ON AN ANTHROPOID APE.


[Received December 13, 1898.]

The specimen under consideration, which is an aged female, was shipped to this country from the Gaboon River, West Coast of Africa. In placing on record the results of the dissection of this anthropomorphous ape, I am met with the difficulty of being unable to refer to it with confidence as either a true Chimpanzee (*Anthropopithecus troglodytes*) or a genuine Gorilla (*A. gorilla*).

In a communication to the section of General Zoology at the International Congress recently held at Cambridge, I was able only to mention the difficulty, and time did not allow of any discussion on the subject. I have therefore ventured to return to this in rather greater detail, and hope that I may be favoured with some advice thereupon.

I turn at once to the characters of our specimen, and, to summarize these characters in the briefest manner, would note the general size and bulk (stature nearly 1200 mm.). The loss, consequent on the inadequate method of preservation employed, of almost all the hair, shows that the colour of the skin is grey, with black patches where the epidermis is retained, the face and the dorsal aspects of digits being of the latter colour. The hip- and knee-joints are much more extensible than in most specimens of the Anthropoid Apes; the limbs and extremities are distinctly slender.

The ears are remarkably asymmetrical, the upper half of the right ear being absent. This is probably the result of a bite; a similar condition is present (on the same side) in a Chimpanzee in the Zoological Museum at Leipzig.

On its arrival the specimen was thought to be a female Gorilla, the principal reasons, so far as I can ascertain, for the opinion being the facts of its great bulk and the dark colour of the face and extremities. But from the first time I saw it, I have had misgivings about the correctness of this view, and these up to a certain point have been strengthened by further observations.

These doubts were raised by the following features presented by the specimen:—

1. The large size of the ear.—Gorillas have usually small ears.
2. The comparative lack of supra-orbital prominence.—This is marked even in female Gorillas.
3. The comparative breadth of the interorbital space; which is
great when compared to that of many Gorillas.

4. Characters of the upper lip: the great distance from the base
of the septum nasi to the margin of the lip; and the absence
of the median furrow which is so marked in many Gorillas.

5. The slenderness and narrowness of hand and foot.

6. The relatively great development of pollex and hallux.

7. The small size of the teeth; these are much worn, the third
molars the least; there are indications that, originally, four
cusps were present in the upper molars. As regards the
lower molars, those of the third pair show comparatively
little wear, and have three large and two subsidiary cusps.

The average transverse diameter of the crowns of the
molar teeth is 10.4 mm. as against 14 mm., which is the
responding average in the skull (at Cambridge) of an
undoubted female Gorilla. [Cf. Table I. infra.]

8. Muscular system. A plantaris muscle is present in the right
lower extremity. I cannot find any record of this in a Gorilla
up to the present.

### Table I.—Dimensions of Teeth (in millim.).

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A.P.</td>
<td>T.</td>
</tr>
<tr>
<td>Upper</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 R.</td>
<td>9.5</td>
<td>10.5</td>
</tr>
<tr>
<td>2 &quot;</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>3 &quot;</td>
<td>10</td>
<td>10.5</td>
</tr>
<tr>
<td>1 L.</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>2 &quot;</td>
<td>10.5</td>
<td></td>
</tr>
<tr>
<td>3 &quot;</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Lower</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 R.</td>
<td>9.5</td>
<td></td>
</tr>
<tr>
<td>2 &quot;</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>3 &quot;</td>
<td>9.5</td>
<td>17</td>
</tr>
<tr>
<td>1 L.</td>
<td>9.5</td>
<td>12.5</td>
</tr>
<tr>
<td>2 &quot;</td>
<td>11</td>
<td>15.5</td>
</tr>
<tr>
<td>3 &quot;</td>
<td>10</td>
<td>17</td>
</tr>
</tbody>
</table>

A.P. = Antero-posterior, T. = Transverse diameter of
crown of molar.

These are the principal points to which one refers in attempting
to assign the creature to a recognized species; and, in my opinion,
they indicate that this specimen is more correctly designated a
Chimpanzee than a Gorilla. The hair is so scanty as to afford no
reliable evidence on the subject.

I have been led from this case to collect some illustrations and
descriptions of some of the Anthropoid Apes which have in former
years presented difficulties when the determination of their species
for descriptive purposes came into question.

The accompanying diagram (p. 991), in which, however, the
outlines are carefully traced from photographs, will serve to recall some of those specimens. I would direct somewhat special notice to the representation of "Johanna," the large ape at Messrs. Barnum and Bailey's World's Show. I have made some measurements of this animal, and hope to be permitted to communicate them at a future meeting.

Outline tracings of the heads of various Apes.

No. 1. Head of a female Gorilla, a stuffed specimen in the Natural History Museum at Hamburg.
No. 2. Head of a Chimpanzee with ears of considerable size.
No. 3. Head of a Chimpanzee with smaller ears.
No. 4. Head of Johanna: from a photograph of the living animal.
No. 5. Head of the Ape "A," at Cambridge.
No. 6. Head of Aubry's Chimpanzees: from the illustration in the original memoir, 'Nouvelles Archives du Muséum.'
No. 7. Head of an Ape described by Hartmann in the 'Archiv für Anatomic,' 1876. In Hartmann's paper it appears as No. 1 in the illustrations, and is therefore referred to as Hartmann's example No. 1. The figures Nos. 2 & 3 of the present illustration are taken from the same communication by Hartmann.
No. 8. Head of Mafuka: from Mützel's drawing.

