

CATALOGUE OF MAMMALS IN THE INDIAN MUSEUM (ZOOLOGICAL SURVEY). III.<sup>1</sup> PRIMATES : COLOBIDAE.

PLATE V.

By H. Khajuria, M.Sc. Hons., Zoological Survey of India, Indian Museum, Calcutta.

There are one hundred and ninety two specimens representing forty three species and subspecies of Colobidae in the collection. The genera *Pygathrix*, *Rhinopithecus*, and *Simias* are unrepresented, and only one African subspecies is present. Several specimens are not provided with suitable labels making their proper identification difficult. Out of thirty one forms described in the *Fauna of British India* (Pocock, 1939), twenty one are present in the collection. The study has revealed some interesting individual and geographical variations and some cranial abnormalities.

I am grateful to Dr. S. L. Hora and Shri K. S. Pradhan for their suggestions.

REMARKS ON THE CLASSIFICATION OF COLOBIDAE.

The reason for according Colobidae a family status *vis-a-vis* Cercopithecidae has already been given in an earlier report (Khajuria, 1955a). Briefly, there is a great difference between the two groups as regards the modifications of such important structures as the skull, generative organs, tail, etc. Except *Pygathrix*, all other genera recognized by Elliot (1913) are considered with consensus as valid. Pocock (1934) divided Elliot's *Pygathrix* into four genera, namely, *Semnopithecus*, *Presbytis*, *Trachypithecus*, and *Pygathrix*. Hill (1936) has further rightly separated *Kasi* from *Semnopithecus*, but almost all recent workers (Chasen, 1940 ; Simpson, 1945 ; Ellerman and Morrison-Scott, 1951) have unanimously agreed to group all these genera, except *Pygathrix*, under *Presbytis*. *Presbytis* thus constituted contains a long array of forms which are difficult to understand and classify. Leaving aside the question of convenience, it has been shown by Washburn (1944) on the basis of the proportions of the postcranial skeleton that the genera *Trachypithecus* and *Presbytis* as recognized by Pocock are very natural. An examination of the material in the collection under study also convinces me that Pocock's genera deserve at least subgeneric ranks.

Under the subgenus *Presbytis* as thus understood, Pocock (1934) included eight species, namely *femoralis*, *chrysomelas*, *melalophos*, *agyla*, *hosei*, *sabana*, *rubicunda* and *frontata* with a number of subspecies under *femoralis* and *melalophos*. Miller (1934), however, arrived at a different

---

<sup>1</sup> For reports Nos. I and II, see Khajuria (1953 and 1955a). Report No. I also includes some general remarks on the collection and the explanation of the abbreviations used in the measurements of skulls.

conclusion and merged Pocock's *femoralis* and *melalophos*, except the subspecies *siamensis* and *melalophos*, under one group, designated by him as 'femoralis group' and gave all of them full specific rank. Chasen (1940) again reduced all of them to subspecies under *femoralis* which, as pointed out by Ellerman and Morrison-Scott (1951) should be replaced by *melalophos*. Besides this difference of opinion about the status of these forms, their affinities and even the diagnostic characters in some cases are not at all clear. The species *rubicunda* and *frontata* are very well defined and, as a matter of fact, they do not come under the definition of the subgenus *Presbytis* as given by Pocock (*op. cit.*) in some very important characters, such as the whiteness of the inner surface of the tibia, and the colour of the newly born young (at least where it is known). They appear to be very specialized off-shoots of the general stock. The rest of the forms may be treated as belonging to one group. Some of these forms appear to be higher in rank than a race or a subspecies, some good subspecies, while others seem hardly to have attained this status. This is apparently due to the peculiar geographical features of their homeland (Malaysian islands). The phenomenon gives a beautiful illustration of the mechanism of dynamics of evolution. It is not clear why Chasen (*op. cit.*) excluded *agyla* from this stock, and further considered *hosei*, *thomasi*, and *sabana* as subspecies of *agyla*.

The important works consulted during the study are Allen (1939), Chasen (1940), Ellerman and Morrison-Scott (1951), Pocock (1928, 1934, 1939), Schwarz (1929) and Simpson (1945).

#### THE CATALOGUE.

#### Family COLOBIDAE.

#### Subgenus SEMNOPITHECUS

#### *Presbytis entellus ajax* (Pocock).

1928. *Pithecus entellus ajax* Pocock, *J. Bombay nat. Hist. Soc.*, XXXII, p. 480, pl. 2, fig. 1 (Deolah in Chamba).

#### Material—

|       |                |                       |            |
|-------|----------------|-----------------------|------------|
| 12135 | Skin and skull | Rahla, Kulu Valley,   | 4-6-1929   |
|       |                | H. W. Wells.          |            |
| 12136 | Do.            | Chatri, Chamba State, | 1-12-1922. |
|       |                | H. W. Wells.          |            |

*Measurements*.—Skull (No. 12135) : *l*, 124.0 ; *cb*, 100.8 ; *zw*, 94.1 ; *ow*, 59.5 ; *nw*, 32.2 ; *c<sup>1</sup>-m<sup>3</sup>*, 46.4 ; *ml*, 95.8.

Skin (No. 12135) : *hb*, 530 ; *tl*, 770 ; *hf*, 180 ; *e*, 40.

*Remarks*.—The specimens are typical.

*Distribution*.—Kashmir †, Chamba and Kangra, at high altitudes.

**Presbytis entellus schistaceus** (Hodgson).

1840. *Semnopithecus schistaceus* Hodgson, *J. Asiat. Soc. Bengal*, IX, p. 1212 (Nepal Terai).

*Material—*

12232 . Skull without lower jaw. Mussooree, Uttar Pradesh. T. Hutton (1848).

*Measurements of the skull.*—1. 135.0; *cb*, 109.4; *zw*, 99.9; *iw*, 65.5; *mw*, 35.5;  $c^1-m^3$ , 48.2.

*Remarks.*—As the skin is not available, the identification is provisional.

*Distribution.*—Garhwal, Kumaon, Oudh and Nepal Terai.

**Presbytis entellus achilles** (Pocock).

1928. *Pithecus entellus achilles* Pocock, *J. Bombay nat. Hist. Soc.*, XXXII, p. 478, pl. 2, fig. 2, (Sathar Hills, Gorkha, Nepal, 12, 000').

*Material—*

12157 Adol. Skin and skull Sikkim, L. Mandelli (November, 1875).  
(I. M. 11dd)

12181 Ad. Skin (damaged) and skull. Do.  
(I. M. 11ce)

*Remarks.*—The specimens were identified by Anderson (1881, p. 38) as *schistaceus* Hodgson, but they really appear to belong to the present form.

*Distribution.*—Kashmir?, Sikkim and Nepal.

**Presbytis entellus entellus** (Dufresne).

1797. *Simia entellus* Dufresne, *Bull. Soc. Philom, Paris*, I, p. 49 (Bangal).

*Material—*

7444 S. ad. ♂ Skin and skull N. L. Mukherjee (6-4-1896).  
7445 ♀ Do. W. Rutledge (6-4-1896).  
11431 ♀ Do. Ramkanali, 4 miles from Inspection Bungalow, Inanpur, Manbhum Dist. Bihar, 3-11-1948. Z. S. I. Party.  
11829 ♂ Skull Allahabad, J. Cockburn (12-1-1879)  
(I. M. 112)  
11917 Young ♀ Skin and skull W. Rutledge (9-2-1874).  
(I. M. 11j)  
11941 ♂ Skull Bunda Dist., Uttar Pradesh. J. Cockburn.  
12147 ♀ Do. Talala, Junagarh State, 200', 23-12-1912. C. A. Crump.  
12148 ♂ Do. Midnapur, Bangal 200', 4-9-1914. C. A. Crump.  
12149 Young ♀ Skin B. Collins (13-9-1874).  
(I. M. 11n)  
12150 Young ♂ Do. Rajendar Mullick (7-12-1873).  
(I. M. 11m)

|                      |          |                             |   |
|----------------------|----------|-----------------------------|---|
| 12151<br>(I. M. 11k) | Young ♂  | Skin . . .                  | Purchased (22-6-1872).                                |
| 12152<br>(I. M. 11l) | ♂        | Skin and skull              | Do. (6-8-1873).                                       |
| 12153                | ♂        | Skin . . .                  | O. L. Fraser (1-11-1880).                             |
| 12154                | ♂        | Do.                         | Purchased (6-11-1877).                                |
| 12155<br>(I. M. 11i) | S. ad. ♂ | Skin and skull              | A. S. B.  |
| 12158<br>(I. M. 11y) | ♀?       | Skull without<br>lower jaw. | Botanical Gardens, Calcutta. Dr. J. Anderson, (1867). |
| 12159<br>(I. M. 11r) | Adol. ♀  | Skull . . .                 | Do. (2-9-1865).                                       |
| 12216<br>(I. M. 11a) | ♂        | Skin (exhibited)            | E. Blyth (1842).                                      |

