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On a new Species of *Pterodactyl* found in the Upper Chalk of Kent.

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Notes

3. *On a new Species of PTERODACTYL found in the Upper Chalk of KENT.* By J. S. BOWERBANK, Esq., F.R.S., F.G.S.

(PLATE I.)

I HAVE recently obtained from the upper chalk of Kent some remains of a large species of *Pterodactylus*. The bones consist of—

1. The fore part of the head as far as about the middle of the *cavitas narium*, with a corresponding portion of the under jaws,—many of the teeth remaining in their sockets. (See Plate, fig. 1.)
2. A fragment of a bone of the same animal, apparently a part of the coracoid. (Fig. 2.)
3. A portion of what appears to be one of the bones of the auricular digit, from a chalk-pit at Halling. (Fig. 3.)
4. A portion of a similar bone, from the same locality as No. 1. (Fig. 4.)
5. The head of a long bone, probably the tibia, belonging to the same animal as the head No. 1. (Fig. 5.)
6. A more perfect bone of the same description, not from the same animal, but found at Halling. (Fig. 6.)

The latter specimen appears to me to be the same description of bone as that described by Professor Owen in the Geological Transactions (2nd Ser. vol. vi. p. 411, and pl. 39. fig. 1). The mutilated condition of the figured specimen would not allow Professor Owen to speak of its identity with the bird tribe with great certainty, and he at the same time points out its discrepant characters.

From a comparison of the specimens Nos. 5 and 6 with the figure in the Transactions, and from my recollection of the original, I am very much disposed, with due deference to Professor Owen, to believe that it may ultimately prove to be the bone of a *Pterodactylus* instead of a bird; and this is the more probable, as the bone in question, and the head and bones of the animal now produced, are from the same pit at Burham in Kent.

[*Note by the author*, dated Dec. 1845.]—Since the above brief communication was made to the Society, I have had an opportunity, through the kindness of Professor Owen, of comparing the bone represented by fig. 6 in the annexed plate with the specimen belonging to the Earl of Enniskillen, which is figured in the Transactions of the Geological Society as a portion of the shaft of the humerus of a longipennate bird, and from the comparison thus made, I am the more inclined to believe that the latter is in truth the bone of a *Pterodactyl*. Although the two specimens differ greatly in size, there is so strong a resemblance between them in the form and degree of the angularity of the shaft, and in the comparative substance of the bony structure, as to render it exceedingly probable that they belong to the same class of animals.

It is true that the bone represented in fig. 6 is not part of the group of bones associated with the head, so as to be at once stamped as belonging to a *Pterodactyl*; but it is fortunate that among that group of bones there is one, fig. 5, which there is every reason to believe is the head of a bone corresponding with that represented by fig. 6, but having the opposite side exposed to view; thus connecting the latter with the former in such a manner as to leave no reasonable doubt of their both having belonged to the same class of animals.

In my communication to the Society in May last, I have stated that I believed it probable that these bones were parts of a tibia, but on a more careful comparison with the figures of *Pterodactylus* by Goldfuss, I am inclined to believe they are more likely to be portions of the ulna.

It is unfortunate for the comparison of the specimens that the bone belonging to Lord Enniskillen is deficient in that end in which mine is most perfect, and that the bone in my possession wants the end in which the former is nearly perfect, so that in reality the whole weight of the comparison is dependent upon the similarity existing in the shafts of the two bones.

The flat side of the bone described by Professor Owen is rather more rounded at that portion exhibited by cutting away the chalk beneath it, but it gradually becomes less convex as we pass towards the same relative portion that is exposed in my specimen; and the expansion towards the large extremity of the bone, represented by fig. 6, corresponds, as nearly as can be determined by the mutilated condition of the specimen, with the large extremity of the bone belonging to the Earl of Enniskillen.

If the part of the head in my possession (see fig. 1) be supposed similar in its proportions to that of *Pterodactylus crassirostris*,—and there appears but little difference in that respect,—it would indicate an animal of comparatively enormous size.

The length of the head from the tip of the nose to the basal extremity of the skull of *P. crassirostris* is about $4\frac{5}{8}$ inches, while my specimen would be, as nearly as can be estimated, $9\frac{1}{8}$ inches.

According to the restoration of the animal by Goldfuss, *P. crassirostris* would measure as nearly as possible three feet from tip to tip of the wings, and it is probable that the species now described would measure at least six feet from one extremity of the expanded wings to the other; but if it should hereafter prove that the bone described and figured by Professor Owen belongs to a *Pterodactyl*, the probable expansion of the wings would reach to at least eight or nine feet.