In studying the creatures represented in the diagram, I paid special attention to certain facial features, and in fact, with two exceptions (Nos. 3 & 4), all the examples are drawn to scale in such a way that the facial length is constant throughout the series—a method of illustration which possesses obvious advantages in enabling comparisons to be made. The variety of profile met with in these animals is the principal point illustrated by this diagram.

I next proceeded to consider measurements of the face and ears, the data being represented in Table II. (p. 992) and being provided by records (in the cases of specimens "An.," "Maf.," "Lüb. H.," "Lüb. W.," and "Den."), by spirit-specimens (viz., "B," "A," "Cy," "Cr," "H," "F," all at Cambridge), by "Johanna," and by a stuffed specimen at Hamburg ("Hamb.").
The features more specially observed were: the total facial length and the part contributed to it by the upper lip; the interorbital and biorbital diameters, and the dimensions of the ears. Of these dimensions I have constructed indices (Tab. II.) and a comparison of the members of this group as arranged in the numerical order of the indices is here presented (Tab. III.).

Thus arranged, it is to be observed that the Chimpanzee-like or "intermediate" apes keep on the whole fairly closely together and away from the genuine Gorillas that I have been able to measure— the Chimpanzees furnishing the higher, and the Gorillas the lower terms of the series in the case of each index. In these respects, too, the position of "A" is evidently rather with the Chimpanzees than with the Gorillas.

In the last table (Tab. IV.) I have presented some other

Table II.—Measurements (in millim.).

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Supra-orbital ridge to lip-margin</td>
<td>62</td>
<td>118</td>
<td>104</td>
<td>(12.5)</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>130</td>
<td>72</td>
<td>65</td>
<td>12</td>
<td>23.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lowest part of septum nasi to lip-margin</td>
<td>22</td>
<td>42</td>
<td>40</td>
<td>(6)</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>30</td>
<td>15</td>
<td>13</td>
<td>3</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper labial index = Index 1</td>
<td>35.5</td>
<td>35.6</td>
<td>38.4</td>
<td>(48)</td>
<td>? 38</td>
<td>...</td>
<td>...</td>
<td>23</td>
<td>20.8</td>
<td>20</td>
<td>25</td>
<td>34</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interacrymal diameter</td>
<td>20</td>
<td>31</td>
<td>34</td>
<td>(5.5)</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>34</td>
<td>21</td>
<td>15</td>
<td>6</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rictus oculi</td>
<td>15</td>
<td>23</td>
<td>23</td>
<td>(3.25)</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>35</td>
<td>21</td>
<td>17</td>
<td>6</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interorbital index = Index 2</td>
<td>40</td>
<td>40.3</td>
<td>42.5</td>
<td>(45.8)</td>
<td>? 46</td>
<td>...</td>
<td>...</td>
<td>33.6</td>
<td>33.3</td>
<td>30.6</td>
<td>33.3</td>
<td>35.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ear: breadth</td>
<td>48</td>
<td>48</td>
<td>50</td>
<td>55</td>
<td>45</td>
<td>33</td>
<td>? 30</td>
<td>? 28</td>
<td>34</td>
<td>32</td>
<td>31</td>
<td>3.5</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Ear: height</td>
<td>62</td>
<td>71</td>
<td>68</td>
<td>60</td>
<td>70</td>
<td>47</td>
<td>? 43</td>
<td>? 38</td>
<td>51</td>
<td>47</td>
<td>41</td>
<td>6</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Superficies of Ear as represented by the product of Breadth and Height</td>
<td>2976</td>
<td>3408</td>
<td>3400</td>
<td>3300</td>
<td>3150</td>
<td>1551</td>
<td>1290</td>
<td>? 1064</td>
<td>1734</td>
<td>1504</td>
<td>1271</td>
<td>21</td>
<td>160</td>
<td></td>
</tr>
</tbody>
</table>

The features more specially observed were:—the total facial length and the part contributed to it by the upper lip; the interorbital and biorbital diameters, and the dimensions of the ears. Of these dimensions I have constructed indices (Tab. II.); and a comparison of the members of this group as arranged in the numerical order of the indices is here presented (Tab. III.).