*Measurements—*

## Skulls :

| Z.S.I. Reg. Nos. | <i>l</i> | <i>cb</i> | <i>zw</i> | <i>ow</i> | <i>mw</i> | <i>c<sup>1</sup>-m<sup>3</sup></i> | <i>ml</i> |
|------------------|----------|-----------|-----------|-----------|-----------|------------------------------------|-----------|
| 11829 .          | 140.9    | 110.5     | 106.6     | 68.4      | 42.3      | 46.7                               | 104.5     |
| 11841            | 135.6    | 111.0     | 103.4     | 66.9      | 40.1      | 47.4                               | ..        |
| 11431 . .        | 120.0    | 93.2      | 90.4      | 59.8      | 31.2      | 42.4                               | 90.8.     |
| 12147 . .        | 104.0    | 82.8      | 81.9      | 58.6      | 29.3      | 38.6                               | 80.5.     |
| 12148 . .        | 119.4    | 97.6      | 94.6      | 60.6      | 36.0      | 45.5                               | 90.5.     |
| 12158 . .        | 110.2    | 89.8      | 83.5      | 58.7      | 30.0      | 38.2                               | ..        |

## Skins :

| Z. | S. I. Reg. Nos. | <i>hb</i> | <i>tl</i> | <i>hf</i> | <i>e</i> |
|----|-----------------|-----------|-----------|-----------|----------|
|    | 11431           | 675       | 1025      | 186       | 46       |
|    | 12147           | 480       | 910       | 184       | 44       |
|    | 12148           | 615       | 995       | 195       | 45       |

*Remarks.*—One noticeable feature is the prominence of pale yellowish hue in many skins, especially on the ventral surface but spreading in some to the dorsal side as well. In No. 11431 the belly is orange. The young ♀ No. 11917 and young ♂ 12151 are pale yellowish all over. In No. 7445 the crown is defined from the rest of the dorsal surface by its paler tint. The measurements of the ♀ from Bihar are larger and those of the ♀ from Kathiawar smaller than those given by Pocock (1939, p. 118). No. 12216 is provisionally assigned to this race as the colour has much faded away due to exposure.

*Distribution.*—Northern peninsular India, South of the Ganges from Kathiawar to Bangal.

**Presbytis entellus achates** (Pocock).

1928. *Pithecus entellus achates* Pocock, *J. Bombay nat. Hist. Soc.* XXXII, p. 488 (Haunsbhavi, Dharwar, 2,000').

*Material—*

|       |          |                |   |
|-------|----------|----------------|---|
| 12138 | Young ♀  | Skin and skull | Haunsbhavi, S. Dharwar, Bombay<br>23-2-1912. G. C. Shortridge.                      |
| 12139 | S. ad. ♀ | Do.            | Barchi, N. Kanara, Bombay, 1,500',<br>30-1-1912. G. C. Shortridge.                  |
| 12140 | S. ad. ♂ | Do.            | Samasgi, Kanara Boundary, S. W.<br>Dharwar, Bombay, 12-3-1912.<br>G. C. Shortridge. |
| 12141 | Juv. ♂   | Do.            | Do. 22-3-1919. Do.  |

*Remarks.*—In the Juv. ♂ No. 12141, the white has started appearing on the chin and in the centre of hair radiation on the crown. In the young ♀ No. 12138 the colour of the crown imperceptibly passes into that of the back, and the arm below the elbow is darker and not much contrasted with the hand. The latter character is markedly pronounced in the s.ad. ♂ No. 12140.

*Distribution.*—Dharwar, Kanara, and Bellary.

**Presbytis entellus priam** (Blyth).

1844. *Semnopithecus priam* Blyth, *J. Asiat. Soc. Bengal*, XIII, p. 470 (Coromandel Coast).

*Material—*

|                      |   |                |   |
|----------------------|---|----------------|---|
| 11948<br>(I. M. 12a) | ♂ | Skin and skull | Coromandel Coast, Madras, W. Elliot<br>(1847).                    |
| 12137                | ♀ | Do.            | Dharampuri Range, N. Salem, Madras,<br>3-10-1930. N. A. Baptista. |

*Measurements—*

## Skulls :

| Z.S.I. Reg.<br>Nos. | <i>l</i> | <i>cb</i> | <i>zw</i> | <i>ow</i> | <i>mw</i> | <i>c<sup>1</sup>-m<sup>3</sup></i> | <i>ml</i> |
|---------------------|----------|-----------|-----------|-----------|-----------|------------------------------------|-----------|
| 11948               |          | ..        |           | 58.1      | 28.5      | 38.1                               | 78.7      |
| 12137               | 100.3    | 83.4      | 83.1      | 55.4      | 27.7      | 37.0                               | 81.0      |

Skin (No. 12137) : *hb.* 600 ; *tl.* 900 ; *hf.* 173 ; *e.* 42.

*Remarks.*—The upstanding tuft of hair on the crown is present in both the skins. No. 11948 is probably the Type of the form.

*Distribution.*—Dharampuri, Palkonda, Shevaroy, and Nilgiri Hills, South India (range ill-defined).

**Presbytis entellus aneas** (Pocock).

1928. *Pithecus entellus aneas* Pocock, *J. Bombay nat. Hist. Soc.*, XXXII, p. 492 (Makut, S. Coorg, 250').

*Material—*

|      |          |       |                             |
|------|----------|-------|-----------------------------|
| 2146 | S. ad. ♂ | Skull | S. Coorg. G. C. Shortridge. |
|------|----------|-------|-----------------------------|

*Remarks.*—The specimen was identified by the British Museum as belonging to this race ; but I am unable to confirm the opinion for want of the skin.

*Distribution.*—Southern Coorg, from Makut to Woottekolli.

**Presbytis entellus hypoleucos** (Blyth).

1841. *Semnopithecus hypoleucos* Blyth, *J. Asiat. Soc. Bengal*, X, p. 839 (Travancore).

*Material*—

|                      |   |                |                              |
|----------------------|---|----------------|------------------------------|
| 11844<br>(I. M. 13a) | ♂ | Skin and skull | Travancore. W. Coles (1841). |
|----------------------|---|----------------|------------------------------|

*Measurements of the skull.*—1, 107·8 ; zw, 82·6 ; ow, 55·0 ; mw, 31·7 ;  $c^1-m^3$ , 37·0 ml, 77·4.

*Remarks.*—The specimen is apparently the Type of the form, and appears to be its sole representative. The skin is much damaged. The arms are missing and the posterior portion has separated off. The skull is also damaged.

*Distribution.*—Travancore, as at present known.

**Presbytis entellus thersites** (Blyth).

1841. *Presbytis thersites* Blyth, *J. Asiat. Soc. Bengal*, XVI, p. 1271 (Trincomalee).

*Material*—

|                      |          |                              |   |
|----------------------|----------|------------------------------|---|
| 6772                 | ..       | Skin and skull               | Ceylon. Colombo Museum.                                 |
| 11832<br>(I. M. 12e) | ♂        | Skull . . .                  | Trincomalee, Ceylon. E. F. Kelaart.                     |
| 11833<br>(I. M. 12b) | ♂        | Skin and skull               | St. Pedro, Ceylon. E. L. Layard.<br>(1848).             |
| 11857<br>(I. M. 12c) | ♂        | Skin (damaged)<br>and skull. | Ceylon. W. Elliot (1845).                               |
| 11947<br>(I. M. 12g) | S. ad. ♂ | Skull (damaged)              | Do. E. I. Layard.                                       |
| 11958<br>(I. M. 12h) | ♀        | Skull                        | Do.   |
| 12134                | ♀        | Skin and skull               | Cheddikulam, N. P., Ceylon,<br>29-11-1913. E. W. Mayor. |
| 12142                | Juv. ♀   | Do. .                        | Ambawela, Ceylon, April, 1914.<br>E. W. Mayor.          |
| 2143                 | ♂        | Do. . .                      | Cheddikulam, N. P., Ceylon,<br>22-11-1913. E. W. Mayor. |
| 12144                | ♂        | Do. . .                      | Ranna, S. P., Ceylon, 20-5-1913.<br>E. W. Mayor.        |
| 12145                | ♀        | Skin . . .                   | Mankeneni, E. W. Ceylon, 1-9-1913.<br>E. W. Mayor.      |

*Measurements—*

## Skulls :

| Z. S. I. Reg. Nos. | <i>l</i> | <i>cb</i> | <i>zw</i> | <i>ow</i> | <i>mw</i> | <i>c<sup>1</sup>-m<sup>3</sup></i> | <i>ml</i> |
|--------------------|----------|-----------|-----------|-----------|-----------|------------------------------------|-----------|
| 11832              | 112.8    | 88.0      |           | 57.5      | 34.5      | 37.0                               | 85.0      |
| 11833              | 114.2    | ..        |           | 57.7      | 37.1      | 43.4                               | 38.0      |
| 11857              | 113.5    | 89.0      | 90.0      | 62.8      | 34.0      | 39.8                               | ..        |
| 11958              | 97.0     | 74.3      | 70.6      | 40.1      | 25.1      | 34.6                               | 70.8      |
| 12134              | 95.0     | 73.1      | 70.5      | 49.8      | 24.5      | 34.8                               | 68.1      |
| 12143              | 107.6    | 86.4      | 79.9      | 54.0      | 30.0      | 38.0                               | 78.0      |
| 12144              | 95.5     | 74.4      | ..        | 52.2      | 24.3      | 35.5                               | 67.5      |
| 12145              | 97.5     | 75.1      | 75.3      | 52.3      | 26.9      | 38.5                               | 72.0      |

## Skins :

| Z. S. I. Reg. Nos. | <i>hb</i> | <i>tl</i> | <i>hf</i> | <i>e</i> |
|--------------------|-----------|-----------|-----------|----------|
| 12134              | 495       | 732       | 170       | 44       |
| 12143              | 550       | 785       | 186       | 44       |
| 12144              | 525       | 865       | 168       | 39       |
| 12145              | 525       | 724       | 165       | 39.5     |

*Remarks.*—In the Juv. ♀ No. 12142, there is no whorl on the crown, and the cheeks are paler as in adults. In the same specimen and in No. 12134 the area just behind the eyebrows is not paler as in other specimens. Both the specimens from Cheddikulam are darker all over than other specimens. The female from this locality is exceptionally darker on the ventral side, cheeks, and the area behind the eyebrows; while the male has an orange tint of variable intensity on the abdomen, the chin, the cheeks, and on the crown. In No. 6772, the feet are yellowish. No. 11857 is the Type of the form.

