-111 (♀) |
| Palate length in percentage of basion-nasion length. | 60.7-65.1 (64.1)* (3 ♂) 54.1-62.0 (58.9) (7 ♀, 57.1 (1 s.ad. ♂) 48.7-56.3 (2 juv.) | 63-68 (66) (12♂, 1 species 61-65 (63) (15♀, 1 speci- es) | 54-61 (58) (19♂, 1 species). 55-58 (56♂ (17 ♀, 1 species). |

† The measurements and indices are taken after Mollison (1911) and Washburn (1944), respectively.

*Figures in parentheses indicate mean values.

III—AFFINITIES

That *P. geei* is assignable to the subgenus *Trachypithecus* is supported by the characters of the skull, external genitalia, absence of sharply defined whiteness of the inner side of the thigh and the shin, the presence of paler hairs beneath the callosities, and by most of the osteometric data given in Table 1. The colour of the infant on which Pocock based his classification of langurs is, however, confusing as discussed earlier in this article, but the kinship with the species of subgenus *Trachypithecus* is indicated by the possible presence of partially golden form(s) in infants.

The resemblances of *P. geei* with the species of the subgenus *Presbytis* are of much less importance but are shown to some extent by some osteometric data, typically white colour of the infant, ill-defined half-whorl on the forehead and the redness of the adults. *P. geei* is, therefore, here regarded as a representative of the subgenus *Trachypithecus* which has retained a few characters of the possibly ancestral subgenus *Presbytis*.

Of all the species of the subgenus *Trachypithecus*, *P. geei* is, on account of its wholly black face, shortened hair on fore-nape, red ventral aspects and general build of the skull, closest to *P. pileatus*, but is, at the same time, sufficiently distinct from it to deserve a full specific rank. Important distinguishing characters of the two species are given in Table 2.

Table 2.—Important distinguishing characters of *Presbytis geei* and *Presbytis pileatus*.

| <i>Presbytis geei</i> | <i>Presbytis pileatus</i> |
|---|--|
| 1. Newly born young typically white | 1. Newly born young typically golden red. |
| 2. Hair on the crown not forming a mat. | 2. Hair on the crown forming a mat. |
| 3. Hair on the temples not shorter than that on the crown. | 3. Hair on the temples shorter than that on the crown. |
| 4. Seasonal colour changes. | 4. No seasonal colour change, as far as known. |
| 5. An ill-defined half-whorl on forehead. | 5. No whorl on forehead. |
| 6. Crown and distal part of tail much paler than adjoining parts. | 6. Crown and distal part of tail are much darker than adjoining parts. |
| 7. Brachial index similar to that of subgenus <i>Presbytis</i> . | 7. Brachial index similar to that of the subgenus <i>Trachypithecus</i> . |
| 8. Generally silent and timid in demeanour. | 8. Generally noisy and aggressive in demeanour. |
| 9. Glans obliquely truncated in front, oval in cross-section and with deep excision on postero-ventral border in one adult studied. | 9. Glans without characters given under <i>P. geei</i> in two adults of nominate subspecies studied. |

IV—DISTRIBUTION

Gee (1956) has supplied detailed information about the distribution of this species. Some animal dealers have reported its occurrence near Tura, Garo Hills, Assam, along with *P. pileatus*. In January-February, 1957, the writer collected zoological specimens at Rongren-giri about thirty-five miles east of Tura. Although *P. pileatus* was common, *P. geei* was not met with.

V—HABITS

The following information regarding the habits of this species has not been recorded before :—

The young ones are born mostly in October and November. The young, when captured, is very docile and accepts food immediately after capture. At times it emits a hissing and whistling sound. A young captured by the Range Officer, Raimona (Goalpara Dist.), is progressing well as a pet. The silent and non-aggressive habits of the adults have already been reported upon (Khajuria, 1956a) ; but a troop met with at Raimona during a recent visit showed different behaviour, apparently due to molestation. The adult males on noticing the observer began to emit a loud quickly repeated short coughing sound which was preceded by a sound resembling *oon-oon* often uttered by sick persons. Some females also appeared to utter a similar sound but at a higher pitch. The animals jumped from tree to tree in great restlessness, the females and immature individuals often grouping themselves around the adult males apparently for protection.