**Table III.**—Specimens in Numerical Order.

<table>
<thead>
<tr>
<th>Index 1.</th>
<th>Index 2.</th>
<th>Superficies auris.</th>
</tr>
</thead>
</table>

Index 1. Height of upper lip \( \times 100 \)
Distance supra-orb. crest to lip-margin

Index 2. Interorbital diameter \( \times 100 \)
External biorbital diameter

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**Table IV.**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sitting height</td>
<td>737</td>
<td>836</td>
<td>?</td>
<td>340</td>
<td>830</td>
</tr>
<tr>
<td>Palmar breadth</td>
<td>76</td>
<td>106</td>
<td>56</td>
<td>48</td>
<td>?</td>
</tr>
<tr>
<td>Pollex</td>
<td>60</td>
<td>24</td>
<td>22</td>
<td>17</td>
<td>?</td>
</tr>
<tr>
<td>Hallux</td>
<td>75</td>
<td>71</td>
<td>47</td>
<td>22</td>
<td>?</td>
</tr>
<tr>
<td>Length of pes</td>
<td>240</td>
<td>282</td>
<td>142</td>
<td>110</td>
<td>235</td>
</tr>
<tr>
<td>&quot; humerus</td>
<td>263</td>
<td>360</td>
<td>170</td>
<td>128</td>
<td>270</td>
</tr>
<tr>
<td>&quot; radius</td>
<td>252</td>
<td>345</td>
<td>175</td>
<td>115</td>
<td>305</td>
</tr>
<tr>
<td>&quot; femur</td>
<td>260</td>
<td>290</td>
<td>175</td>
<td>90</td>
<td>360</td>
</tr>
<tr>
<td>&quot; tibia</td>
<td>250</td>
<td>270</td>
<td>140</td>
<td>94</td>
<td>260</td>
</tr>
<tr>
<td>Index—Radio-humeral</td>
<td>85.3</td>
<td>95.8</td>
<td>102.9</td>
<td>89.8</td>
<td>112.8</td>
</tr>
<tr>
<td>&quot; Tibio-femoral</td>
<td>93.9</td>
<td>93.1</td>
<td>91.2</td>
<td>102.9</td>
<td>72.3</td>
</tr>
<tr>
<td>&quot; Humero-femoral</td>
<td>112.7</td>
<td>124.1</td>
<td>121.3</td>
<td>142.3</td>
<td>73</td>
</tr>
<tr>
<td>&quot; Intermembral</td>
<td>107</td>
<td>125.9</td>
<td>109.2</td>
<td>132.1</td>
<td>92.7</td>
</tr>
</tbody>
</table>
specimen, which has been identified by Whitelegge with Caripho-
phyllia clavus. The specimen referred to this genus was dredged
by the 'Penguin,' between 150 and 105 fathoms, and found by me
on one of the stones brought up.

1. Ehizotechoerus levidensis Gardiner.

Rliizotroclius levidensis, Gardiner, Willey's Zoological Eesults,
pt. ii. p. 162, pi. xix. fig. '2 (1898).

The specimen of this species obtained by me differs slightly
from the type specimen in the Willey Collection. The outside is
not nearly so much overgrown by organisms, and there is one large
central radicle and six smaller rootlets. The calice is rounder,
and the epitheca and septa are thinner and more delicate. The
primary septa do not run almost horizontally inwards directly from
the edge of the epitheca as in the type, but form thin vertical lines
on the epitheca for about 1 mm. below its edge and then abruptly
broaden. These characters may very probably be due to a quicker
growth, or to the greater depth, the type specimen being dredged
from 40 fathoms.

Funafuti; 105 fathoms, outside the reef.

Genus Stxlophoea.

Stylopliora, Milne-Edwards & Haime, Ann. des Sc. Nat. ser. 3,
t. xiii. p. 102, and Cor. ii. p. 133.

I have referred the specimens of this genus to eight species, of
which I consider four to be new. The genus occurs locally in
great abundance on the rim of the reef, where the sea breaks. It
is very rare in the lagoon, and was only noted by me on certain
shoals near passages in the reef. The colour of the living colonies
usually varies from a distinct brown to a light yellow.

The specific characters in the genus are extremely unsatisfactory,
and at first sight I was inclined to refer my collection, consisting
of only a few specimens, to two or three species. A careful
comparison, however, with a small number of specimens in the
Cambridge Museum, and subsequentl^ with the British Museum
collection, showed me that there were a number of very distinct
types. The shape and mode of branching of the colonies is not
generally of much specific value, being, I consider, very largely
dependent on the position of growth. I have hence relied mainly
on the characters of the corallites — the shape and appearance of
the lip if present, the arrangement of the septa and columella, &c.
These characters, while usually varying largely with the position of
the calices in the corallum, are fairly constant, and I have in all
cases noted them for the terminal and side calices of the
branches.

The development of the coenenchyma between the calices usually
increases gradually from the ends to the bases of the branches.
The septa, too, gradually get thicker, and the calices often decrease
somewhat in size, apparently owing to a deposition of skeleton
within the calice-walls.

4. On the Turbinoid and Oculinoid Corals collected by the
Author in the South Pacific. By J. Stanley Gardiner,
M.A., Gonville and Caius College, Cambridge.

[Received November 15, 1898.]

(Plate LXII.)

Genus Rhizotrochus.

Rhizotrochus, Milne-Edwards & Haime, Cor. ii. p. 97.

In dredging on the outer slopes of the reef at Funafuti I never
obtained any solitary corals. Mr. Hedley, however, found one

1 Zeitschrift für Ethnologie, 1876.
2 Communicated by W. Bateson, F.Z.S. For previous papers on the
Corals, see P. Z. S. 1897, p. 941, and 1898, pp. 257, 525.

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