*Distribution.*—Ceylon and apparently Travancore.

**Presbytis entellus** (sub. sp.?)*Material—*

|                      |         |                  |                         |
|----------------------|---------|------------------|-------------------------|
| 11830<br>(I. M. 11w) | ♂       | } Skulls . . .   |                         |
| 11831<br>(I. M. 11v) | ♂       |                  |                         |
| 11843<br>(I. M. 11s) | Young ♀ | Skull            | Purchased (30-12-1868). |
| 12156<br>(I. M. 11e) | Young ♀ | Skin and skull . | E. Blyth (1842).        |
| 12160<br>(I. M. 11k) | S. ad.  | Skull            | Purchased (22-6-1872).  |

|                      |         |                             |                           |
|----------------------|---------|-----------------------------|---------------------------|
| 12161<br>(I. M. 11m) | ♂       | Skull without<br>lower jaw. | R. Mullick (7-12-1873).   |
| 12162<br>(I. M. 11n) | Young ♀ | Do.                         | B. Collins (13-8-1874).   |
| 12179                | Young   | Skin and skull              | W. Rutledge ? (3-6-1903). |
| 12180                | Juv. ♂  | In spirit                   |                           |

*Measurements of skulls—*

| Z. S. I. Reg. Nos. | <i>l</i> | <i>cb</i> | <i>zw</i> | <i>ow</i> | <i>mw</i> | <i>c<sup>1</sup>-m<sup>3</sup></i> | <i>ml</i> |
|--------------------|----------|-----------|-----------|-----------|-----------|------------------------------------|-----------|
| 11830 . .          | 128.4    | 98.8      | 101.2     | 62.0      | ..        | 44.3                               | 99.5      |
| 11831 .            | 129.4    | 102.3     | 104.1     | 65.4      | 37.8      | 45.6                               | 99.0      |
| 12161 .            | 120.8    | 99.9      | 91.1      | 65.0      | 35.1      | 44.1                               |           |

*Remarks.*—In Nos. 12136 and 12179, the colour of the skins has faded away on account of long exposure, making the proper determination difficult. The other material is also inadequate for subspecific determination. The skull measurements appear to approximate to the nominate race.

## Subgenus TRACHYPITHECUS

*Presbytis pileatus pileatus* (Blyth).

1843. *Semnopithecus pileatus* Blyth, *J. Asiat. Soc. Bengal*, XII, p. 174 (Sylhet).  
*Material—*

|                      |          |                  |   |
|----------------------|----------|------------------|---|
| 10974                | ♀        | Skin (exhibited) | . Kalanaga, Bareil Range, Manipur, Assam, Feb., 1936. Z. S. I. Party.                           |
| 11422                | ♂        | Skin and skull   | . Manihar Basti, 8 miles east of Nongpoh, Khasi Hills, Assam, 2,500', 4-6-1949. Z. S. I. Party. |
| 12171                | ..       | Skin             | Tura, Garo Hills, Assam, 8-3-1920. H. W. Wells.   |
| 12172<br>(I. M. 14h) | ♂        | Skin and skull   | Khasi Hills, Assam. H. H. Godwin Austin (11-5-1870).  |
| 12173                | } Youngs | Do. . .          |   |
| 12174                |          |                  |   |
| 12175                | S. ad.   | Skin             | Zool. Gardens, Calcutta.  |
| 12220<br>(I. M. 14d) | ♀        | Skin (exhibited) | Barrackpore Managerie (1843).   |

*Measurements.*—Skull (No. 11432) : *l*, 105.6 ; *cb*, 82.2 ; *zw*, 78.0 ; *ow*, 58.5 ; *mw*, 28.6, *c<sup>1</sup>-m<sup>3</sup>*, 36.6 ; *ml*, 74.8.

Skin (No. 11432) : *hb*, 570 ; *tl*, 830 ; *hf*, 178 ; *e*, 30.

*Remarks.*—The colour of the dorsal surface varies from dark slaty grey to pale brown. The outside of the leg below the knee is much paler in all the specimens. The colour of the underside varies from white to light orange. The top of the head just behind the eyebrow and the



tip of the tail are the darkest, and the loins the palest parts of the body. The skulls, at least the adult ones, are all characterized by the great breadth of the bridge of the nose.

*Distribution.*—The Garo, the Khasi, the Jaintia, and the Naga Hills in Assam.

***Presbytis pileatus durga* (Wroughton).**

1916. *Presbytis durga* Wroughton, *J. Bombay nat. Hist. Soc.*, XXIV, p. 685 (Cachar ?).

*Material*—

|                      |         |                      |  |
|----------------------|---------|----------------------|--|
| 12165<br>(I. M. 14m) | ♂       | } Skins              | Samaguting, Assam. J. Butler<br>(4-10-1872).             |
| 12166<br>(I. M. 14j) | ♀       |                      |  |
| 12167<br>(I. M. 14k) | ♀       | } Skins and skulls . | Do.  |
| 12168<br>(I. M. 14l) | ♀       |                      |  |
| 12169<br>(I. M. 14i) | Adol. ♀ | Skin                 | Sibsagar, Assam. S. E. Peal (Jul. 1870).                 |
| 12170<br>(I. M. 14a) | ♀       | Do.                  | Chittagong Hills, Assam. J. Barbe.                       |
| 12176<br>(I. M. 14n) | Young ♂ | Do.                  | Arakan Hill tracts. Zool. Gardens, Calcutta (23-1-1878). |
| 12178                | Adol. ♀ | Skin and skull       | Chittagong, East Pakistan. W. Rutledge (20-12-1870).     |
| 12221                | Adol. ♂ | Skin (exhibited)     | Tippera Hills, East Pakistan. F. Skipwith (1846).        |

*Measurements of skull* (No. 12168).—*l*, 110.5 ; *cb*, 93.2 ; *zw*, 83.0 ; *ow*, 59.7 ; *mw*, 32.7 ; *c<sup>1</sup>-m<sup>3</sup>*, 34.6 ; *ml*. 80.0.

*Remarks.*—The specimens from Samaguting have more red on the ventral surface and on the cheeks than other specimens. In the same specimens the fingers and the toes are also more clearly marked off from the hands and the feet respectively by their paler hue. In a female (No. 12170) from Chittagong, the hands and the feet are much darker and are also not contrasted with fingers and toes respectively ; but another specimen of the same sex from the same locality has typical colouration. Nos. 12176 and 12178 are approaching the typical race.

*Distribution.*—Upper Chindwin, from Lakhmipur to Naga Hills, Cachar, Tippera, and Chittagong.

**Presbytis pileatus shortridgei** (Wroughton).

1915. *Presbytis shortridgei* Wroughton, *J. Bombay nat. Hist. Soc.*, XXIV, p. 56 (Homalin, Upper Burma).

*Material*—

|       |         |                |  |
|-------|---------|----------------|--|
| 10590 | Young ♀ | Skin and skull | . Kamaing, Burma, 23-12-1926. Z. S. I. Party.                          |
| 12164 | ♂       | Do.            | . H. Kampti, Upper Chindwin, Burma, 500', 27-7-1914. G. C. Shortridge. |

*Measurements* :—

*Skin* No. 12164 : *hb*, 670 ; *tl*, 1,100 ; *hf*, 203 ; *e*, 38.

*Skull* No. 12164 : *l*, 109·0 ; *cb*, 86 ; *zw*, ; *ow*, 69·0 ; *mw* 35·0 ; *c<sup>1</sup>-m<sup>3</sup>*, 37·5 ; *ml*, 79·5.

*Remarks*.—A character which does not appear to be recorded is a low crest formed between the angle of the mouth and the lower border of the ear by the meeting of outwardly and upwardly directed hairs of the throat and downwardly and outwardly directed hairs of the cheeks. The tail tip in the young female has longer hairs (*cf.* Pocock, 1939, p. 129). The cheeks in this specimen are also noticeably paler.

The measurements of the skull as recorded here are noticeably shorter than those given by pocock (1939) for this form.

*Distribution*.—Eastern side of Upper Chindwin, Upper Burma.

**Presbytis pileatus** (sub.-sp.?).*Material*—

|                      |         |                 |  |
|----------------------|---------|-----------------|--|
| 11937                | Young ♂ | Skin and skull  | . W. Rutledge (1884).                                    |
| 11983<br>(I. M. 14c) | ♂       | Skull (damaged) | . Assam. Museum Collector (1874).                        |
| 12177<br>(I. M. 14g) | Juv.    | Skin and skull  | . ....   |
| 12202                | Young ♂ | In spirit       | . J. A. Sinton.  |
| 12203                | ♂       | Do.             | . Director, Central Malaria Survey, Kasauli, Punjab (I). |

*Measurements of the skull* (No. 11983).—*l*, 118·5 ; *zw*, 89·5 ; *ow*, 65·9 ; *mw*, 32·2 ; *c<sup>1</sup>-m<sup>3</sup>*, 35·8 ; *ml*, 84·5.