A troop may contain more than one adult males. The animal occurs in the same area as *Macaca mulatta* Zimmermann, but the two species keep apart from each other.

VI—REMARKS ON THE CLASSIFICATION OF INDIAN COLOBIDAE

With the inclusion of *P. geei* with typically white young ones under the subgenus *Trachypithecus*, the colour of the infant ceases to be a good diagnostic character between this subgenus and the subgenus *Presbytis*. However, it has been pointed out that there are no pendulous scrotal sacs in *P. geei*. An examination of the specimens in the collection of the Zoological Survey of India shows that they are also absent in *P. pileatus* (also see McCann, 1934, p. 626), *P. phayrei* (Blyth), *P. obscurus* (Reid), and *P. cristatus* Raffles, the species by which the subgenus *Trachypithecus* is represented in the collection. It is very likely that this character may occur in all the species naturally referable to the subgenus *Trachypithecus* and turn out to be its most important distinguishing character. The scrotal sacs are reported to be present in the subgenera *Semnopithecus* and *Kasi* (vide McCann, 1934) and are also visible in the made up skins of *P. melalophos* Raffles and to some extent in those of *P. rubicundus* Müller, the only representatives of the subgenus *Presbytis* available to me. The use of this character in the subgeneric classification of Indian Colobidae is, therefore, recommended.

VII—SUMMARY

Some hitherto unrecorded observations on coloration, external genitalia, osteometry, affinities, distribution and habits of the Gee's langur, *Presbytis geei*, have been given. The species has been found to undergo interesting seasonal changes in coloration. The important character of the colour of the infant could not be fully ascertained, but it can be described as typically white. Although showing some resemblances with the species of the subgenus *Presbytis*, *P. geei* is assignable to the subgenus *Trachypithecus*.

The use of the character of scrotum is recommended for the first time in the subgeneric classification of Indian langurs.

VIII—REFERENCES

- GEE, E. P. 1956. A new species of langur from Assam.—*J. Bombay nat. Hist. Soc.*, Bombay, **53**, pp. 252-254.
- KHAJURIA, H. 1956a. A new langur (Primates : Colobidae) from Goalpara District, Assam.—*Ann. Mag. nat. Hist.*, London, (12) **9**, pp. 86-88.
- KHAJURIA, H. 1956b. Catalogue of mammals in the Indian Museum (Zool. Surv.). III. Primates : Colobidae.—*Rec. Indian Mus.*, Delhi, **52**, pp. 195-220, 1 pl.
- MCCANN, C. 1934. Observations on some of the Indian langurs.—*J. Bombay nat. Hist. Soc.*, Bombay, **36**, pp. 618-628, 2 pls.
- MOLLISON, T. 1911. Die Körperproportionen der Primaten.—*Morph. Jb.*, Leipzig, **42**, pp. 79-304.
- POCOCK, R. I. 1925. The external characters of the Catarrhine monkeys and apes.—*Proc. Zool. Soc. Lond.*, London, pp. 1479-1579.
- POCOCK, R. I. 1928. The langurs or leaf monkeys of British India.—*J. Bombay nat. Hist. Soc.*, Bombay, **32**, pp. 473-504 & 660-677.
- POCOCK, R. I. 1934. The monkeys of the genera *Pithecus* (or *Presbytis*) and *Pygathrix* found to the east of the Bay of Bengal.—*Proc. Zool. Soc. Lond.*, London, pp. 895-896, 2 pls.
- WASHBURN, S. 1942. Skeletal proportions of adult langurs and macaques.—*Hum. Biol.*, Baltimore, **14**, pp. 444-472.
- WASHBURN, S. 1944. The genera of Malaysian langurs.—*J. Mammal.*, Baltimore, **25**, pp. 289-299.