Under these circumstances, I propose that the species described above shall be designated *Pterodactylus giganteus*.

MAY 28, 1845.

J. A. Hankey, Esq., and M. Bell, Esq., were elected Fellows of the Society.

The following communications were read :—

1. *On the Geology of LYCIA.* By Professor EDWARD FORBES, F.R.S., and Lieut. T. A. B. SPRATT, R.N., of H.M.S. Beacon.

THE district explored by the authors extends over two degrees of longitude and one of latitude. It is chiefly occupied by a series of alpine plains and mountain ridges, broken up by four great valleys,

ERRATA.

Vol. XX. 1864.—*Anniversary Address*, p. xxxiii.—Professor Ramsay has since learnt from Professor Sedgwick that the gentleman who afforded him the information for the obituary notice of Mr. Lucas Barrett was mistaken on two points. Mr. Barrett did not “deliver most of the geological lectures” at Cambridge in the years 1856–58; and he never was appointed Curator of the Woodwardian Museum, though he was privately engaged there by Professor Sedgwick.

P. xli (*note*).—For “much closer to the Carboniferous than to the Devonian type” read “much closer to the Devonian than to the Carboniferous type.” (See *Ann. Address*, 1863, p. xlvi.)

ERRATA ET CORRIGENDA.

PART I.—PROCEEDINGS.

- Page 15, line 7 from bottom, *for Robert read James.*
" 28, line 5, *for species not common or its frequency unobserved read indicates the presence of the species.*
" 30, footnote, *for R. MacAdam read J. MacAdam.*
" 52, line 3 from bottom, *for calciferous read Potsdam.*
" 56, last line, *for colour read matter.*
" 59, line 8, *for Iona (?) read Ireland, and add as a note "I am glad to learn that Mr. Sanford has discovered the structure of *Eozoon* in this rock."*
" 92, line 14, *dele* or that characterized by *Lingulella Davisii.*
" xlvi, line 14 from bottom, *for Christie read Christy.*
" lv, line 9, *after 7 insert* of the Map.
" lv, line 12 from bottom, *for St. Abbs Head read St. Bees Head.*
" 315, line 25, *for 7 inches read .7 inch.*
" 330, line 15 from bottom, *for fig. 6 read fig. 6b.*
" 377, line 12 from bottom, *after 6 inches insert per mile.*
" 396, title of woodcut, *after Margate insert on the north; after Pegwell insert on the south; after the scale insert 1 mile.*
" 398. My attention has just been drawn to a notice of the Totternhoe stone by Dr. Fitton, who says that "mines are driven into the hill at the bottom of the Chalk, for the purpose of extracting a bed of uniform light-greenish-grey marly and sandy firestone, from 7 to 10 feet thick" (Trans. Geol. Soc. ser. 2, vol. iv, p. 294). Whether Dr. Fitton regards the stone as belonging to the Chalk, or below it, is not clear.—W. W. Nov. 1865.
" 399, *insert* an asterisk at each end of the base-line of the section; the letters *i* and *k* are a little too low.
" 401, woodcut. The flint-layers should have been drawn even and parallel throughout, not as if they ran into one another.
" 405, woodcut. The Chalk-marl has been engraved as more finely bedded than the Upper Greensand: this is not the case really.
" 409, line 5, *for exhibits read exhibit.*
" 410, line 3 from bottom, *before Greensand insert Upper.*
" 415, *at side of cut insert* 1, 2, 3, opposite the three beds drawn.
" 416, line 5, *for oxides read oxide.*
" 435, line 23, *for Porphyry, breccia read Porphyry-breccia.*
" 436, line 23, *after superposition add* in ascending order.
" 444, Map. The figures express the heights above mean sea-level.
" 446, line 33, and elsewhere, *for Tertiary pebbles read rounded flint-pebbles from Lower Tertiary beds.*
" 450, line 2 from bottom, *after valley insert in Essex.*
" 456, *for scale 3 inches to 100 feet read Horizontal scale $\frac{1}{2}$ inch to 100 feet, vertical scale $\frac{1}{2}$ inch to 100 feet.*
" 473, line 27, *for Arun and Arun read Adur and Arun.*

PART II.—MISCELLANEOUS.

- Page 18, line 12 from bottom, *for hose knsh-, read or Potash-.*