*Remarks*.—In the juvenile the colour on the dorsal surface is pale orange-yellow with brownish tinge, and the ventral surface is distinctly paler. There is a transverse band of dark-tipped hairs on the nape, and the crown has become quite darker. The hairs on the tip of the tail are much longer and brighter than on the rest of this part of the body. No. 11937 is intermediate between *durga* and the nominate race. The colour of the spirit preserved specimens is too faded away to allow sub-specific determination.

**Presbytis cristatus rutledgei** (Anderson).

1878. *Semnopithecus rutledgei* Anderson, *Anat. zool. Resch.*, I, p. 38 (no locality).

*Material*—

|                  |       |                                      |                          |
|------------------|-------|--------------------------------------|--------------------------|
| 12231<br>M. 22b) | Adol. | Skin and skull<br>without lower jaw. | W. Rutledge (18-9-1871). |
|------------------|-------|--------------------------------------|--------------------------|

*Remarks.*—The specimen is the type of the form. In absence of the type locality, the name has provisionally been revived to replaced *ultima* Elliot (*vide*, Khajuria 1955*b*). When the paper just mentioned was sent to press, the skull of the specimen under report was not available ; but it has now been found out. As it has not been figured before the photographs are now being published (Plate v, figs. 3 & 4).

*Distribution.*—Malaya States, Borneo and Sumatra (part).

***Presbytis cristatus pyrrhus* (Horsfield).**

1823. *Semnopithecus pyrrhus* Horsfield, *Zool. Resch. Java.*, pt. 7 (unpaged) pl. 3 (Java).

*Material*—

|                       |   |                              |   |
|-----------------------|---|------------------------------|---|
| 12189<br>(I. M. 18l). | ♀ | Skin (damaged)<br>and skull. | Java. Indian Museum, through the Trustees British Museum, London (13-1-1880). |
|-----------------------|---|------------------------------|---|

*Remarks.*—The specimen is a red mutant and agrees well with the description of co-types given by Pocock (1934, p. 929). The cheeks, the arms below the elbows and the legs below the knees are much paler.

*Distribution.*—Java (parts).

***Presbytis cristatus sondaicus* (Robinson & Kloss).**

1919. *Pithecus pyrrhus sondaicus* Robinson and Kloss, *Ann. Mag. nat. Hist.* (9) IV, p. 374 (Tjibodas, Preanger Regencies, West Java, 4,500').

*Material*—

|                               |         |                              |   |
|-------------------------------|---------|------------------------------|---|
| 11960<br>(I. M. 18b)          | Adol. ♀ | Skin (damaged)<br>and skull. | Purchased (1846).                               |
| 11962<br>(I. M. 18h)          | Young ♀ | Skin and skull               | W. Rutledge (1-10-1880).                        |
| 12190 }<br>12191 }<br>12192 } |         | Skins (damaged)              |   |
| 12118<br>(I. M. 18c)          | Adol. ♀ | Skin (exhibited)             | Ammoo Island ? W. Rutledge (Aug. 1869).         |
| 12228<br>(I. M. 18b)          | Young ♀ | Skin                         | W. Rutledge (18-1-1877).                        |
| 12229<br>(I. M. 18d)          | Adol. ♀ | Do.                          | Pandang ?, Sumatra. W. Rutledge (9th May 1873). |

*Remarks.*—Except in No. 12118 which is provisionally assigned to this race, the grey-tipped hairs on the back of the thighs are present in varying quantity. In No. 12118 (Pl. v, fig. 1) the colour is black throughout with bases of hairs paler and with reddish tinge. In this specimen the hairs growing downward in front, below, and behind the ears are especially long and form a high crest below the ear by meeting the hairs from the side of the throat which are directed backward and upward. Most of the hairs of this crest are with slightly paler tips. Anderson (1881) did not assign any locality to this specimen but its label carries, 'Amoo'

Island, which I have not been able to find out on the map. The specimen possibly belongs to an undescribed race. In No. 12229, the locality is probably wrong.

*Distribution.*—Java (part).

**Presbytis cristatus pyrrhus and P. c. sondaicus.**

*Material*—

|                      |         |          |            |
|----------------------|---------|----------|------------|
| 5237                 | Juv. ♀  | } Skulls | ....       |
| 11959<br>(I. M. 18i) | Adol. ♀ |          |            |
| 11961<br>(I. M. 18a) | Adol. ♂ | Do.      | Purchased. |

*Remarks.*—As the skins are not available, the specimens are provisionally determined.

**Presbytis cristatus cristatus (Raffles).**

1821. *Simia cristata* Raffles, *Trans. Linn. Soc. London*, XIII, p. 244 (Benkalen<sup>1</sup> Sumatra).

*Material*—

|                      |         |                |   |
|----------------------|---------|----------------|---|
| 4285<br>(I. M. 22a)  | ♂       | Skin           | Sumatra. S. Raffles, presented by India Museum, London, through Trustees, British Museum, London (13-4-1880). |
| 11938                | ..      | Skull          | Zool. Gardens, Calcutta.  |
| 11950                | Juv.    | Do.            |   |
| 12193<br>(I. M. 22c) | Young ♀ | Skin and skull | W. Rutledge (14-12-1874).   |

*Measurements of the skull* No. 11938.—*l*, 87.4 ; *cb*, 70.0 ; *zw*, 72.3 ; *ow*, 50.9 ; *mw*, 24.8 ; *c<sup>1</sup>-m<sup>3</sup>*, 28.8 ; *ml*, 66.6.

*Remarks.*—No. 4285 has been described by Elliot (1913, pp. 79-80), but it is not so extensively silvered as may appear from his description and appears to me to be quite a typical representative of the race. Nos. 11938 and 11950 are provisionally included under this form as the skins are not available.

*Distribution.*—Sumatra (part.), Rhio and Lingga Archipelagos, Bangka<sup>2</sup> and Bilitong<sup>3</sup> Islands.

**Presbytis cristatus germani (Milne Edwards).**

1876. *Semnopithecus germani* (misprint for *germaini*) Milne Edwards, *Bull. Soc. Philom. Paris*, (6)XX, p. 8 (Cochin China).

*Material*—

|       |   |      |                          |
|-------|---|------|--------------------------|
| 12194 | ♀ | Skin | W. Rutledge (1-10-1880). |
|-------|---|------|--------------------------|

*Remarks.*—The specimen agrees with the description given by Pocock (1934, p. 936) except that the lower arm is not darker.

*Distribution.*—Indochina and Siam.

<sup>1, 2, 3</sup> Chasen (1940) gives the spelling as Bencoolen, Banka, and Billiton respectively.

**Presbytis cristatus barbei** Blyth.1847. *Presbytis barbei* Blyth, *J. Asiat. Soc. Bangal*, XVI, p. 734 (Tippera Hills).*Material—*

|                      |   |                     |   |
|----------------------|---|---------------------|---|
| 11837<br>(I. M. 19a) | ♂ | Skin and skull      | Tippera Hills, East Pakistan. J. Barbe (1845).                  |
| 11838<br>(I. M. 19c) | ♂ | Skull               | Second defile of the Irrawady, Upper Burma. J. Anderson (1875). |
| 11876<br>(I. M. 19b) | ♀ | Skin and lower jaw. | Tippera Hills, East Pakistan. J. Barbe (1845).                  |
| 12195<br>(I. M. 19d) | ♂ | Skin                | Mulaiyit Range, Tanasserim. O. Limborg (Jan. 1877).             |
| 12204                | ♂ | In spirit           | W. Rutledge (14-11-1880).                                       |

*Measurements of skulls—*

| Z. S. I. Reg. Nos. | <i>l</i> | <i>cb</i> | <i>zw</i> | <i>ow</i> | <i>mw</i> | $\frac{1}{2}m^3$ | <i>m</i> |
|--------------------|----------|-----------|-----------|-----------|-----------|------------------|----------|
| 11837              | 98.2     |           | 73.0      | 50.7      | 29.8      | 33.7             | 70.      |
| 11838              | 97.0     | 78.5      |           | 52.1      | 29.2      | 31.3             | 67.      |

*Remarks.*—For the revival of *barbei* see Khajuria (1955b). Nos. 11838 and 12204 are provisionally determined. In No. 12204 true nature of the colour can not be made out on account of its being preserved in spirit for a long time. Nos. 11837 and 11876 are the syntypes of the form.

*Distribution.*—From Tippera Hills, East Pakistan to Tennasserim and adjoining parts of Siam.

**Presbytis cristatus** (sub-sp.?).*Material—*

|                      |         |           |                                      |
|----------------------|---------|-----------|--------------------------------------|
| 11346<br>(I. M. 22d) | Adol. ♀ | Skull     | W. Rutledge (18-9-1861).             |
| 11886<br>(I. M. 22d) | ♀       | In spirit | W. Rutledge (21-2-1879).             |
| 12208                | ♂       | Do.       | Zool. Gardens, Calcutta (15-8-1882). |

*Remarks.*—As Nos. 11886 and 12208 are spirit preserved specimens, nothing can be said with certainty regarding the character of their colouration, and as such the identification is provisional.

**Presbytis phayrei phayrei** (Blyth).1847. *Presbytis phayrei* Blyth, *J. Asiat. Soc. Bengal*, XVI, p. 733 (Arakan).*Material*—

|                       |         |                |   |
|-----------------------|---------|----------------|---|
| 11845<br>(I. M. 20a)  | ♂       | Skin and skull | Arakan. A. P. Phayre (1844).                                  |
| 11934<br>(I. M. 20b)  | Juv. ♂  | } Do.          | Do. Major Abbot (1844).                                       |
| 11935<br>(I. M. 20c)  | Juv. ♀  |                |   |
| 12187                 | Young ♀ | Skull          | Prome, Burma. J. M. D. Mackenzie.                             |
| 12188                 | ♂       | Do.            | Mount Popa, Burma. G. C. Shortridge.                          |
| 12205<br>(I. M. 20d)  | Young ♂ | In spirit      | Akyab Hill tracts, Burma. Zool. Gardens, Calcutta (8-7-1877). |
| 12206<br>(I. M. 20c). | Young ♀ | Do.            | Do. (9-8-1877).   |

*Measurements of skulls*—

| Z. S. I. Reg. Nos. | <i>l</i> | <i>cb</i> | <i>zw</i> | <i>ow</i> | <i>mw</i> | <i>c<sup>1</sup>-m<sup>3</sup></i> | <i>ml</i> . |
|--------------------|----------|-----------|-----------|-----------|-----------|------------------------------------|-------------|
| 11845              | 97.5     | 78.5      |           | 51.5      | 30.0      | 31.5                               | 70.5        |
| 12188              |          | ..        | 73.5      | 51.4      | 28.4      | 32.0                               | 69.8        |

*Remarks.*—No. 11845 is the type of the form. All the skins have a crest on the crown. In none of them the cheeks and the forehead are appreciably darker (*cf.* Pocock, 1939). In No. 12205, the colour of the eyelids and lips have been obscured by the action of the preservative. The skulls are smaller than those measured by Pocock (*op. cit.*).

*Distribution.*—Burma, as far north as Bhamo to Pegu.

**Presbytis phayrei shanicus** (Wroughton).1917. *Presbytis shanicus* Wroughton, *J. Bombay nat. Hist. Soc.*, XXV, p. 47 (Seén, Hsipaw State).*Material*—

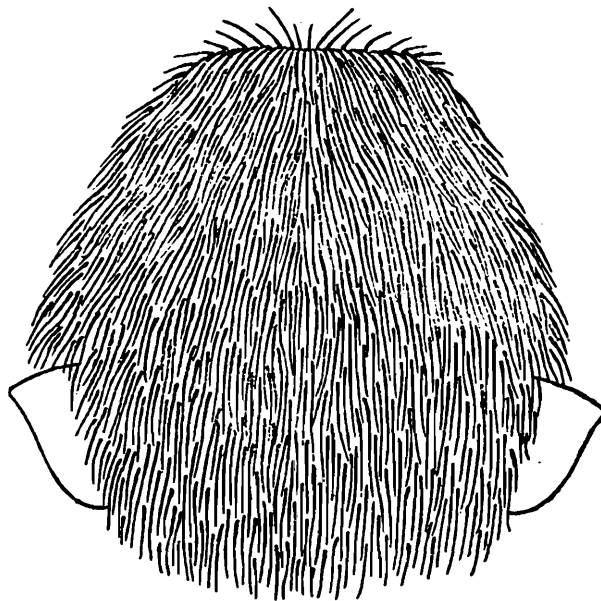
|       |         |                |  |
|-------|---------|----------------|--|
| 12184 | Young ♂ | Skin and skull | Gokteik, N. Shan States, Burma, 24-4-1913. G. C. Shortridge.     |
| 12185 | ♀       | Do.            | Seén, Hsipaw State, N. Shan States, 26-5-1913. G. C. Shortridge. |
| 12186 | Juv. ♂  | Do.            | Gokteik, N. Shan States, Burma, 24-4-1913. G. C. Shortridge.     |

*Measurements of the skulls* No. 12185.—*l*, 94.0; *cb*, 74.9; *zw*, 69.8; *ow*, 50.6; *mw*, 25.5; *c<sup>1</sup>-m<sup>3</sup>*, 31.2; *ml*, 66.2.

*Remarks.*—The juvenile has only its first milk premolar erupted. The specimen appears to be somewhat difficult for determination. The tail and the hinder parts of the legs are much brighter, and as such the specimen can be referred to *P. obscurus* (Reid), but for the absence of the pale cap on the crown. Again, there is no whorl or parting

on the crown which is characteristic of this race (Text-fig. 1). According to Pocock, (1939), this character is well defined even in the immature specimens.<sup>1</sup> The character, if taken as present in this specimen, is only indicated to some extent by the direction of hair growth on the forehead which, however, can not be called as a whorl or parting. Thus, it appears that, if this specimen is included in this race, the presence of a whorl or a parting on the forehead may not be a good diagnostic character. The reasons which make me assign the specimen to the race under report are : (1) its locality ; (2) its collection along with the typical specimens; and (3) the fact that the specimen is in the course of changing its juvenile golden colour into the adult colouration. The brighter colour of the tail and the hinder parts of the legs may be reminiscent of its juvenile hue.

*Distribution.*—Northern Shan States and their neighbourhood to the east of the Irrawady in the dry zone of Burma.



TEXT FIG. 1.—Upper View of the head of the juvenile ♀ of *Presbytis phayrei shanicus* from North Shan States showing the directions of hair growth.

***Presbytis phayrei* (sub-sp.?).**

*Material.*—

|                      |         |                  |                           |
|----------------------|---------|------------------|---------------------------|
| 12217                | Young ♀ | Skin (exhibited) | Purchased (1866).         |
| 12230<br>(I. M. 21a) | ♂       | Skull            | W. Rutledge (29-10-1872). |

*Measurements of the skull.*—*l*, 100.5 ; *cb*, 8.07 ; *zw*, 73.7 ; *iw*, 55.3 ; *mw*, 30.5 ; *c<sup>1</sup>-m<sup>3</sup>*, 35.3 ; *ml*, 74.5.

*Remarks.*—No. 12228 is the type of *Semnopithecus holotephreus* Anderson. For reasons as to the assignment of the specimen to the present species see Khajuria (1954a). The other specimen is inadequately labelled and its colour is too faded away to allow sub-specific identification.

<sup>1</sup> This statement needs some clarification since the present specimen was in the British Museum at the time when Pocock wrote and was considered as *shanicus* by the Museum experts.

**Presbytis obscurus flavicauda (Elliot).**

1910. *Presbytis flavicauda* Elliot, *Proc. U. S. natl. Mus.*, XXXVIII, p. 352 (Trang, Peninsular Siam).

*Material—*

|       |         |                  |   |                     |
|-------|---------|------------------|---|---------------------|
| 5234  | Adol. ♀ | Skin and skull   | Mergui 27-12-1881.                      | J. Anderson.        |
| 5235  | ♀       | Skin             | Do. 12-12-1891.                         | Do.                 |
| 5236  | ♂       | Do.              | . Blair Isle, 14-3-1882.                | Do.                 |
| 5305  | Juv. ♀  | In spirit .      | . Mergui.                               | J. Anderson.        |
| 12198 | Juv.    | Skin .           | . Mergui.                               | M. Berdmore (1854). |
| 12199 | ♀       | Skin and skull . | . Bankachon, S. Tenasserim, 28-12-1913. | G. C. Shortridge.   |
| 12200 | ♀       | Skin .           | . Do. 10-12-1913                        | Do.                 |
| 12201 | Young ♂ | Do. . .          | . Mergui, 13-12-1881.                   | J. Anderson.        |

*Measurements.*—Skull No. 12199 : *l*, 91.2 ; *cb*, 71.8 ; *zw*, 62.7 ; *ow*, 48.4 ; *mw*, 23.2 ; *c<sup>1</sup>-m<sup>3</sup>*, 30.2 ; *ml*, 65.5.

Skins : 2♀ from Bankachon.—*hb*, 538-545 ; *tl*, 675-785 ; *hf*, 108?-146 ; *e*, 29-31.

*Remarks.*—Skins from Mergui bear out Pocock's (1939, p. 140) views that the race *corax* Pocock should be considered as a synonym of the present form. No. 12198 is in the process of changing its juvenile colour into the characteristic hue of the adult. No. 5236 is more silvery on the shoulders than other specimens. In the skull No. 12199 the right upper outer incisor is abnormally underdeveloped. In No. 5305 there is a parting on the crown.

*Distribution.*—Mergui Archipelago,<sup>1</sup> Tavoy in Tenasserim downward to northern part of Malaya Peninsula, and Pechburi District of S. W. Siam.

**Presbytis obscurus obscurus (Reid).**

1837. *Somnopithecus obscurus* Reid, *Proc. zool. Soc. London*, p. 14 (Malaya Peninsula, restricted to Malacca).

*Material—*

|                      |         |                |   |
|----------------------|---------|----------------|---|
| 10532                |         | Skin           | ....  |
| 11868<br>(I. M. 17a) | ♂       | Skull . . .    | . Malaya Peninsula. F. W. Lindstedt.<br>(1846). |
| 11971                | ♀       | Skin and skull | W. Rutledge (1883).                             |
| 12187<br>(I. M. 17e) | Young ♀ | Do. . .        | . Malaya Peninsula. F. W. Lindstedt.            |

*Measurements of skulls.—*

| Z. S. I. Reg. Nos. | <i>l</i> | <i>cb</i> | <i>zw</i> | <i>ow</i> | <i>mw</i> | <i>c<sup>1</sup>-m<sup>3</sup></i> | <i>ml</i> |
|--------------------|----------|-----------|-----------|-----------|-----------|------------------------------------|-----------|
| 11868              |          |           | 76.8      | 54.6      | 29.1      | 33.9                               | 76.3      |
| 11971              | 89.2     | 72.5      | 67.6      | 48.2      | 23.6      | 29.4                               | 66.4      |

<sup>1</sup> Not included in the distribution of this race by Pocock (1939).



*Remarks.*—As no precise locality is known, the determination of the specimens is provisional. In the young female No. 12187 the tail is much paler than in other specimens, but this may possibly be a juvenile character. In No. 11971 the paleness of the rump extends as a median band on the back for some distance.

*Distribution.*—Malaya States.

**Presbytis obscurus** (sub-sp. ?).

*Material*—

|                      |         |                 |                          |
|----------------------|---------|-----------------|--------------------------|
| 8032                 | Juv. ♂  | Skin . . .      | J. G. Scott.             |
| 11949<br>(I. M. 17b) | ♀       | Skull (damaged) | E. W. G. Frith (1846).   |
| 12196                | Young ♀ | Do. . .         | W. Rutledge (18-6-1881). |
| 12207                | ♂       | In spirit       | Do. (21-2-1880).         |

*Measurements of the skull* No. 11949.—*ow*, 40.0 ; *c<sup>1</sup>-m<sup>3</sup>*, 30.4 ; *ml*, 68.0.

*Remarks.*—For want of proper data the specimens cannot be sub-specifically determined. In No. 8032, the white cap on the crown is only faintly visible. The general colour of this specimen including the shoulder and the forearm is slaty grey. In No. 12196, the general colour is reddish brown. In both the skins the ventral side is much contrasted with the general hue of the body. No. 12207 is provisionally assigned to this species as its colour has much faded away due to the action of the preservative. The tail appears to be quite darker than the legs.

Subgenus KASI

**Presbytis johni** (Fischer).

1829. *Cercopithecus johni*, Fischer, *Syn. Mammal.*, p. 25 (Tellicherry).

*Material*—

|                      |         |                                 |  |
|----------------------|---------|---------------------------------|--|
| 11981<br>(I. M. 16c) | ♀       | Skull . . .                     | Purchased (15-11-1867).  |
| 12061<br>(I. M. 16a) | ♂       | Skin and skull<br>(exhibited).  | Barrackpore Managerie (1844).  |
| 12099                | ♀       | Skin and skull                  | Kukhal Shola, Palni Hills,<br>Madura, Madras, 6,100, 4-6-1922.<br>C. McCann. |
| 12100                | Young ♂ | Do.                             | Cotegadar Estate, Cochin, S. India,<br>5-4-1921. J. Ryley O'Brien            |
| 12110<br>(I. M. 16b) | ♀       | Skull and skull<br>(exhibited). | Nilgiris. J. C. Jerdon (1843).   |

*Measurements*—

Skulls—

| Z. S. I. Reg. Nos. | <i>l</i>   | <i>cb</i> | <i>zw</i> | <i>ow</i> | <i>mw</i> | <i>c<sup>1</sup>-m<sup>3</sup></i> | <i>ml</i> |
|--------------------|--|-----------|-----------|-----------|-----------|------------------------------------|-----------|
| 11981 .            | 100.6  | 82.4      | 72.4      | 51.3      | 28.5      | 38.0                               | 74.0      |
| 12099              | 107.0  | 86.0      | 83.0      | 53.0      | ..        | 37.0                               | 77.7      |
| Skin No. 12099 :   | <i>hb</i> , 600 ; <i>tl</i> , 800 ; <i>hb</i> , 171 ; <i>e</i> , 37. |           |           |           |           |                                    |           |

*Remarks.*—In all the adults the grizzled patch on the loins and at the roots of the tail is well-developed but is absent in the young male No. 12100. In the female from the Nilgiris the coat is noticeably more luxuriant than in other specimens. In all the skulls the posterior border of the post-dental part of the mandible is convex in its lower portion.

*Distribution.*—Coorg, the Nilgiris, the Anamalai, the Brahmagiri, and the Palni Hills in South India.

**Presbytis senex vetulus** (Erxleben).

1777. *Cercopithecus vetulus* Erxleben, *Regn. Anim.*, XXIV, p. 25 (Ceylon).

*Material*—

|                       |         |                                |  |
|-----------------------|---------|--------------------------------|--|
| 11834                 | ♂       | Skin and skull<br>(exhibited). | Barrackpore Managerie (1872).                              |
| 12101                 | ♂       | Skin and skull                 | Anasigalla, Matugama, Ceylon, 2-4-1921. W. W. A. Phillips. |
| 12103<br>(I. M. 15i)  | Juv. ♀  | Skin                           | W. Rutledge (1877).  |
| 12104<br>(I. M. 15f?) | ♀       | Do. . .                        | Ceylon. Colombo Museum.                                    |
| 12105<br>(I. M. 15l). | Young ♂ | In spirit .                    | W. Rutledge (1879).  |
| 12108<br>(I. M. 15a)  | Adol. ♀ | Skin and skull .               | Purchased (1845).  |

*Measurements*—

Skulls—

| Z. S. I. Reg. Nos. | <i>l</i> | <i>cb</i> | <i>zw</i> | <i>ow</i> | <i>mw</i> | <i>c<sup>1</sup>-m<sup>3</sup></i> | <i>ml</i> |
|--------------------|----------|-----------|-----------|-----------|-----------|------------------------------------|-----------|
| 11834              | 105.0    | 86.9      | 76.8      | 54.1      | 30.7      | 35.3                               | 75.8      |
| 12101              | 102.9    | 85.5      | 73.0      | 49.3      | ..        | 33.3                               | ..        |

Skin No. 12101 : *hb*, 525 ; *tl*, 775 ; *hf*, 169 ; *e*, 33.

*Remarks.*—The colour of the croup patch is yellowish in all the skins except No. 12101 where it is silvery. The whiskers in all the skins are brownish distally. The crown patch in Nos. 12103, 12104, and 12105 is pale brown. The tail is white to yellowish white, or dirty white terminally, but not reddish brown as recorded by Phillips (1935, p. 14). The young one No. 12103 has acquired all the characters of the adult except the back which is somewhat paler. The measurements of the skulls are larger than those recorded by Pocock (1939, p. 157).

*Distribution.*—The wettest parts of the lowlands of west and south-west Ceylon.

**Presbytis senex nester** (Bennet).

1833. *Semnopithecus nester* Bennet, *Proc. zool. Soc. London*, p. 67 [Ceylon, probably Rayigam (Phillips)].

*Material*—

|                      |   |                  |                                |
|----------------------|---|------------------|--------------------------------|
| 7580                 | ♀ | Skin and skull . | W. Rutledge (20.3-1897).       |
| 12106<br>(I. M. 15u) | ♂ | Do.              | Ceylon, Colombo Museum (1885). |

*Remarks.*—The crown and the nape are not appreciably contrasted with the colour of the back perhaps due to foxing. However, a patch of paler hair on the crown is present.

*Distribution.*—The low country wet zone of the Western Province in Ceylon.

**Presbytis senex senex** (Erxleben).

1777. *Cercopithecus senex*, Erxleben, *Regn. Anim.*, p. 24 (Hills of southern Ceylon).

*Material*—

12107 Young ♀ Skin and skull Ceylon. E. F. Kelaart (1851).  
(I. M. 15s)

*Remarks.*—The specimen is an albino. The general colour is pale yellowish white but the head is faintly marked with brownish. As some other races of this species are also liable to albinism, the identity of this specimen is questionable.

*Distribution.*—The Hills east of Matale and Madulkelle upto 5,000' also low country dry zone of N. C. P., N. W. P. and C. P., Ceylon.

**Presbytis senex monticola** (Kelaart).

1850. *Presbytis cephalopterus* var. *monticola* Kelaart, *J. Ceylon Brit. Asiat. Soc.* II, p. 207 (Nuwara Eliya, Ceylon).

*Material*—

11836 Young ♂ Skin and skull Ceylon. T. C. Jerdon (1843).  
(I. M. 15n)  
11891 ♀ Do. Nuwara Eliya, Ceylon. E. F. Kelaar  
(I. M. 15p) (1847).  
12109 Young ♂ Do. Do. (1846).  
(I. M. 15q)

*Measurements of the skull* No. 11891.—*l*, 100.0; *cb*, 82.0; *zw*, 80.0; *ow*, 53.3; *mw*, 31.3; *c<sup>1</sup>.m<sup>3</sup>*, 34.4; *ml*, 73.7.

*Remarks.*—Nos. 11891 and 12109 are the cotypes. The cap in No. 12109 is well differentiated but the rump patch is absent. The colour of the hands and the feet is much darker than the rest of the body. In No. 11836 both the cap and the rump patch are well differentiated but the hands and the feet are much lighter than in the other two specimens. The measurements of the skull are smaller than those given by Pocock (1939, p. 157) for the male he measured.

*Distribution.*—The central hill ranges (above 4,000') of Ceylon.

**Presbytis senex** (sub sp. ?).

*Material*—

11835 Adol. ♀ Skull . . .  
(I. M. 15g)  
11877 ♀ Skull and some bones W. Rutledge (7-11-1878).  
(I. M. 15j)  
11879 ♂ Incomplete skeleton Barrackpore Managerie (1872).  
(I. M. 15e)

|                       |       |             |                              |
|-----------------------|-------|-------------|------------------------------|
| 11969<br>(I. M. 15m)  | ♀     | Skull . . . | Ceylon. R. Templeton (1848). |
| 11970<br>(I. M. 15i?) | Young | Do. . .     | ....                         |

*Measurements of skulls—*

| Z. S. I. Reg. Nos. | <i>l</i> | <i>cb</i> | <i>zw</i> | <i>ow</i> | <i>mw</i> | <i>c<sup>1</sup>—m<sup>3</sup></i> | <i>ml</i> |
|--------------------|----------|-----------|-----------|-----------|-----------|------------------------------------|-----------|
| 11877 .            | 93.0     | 73.0      | 68.0      | 48.7      | 23.5      | 31.1                               | 68.4      |
| 11969 . .          | 92.8     | 74.0      | 68.8      | 49.6      | 23.6      | 32.2                               | 66.3      |
| 11970 . .          | 88.7     | ..        | 66.5      | 47.1      | 23.0      | 31.8                               | 65.2      |

*Remarks.*—The material is too inadequate for subspecific determination. The skull No. 11970 is peculiar in having only four teeth between the two lower premolars instead of six (Pl. v, fig. 2). As these teeth have fallen off, it cannot be said with certainty from the characters of the sockets which of them have failed to develop.

## Subgenus PRESBYTIS.

**Presbytis melalophos fuscumurinus** (Elliot).

1906. *Presbytis fuscumurinus* Elliot, *Proc. biol. Soc. Washington*, XIX, p. 49 (Telok, Betong, Lampongs, South Sumatra).

*Material—*

|                       |         |                    |       |       |       |       |       |                         |
|-----------------------|---------|--------------------|-------|-------|-------|-------|-------|-------------------------|
| 7390                  | ♀       | } Skins and skulls | . . . | . . . | . . . | . . . | . . . | W. Rutledge (8-5-1895). |
| 7391                  | Adol. ♀ |                    |       |       |       |       |       |                         |
| 7560                  | Young ♂ | Do.                | . . . | . . . | . . . | . . . | . . . | Do. (6-5-1897).         |
| 11841<br>(I. M. 25k). | Young ♀ | Do.                | . . . | . . . | . . . | . . . | . . . | Do. (17-10-1876).       |
| 11951<br>(I. M. 25d)  | ♀       | Do.                | . . . | . . . | . . . | . . . | . . . | Do. (6-11-1874).        |
| 12120<br>(I. M. 25j)  | ♀       | Skin               | . . . | . . . | . . . | . . . | . . . | Do. (20-10-1876).       |
| 12121<br>(I. M. 25g)  | Adol. ♀ | Do.                | . . . | . . . | . . . | . . . | . . . | Do. (6-6-1876).         |
| 12122<br>(I. M. 25e)  | Adol. ♀ | Do.                | . . . | . . . | . . . | . . . | . . . | Do. (18-8-1875).        |
| 12123<br>(I. M. 25f)  | ♂       | Do.                | . . . | . . . | . . . | . . . | . . . | Do. (6-11-1875).        |

*Measurements of skulls—*

| Z. S. I. Reg. Nos. | <i>l</i> | <i>cb</i> | <i>zw</i> | <i>ow</i> | <i>mw</i> | <i>c<sup>1</sup>—m<sup>3</sup></i> | <i>ml</i> |
|--------------------|----------|-----------|-----------|-----------|-----------|------------------------------------|-----------|
| 7390 .             | 88.0     | 67.5      | 64.5      | 50.0      | 22.9      | 29.6                               | 61.5      |
| 11951 . .          | 99.3     | 74.0      | 71.0      | 53.4      | 26.0      | 31.2                               | 70.0      |

*Remarks.*—In none of the skins there is a narrow dark line running on the sides of the head above the ears as described by Elliot (1913). The character, however, is not recorded by Pocock (1934) and Chasen (1940) as occurring in this race. In some skins there is an orange wash over the loins, the tail, the hands, and the feet. In No. 11841 the colour on the loins is almost orange red. A very light orange tint is also visible on the back in some skins. Ill-defined whorls very close to the brow are present in most of the skins. In some an almost bald area is present in their position.

*Distribution.*—Sumatra (part).

**Presbytis melalophos nobilis (Grey).**

1842. *Semnopithecus nobilis* Gray, *Ann. Mag. nat. Hist.*, (1) X, p. 256 (Indrapur, Sumatra).

*Material*—

12118 ♂ Skin Zool. Gardens, Calcutta (16-7-1881).

*Remarks.*—The general colour on the upper parts is deep red but the tips of the hairs are lightly coloured to a greater or a less extent. The lower arms, the lower leg and the lower side of the tail are paler. The ventral surface is pale red but is redder on the chest.

*Distribution.*—Sumatra (part).

**Presbytis melalophos thomasi (Collett).**

1892. *Semnopithecus thomasi* Collett, *Proc. zool. Soc. London*, p. 613 (Langkat, N. E. Sumatra).

*Material*—

11936 Young ♀ Damaged skin and skull W. Rutledge (17-5-1882).

*Remarks.*—This form probably deserves a full specific rank, and is being considered a race of *melalophos* more for the sake of convenience than for any thing else.

*Distribution.*—Sumatra (part).

**Presbytis melalophos melalophos (Raffles).**

1821. *Simla melalophos* Raffles, *Trans. Linn. Soc.*, XIII, p. 245 (Benekulen, West Sumatra).

*Material*—

12112 ♂ Skin Zoological Gardens, Calcutta (27-9-1920).

*Remarks.*—The back, the outside of the limbs, and the tail are tinted with red, the individual hairs being whitish towards the base and reddish towards the tip. The head for the most part is white, but the hairs of the crest are tipped with blackish. There is a band of darker hairs separating the white cheeks from the forehead, but it is confined to the right side only (*cf.* Pocock, 1934, p. 919). There is some red on the hands, but the feet are yellowish white.

*Distribution.*—Sumatra (part).

**Presbytis melalophos femoralis (Martin).**

1838. *Semnopithecus femoralis* Martin, *Charleswarth's Mag. nat. Hist.*, II, p. 4363 (Singapore).

*Material—*

|                      |         |                  |                                     |
|----------------------|---------|------------------|-------------------------------------|
| 11840<br>(I. M. 24b) | ♀       | Skull (damaged)  | W. Rutledge (6-7-1869).             |
| 11968<br>(I. M. 24c) | Young ♀ | Skin and skull   | Do. (10-4-1876).                    |
| 12112<br>(I. M. 24a) | Adol. ♀ | Skin (exhibited) | . Purchased (11-12-1867).           |
| 12117                | ..      | Skin . .         | Zool. Gardens, Calcutta (6-7-1869). |

*Remarks.*—In No. 12112 the general colour above is blackish brown with reddish tint. The under parts in this specimen were described by Anderson (1891, p. 53) as yellowish white, but they now appear brownish especially on the anterior part of the chest. The white line on the chest is only faintly visible. There are two whorls on the crown very close together and in the process of coalescing. In No. 11968 the white streak on the chest is well marked. In the skull No. 11840, the frontals just behind the orbits are flattened.

*Distribution.*—Singapore Island.

**Presbytis melalophos siamensis (Müller and Schleger).**

1841. *Semnopithecus siamensis* Müller and Schleger, *In Temm. Verh. nat. ges. ned. overz. bezitt. Zool. (Mamm.)*, p. 60 (Malacca=Malaya States).

*Material—*

|                      |         |                                |                                    |
|----------------------|---------|--------------------------------|------------------------------------|
| 7835                 | Young ♀ | Skin and skull                 | W. Rutledge.                       |
| 11839<br>(I. M. 23b) | ♀       | Skull                          | Malacca. F. W. Lindstedt (1846).   |
| 11973<br>(I. M. 23a) | ♂       | Skin (exhibited)<br>and skull. | Malacca. R. W. G. Frith (1846).    |
| 12113<br>(I. M. 23e) | ♂       | Skin                           | . W. Rutledge (1878).              |
| 12114<br>(I. M. 23d) | Young ♀ | Skin (exhibited)               | . Malacca. F. W. Lindstedt (1846). |
| 12116<br>(I. M. 23c) | ♀       | Skin and skull                 | . Do. R. W. G. Frith (1846).       |

*Measurements of skulls—*

| Z. S. I. Reg. Nos. | <i>l</i> | <i>cb</i> | <i>zw</i> | <i>ow</i> | <i>mw</i> | <i>e<sup>1</sup>—m<sup>8</sup></i> | <i>ml</i> |
|--------------------|----------|-----------|-----------|-----------|-----------|------------------------------------|-----------|
| 11839 . .          | ..       | ..        | ..        | 52.0      | 21.9      | 26.1                               | 63.0      |
| 11973 . .          | ..       | ..        | ..        | 54.8      | 25.9      | 29.1                               | 65.1      |

*Remarks.*—In No. 12113 the coat is long and full and the colour of the upper parts is much darker than in other skins. The whorls and the crest on the crown are indistinct. The tail in this specimen gradually darkens towards the tip. In No. 7835, though the coat is in similar condition, the colour is much paler. The last lower molar in No. 11973 is provided with five cusps.

*Distribution.*—Malaya States (part).

**Presbytis melalophos (sub sp. ?).**

*Material*—

|                       |          |                                       |                         |
|-----------------------|----------|---------------------------------------|-------------------------|
| 11862<br>(I. M. 25h)  | ♂        | Skeleton<br>without skull.            | W. Rutledge (6-6-1876). |
| 11867<br>(I. M. 25k)  | Young ♀  | Incomplete skeleton<br>without skull. | Do. (17 10-1876).       |
| 11940<br>(I. M. 25b)  | Young ♀, | } Skulls                              | Do. (11-5-1875).        |
| 11952<br>(I. M. 25c)  | Adol. ♀  |                                       |                         |
| 12269<br>(I. M. 251?) | ♂        | In spirit                             | Do. (10-6-1879).        |

*Remarks.*—In No. 12209 the colour has been bleached due to the action of the preservative. In other specimens also the material is too inadequate to allow proper identification. The specimens are being referred to the present species mainly on the authority of Anderson (1881).

*Distribution.*—?

**Presbytis rubicundus (Müller).**

1838. *Semnopithecus rubicundus* Müller, *Tjidsch. Nat. gesch. Physicl.*, V, p. 13 (South Borneo).

*Material*—

|       |        |                |                                       |
|-------|--------|----------------|---------------------------------------|
| 7227  | Juv. ♂ | Skin and skull | W. Rutledge (6-3-1891).               |
| 10357 | ♀      | Skin           | West Borneo, Oct., 1917. C. B. Kloss. |
| 10524 | ♂      | Do. . . .      | D. Ezra (12th July 1918).             |

*Remarks.*—Pocock (1934, p. 923) after analysing the characters of various supposed races of this monkey was not in favour of any sub-specific spitting; but Chasen (1940, pp. 80-81) recognized four races with the remarks that 'no useful study of the variations in this species can be based on the quite inadequate material in the British Museum'. As far as the published data are concerned, it appears difficult to diagnose the races recognized by Chasen. I, therefore, follow Pocock in not dividing the species any further.

The hands and the feet in No. 10524 are much lighter than in other skins, and the locality given on the label is Java ; but, since Mr. Ezra who presented the specimen used to purchase specimens from dealers, sources of his information were not reliable. In the young one, the second premolar has only incompletely erupted, but it has acquired the characteristic colour of the adult. In this specimen, there is a small dark patch on the crown just behind the centre of hair radiation, and the colour of the innerside of the thigh is paler.

*Distribution.*—Borneo and Karimata Island.

### *Nasalis larvatus* (Wurmb).

1781. *Cercopithecus larvatus* Wurmb, *verhand, Batav. Genootsh*, 1st ed., III, p. 353 (Pontianak, West Borneo).

#### *Material*—

|                      |         |   |  |
|----------------------|---------|---|--|
| 7319                 | Adol ♀  | } Skulls                                    | . . . Borneo, W. Rutledge (8-3-1893).          |
| 7320                 | ♀       |   |  |
| 8418                 | Young ♂ | Skin (exhibited)                            | . Borneo. Zool. Gardens, Calcutta (18-2-1907). |
| 11939<br>(I. M. 26d) | Young ♀ | Skin (damaged)<br>and skull.                | W. Rutledge (8-7-1880).                        |
| 11943                | Juv. ♀  | Damaged skin<br>and skull.                  | Zool. Gardens, Calcutta (14-11-1881).          |
| 11944<br>(I. M. 26b) | ♀       | Imperfect skin, skull<br>and model of head. | O. L. Fraser (19-11-1878).                     |
| 11945<br>(I. M. 26c) | Adol ♂  | Damaged skin<br>and skull.                  | W. Rutledge (4-7-1879).                        |
| 11946                | Young ♂ | Skull . . .                                 | . Zool. Gardens, Calcutta (3-7-1881).          |
| 11972                | ♂       | Skin and skull                              | . Do. (July, 1882).                            |

#### *Measurements of skulls*—

| Z. S. I. Reg. Nos. | <i>l</i> | <i>cb</i> | <i>zw</i> | <i>ow</i> | <i>mw</i> | <i>c</i> <sup>1</sup> — <i>m</i> <sup>3</sup> | <i>ml</i> |
|--------------------|----------|-----------|-----------|-----------|-----------|---|-----------|
| 7320 . .           | 112.7    | 88.0      | 74.6      | 52.7      | 29.3      | 36.0  | 81.5      |
| 11944 . .          | 110.0    | 87.0      | 78.4      | 52.4      | 33.0      | 35.3  | 78.3      |
| 11972 .            | 131.3    | 106.4     | 84.3      | 60.6      | 36.9      | 43.1  | 92.0      |

*Remarks.*—Chasen (1940, p. 83) recognized two races of this species on the grounds that the adults from north-east Borneo differs from those from west Borneo in having the cap and the nuchal stripe much less defined, in the upper parts being much paler and more uniform, and in the under parts being more deep and uniformly ferruginous. I find it difficult to identify the specimens before me on the basis of these characters.



In the juvenile No. 11943, the crown is dark ferruginous or liver-brown and is sharply contrasted with much paler (approaching on certain parts to apricot buff on the other to cinnamon rufous) of the upper neck and the back. The part of the posterior portion of the back bordering the characteristic grey rump area is cinnamon rufous. There is a slight wash of ferruginous on the throat. In Nos. 11939 ((♀) and 11945 (♂), the crown is much darker but there is no nuchal stripe. The colour towards the foreback is redder ; and the throat is contrasted with the breast as given by Chasen (*op. cit.*) in the case of the nominate race. The adult male No. 11972 agrees more or less with the Chasen's description of the nominate race except that the throat is not so well-contrasted as stated by him and that the 'lower back' is represented by a much smaller area. There is no black tip to the tail as stated by Elliot (1913, p. 112). The skull is notable for the absence of ridges, flattening of nasals, low nose bridge, wide nasal aperture, and broad muzzle. The forehead in the young is much convex but gradually gets flattened as the age advances.

*Distribution.*—Borneo.

### **Colobus polykomas abyssinicus** (Oken).

1816. *Lemur abyssinicus* Oken, *Lehrb. d. Naturgesch.*, pt. 3, Sect. 2, p. 1182 (Abyssinea).

*Material*—

|       |   |       |  |
|-------|---|-------|--|
| 11954 |   | Skull | ....                                     |
| 12080 | ♂ | Skin  | Shea, Abyssinea, 1-3-1880, W. Ganslandt. |

*Measurements of the skull.*—*l*, 113.6 ; *ow*, 51.1 ; *mw*, 30.1 ; *cl m*<sup>3</sup>, 2.83 ; *ml*, 76.1.

*Remarks.*—No. 12080 is a fine specimen answering well the description given by Schwarz (1929, p. 593). The tail has three types of hairs : white, black, and speckled with black and white. The black is pronounced towards the tip and the white towards the root of the tail. The skull is provisionally assigned to this form as the distinguishing skull characters, except the measurements, are unknown. It was labelled as '*Colobus guereza*' which is considered to be the synonym of this form (Elliot, 1913, p. 143). The skull of this race measured by Elliot (*op. cit.*, p. 144) is, somewhat larger than the one in the collection under study.

*Distribution.*—Forested mountains of Abyssinia west of the Hawash River.

#### 4. REFERENCES.

- ALLEN, G. M., 1939.—A check list of African mammals. *Bull. Mus. Comp. Zool.* Harvard. LXXXV, pp. 1-763.
- ANDERSON, J., 1881.—*Catalogue of mammals in the Indian Museum.* Pt. 1, pp. xv+223.—Calcutta : Government Printing Press.

- CHASEN, F. N., 1940.—A hand list of Malaysian mammals. *Bull. Raffles Mus. Singapore*. XV, pp. xx+209, 1 map.
- ELLERMANN, J. R. AND MORRISON-SCOTT, T. C. F., 1951.—*A check list of Paearctic and Indian mammals*. 809 pp. London: British Museum Natural History
- ELLIOT, D. G., 1913.—*Review of the Primates*, Vol. III, pp. xiv+262+clxviii, 35 pls.—New York: American Museum Natural History.
- HILL, W. C. O., 1936.—Supplementary observations on Purple faced leaf-monkeys (Genus *Kasi*). *Spol. zeylan.*, (B) XX, pp. 115-133, pl. 1.
- KHAJURIA, H. 1953.—Catalogue of mammals in the Zoological Survey of India. I. Primates: Hominoidea. *Rec. Indian Mus.*, L., pp. 129-145.
- 1955a.—Catalogue of mammals in the Indian Museum (Zool. Surv.) II. Primates: Cercopithecidae. *Ibid.*, LII, pp. 101-127, 2 pls.
- 1955b.—Notes on the systematics of three leaf-monkeys in the collection of the Indian Museum (Zool. Surv.). *Ibid.*, LII, pp. 95-99, 1 pl.
- MILLER, G. S., 1934.—Langurs of the *Presbytis femoralis* group. *J. Mammal.*, XV, pp. 124-137.
- PHILLIPS, W. W. A., 1935.—*Manual of the mammals of Ceylon*. xxvii+373.—London: Dlau and Co. Ltd.
- POCOCK, R. I., 1928.—The langurs or leaf monkeys of British India, pt. II. *J. Bombay nat. Hist. Soc.*, XXXII, pp. 660-677.
- 1934.—The monkeys of the genera *Pithecus* (or *Presbytis*) and *Pyagthrix* found to the east of the Bay of Bengal. *Proc. zool. Soc. London.*, pp. 895-96, 2 pls.
- 1939.—*Fauna of British India, Mammalia*. Vol. I, pp. xxxiii+463.—London: Taylor and Francis.
- SCHWARZ, F., 1929.—On the local races and distribution of the black and the white colobus monkeys. *Proc. zool. Soc. London*, II, pp. 585-595.
- SIMPSON, G. G., 1945.—Principles of classification and a classification of mammalia. *Bull. Amer. Mus. nat. Hist.*, LXXXV, pp. xvi+350.
- WASHBURN, S. L., 1944.—The genera of Malaysian langurs. *J. Mammal.*, XXV, pp. 289-294.