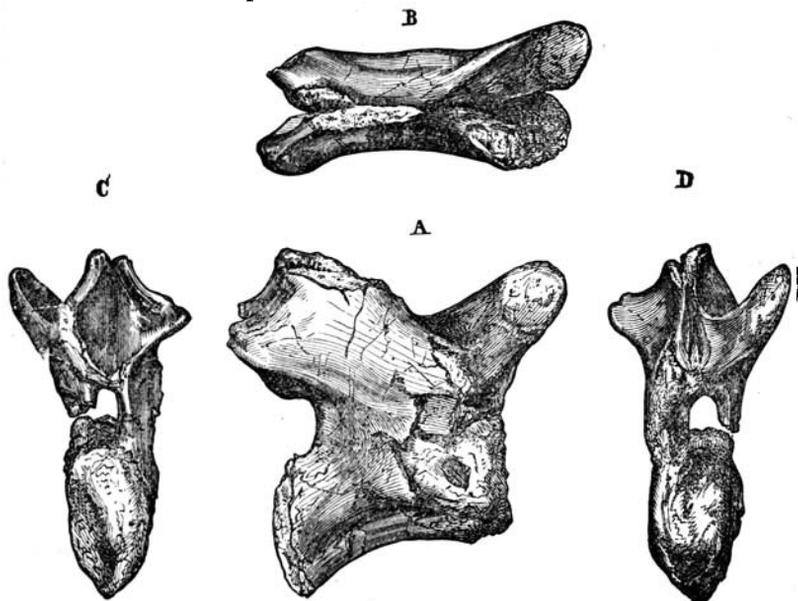


owner of this vertebra had an arched and comparatively elongated neck; the whole *facies* of the specimen being essentially Dinosaurian. Moreover, in the deep median incisions between the pre- and post-zygapophyses the specimen resembles the cervicals of many of the Theropoda; while a longitudinal fissure on the right side of the centrum is highly suggestive of the crushing in of an internal cavity. That the specimen does not belong to the *Cæturidæ* is quite clear; and I am inclined to regard it as indicating a Dinosaur more or less closely allied to the *Anchisauridæ*, although, in the absence of figures of the typical American forms, it is at present impossible to institute any exact comparison. The especial interest of this specimen is the evidence which it affords as to the path by which the generic types of Dinosaurs common to the old and new worlds may have passed from the one hemisphere to the other.



Arctosaurus Osborni. Right lateral (*A*), neural (*B*), posterior (*C*), and anterior (*D*) aspects of an imperfect cervical vertebra; from Bathurst Island. Nat. size. (From the Proc. R. Irish Academy.)

2. ORINOSAURUS CAPENSIS, n. sp.

In describing certain Dinosaurian remains from the Karoo System of the Cape in 1867, Prof. Huxley (Quart. Journ. Geol. Soc. vol. xxiii. p. 5) applied the name *Orosaurus* to a large bone which he regarded as the distal extremity of a femur, and considered to be generically distinct from the other specimens described in the same paper under the name of *Euscelesaurus*. This bone has been recently presented by its describer to the British Museum (No. R. 1626), and after careful examination I am convinced that it is really the

proximal extremity of a left tibia. It agrees very closely, both in size and characters, with the tibia of *Iguanodon Mantelli*, but appears to have been solid throughout. The great expansion of the head and enmial crest distinguishes it from the tibia of *Euscelesaurus*, which appears to have had a bony union with the fibula, as in *Stegosaurus*, and it therefore appears that the generic distinctness of *Orosaurus* is justified. Unfortunately, however, this term is preoccupied by the more correctly formed *Oreosaurus*, Peters,¹ and I accordingly propose to replace it by the name *Orinosaurus*.² Since, moreover, no specific name was proposed by Prof. Huxley for this Dinosaur, I would suggest that it should be known as *O. capensis*.

If I am right in regarding this tibia as solid throughout, the specimen is of considerable interest as apparently showing a connection between the *Stegosauridæ* and *Iguanodontidæ*, and thereby serving to confirm Dr. Baur in his conclusion that these two families should be included in a single suborder.

3. IGUANODON FITTONI, n. sp.

Among a series of specimens from the Wadhurst Clay near Hastings, recently collected by Mr. C. Dawson, F.G.S., for the British Museum, are an apparently associated left ilium, part of a pubis, and the imperfect sacrum (B.M. No. R. 1635), which appear to indicate a distinct species. The specimens were obtained at the village of Shornden, and although the sacrum was found at a distance of some fifty yards from the ilium, Mr. Dawson has no doubt that both specimens belonged to the same individual.

The ilium, which I take as the type of this form, indicates a somewhat smaller animal than the ilium from a somewhat lower horizon which forms one of the types of *I. Dawsoni*.³ Moreover, it differs from that ilium in that the preacetabular process merely forms a thin vertical plate, and entirely wants the horizontal inner extension found on the lower border of the latter. Again, while in *I. Dawsoni* the postacetabular portion forms a deep plate with a rounded termination, the corresponding portion of the present specimen has its lateral surface terminating in a point, while the inferior border is bent inwardly to form a shelf-like projection on that side. The portion of the ilium immediately above the acetabulum is relatively deeper, and the acetabulum itself less well defined than in *I. Dawsoni*. The associated sacrum has laterally-compressed and ankylosed vertebræ like those of *I. Mantelli*, from which species the present form is at once distinguished by the greater height of the ilium and the inflection of the lower border of the postacetabular portion. The only other named form to which this specimen could possibly belong is *Sphenospondylus gracilis* of the Upper Wealden, but the ilium appears to be proportionately much too large for the vertebræ, and the sacrum is different from the one which I have suggested may belong to that genus.

I propose to designate this apparently new form as *I. Fittoni* in

¹ Abh. Ak. Berlin, 1862, p. 201.

² From the adjectival ὀρεινός.

³ See 'Cat. Foss. Rept. and Amphib. in Brit. Mus.' pt. i. pp. 197-199.

honour of the late Dr. Fitton, so well known for his labours in connection with the Lower Cretaceous of England. The ilium of this species, so far as its posterior portion is concerned, makes a remarkable approach to the type species of the American *Camptosaurus*, from which, however, this form is widely distinguished by the structure of the sacrum.

4. IGUANODON HOLLINGTONIENSIS, n.sp.

Specimens from the Wadhurst Clay of Hollington, near Hastings, appear to indicate a third species from these deposits which I propose to distinguish, at least provisionally, as *I. hollingtoniensis*. Some of these remains I have previously referred in the work cited to *I. Dawsoni*, while others I have suggested might belong either to that species or to immature examples of *I. bernissartensis*.

I take as the type the specimens in the British Museum numbered R. 1148¹ together with others belonging to the same individual numbered R. 1629, and also certain vertebræ numbered R. 1632, which are also believed to have belonged to the same individual.

The femur (R. 1148) agrees approximately in size with that of *I. Mantelli*, but is at once distinguished by its curved shaft and pendant inner trochanter, in which respects it resembles the corresponding bone of *Camptosaurus*. It is smaller and of different contour from another femur, which, from the evidence of the associated ilium, belongs to *I. Dawsoni*. The sacral vertebræ (R. 1632) are of the type of those (B.M. No. R. 811) I have previously referred to the latter species,² having flattened hæmal surfaces to the centra, which were not ankylosed together. An ilium (No. R. 811b) associated with the sacrum and ischia No. R. 811, although very imperfect, shows that the preacetabular process was of the thin type of *I. Fittoni*, and therefore different from that of *I. Dawsoni*, while this ilium is decidedly different from that of *I. Fittoni*. Finally, the dorsal vertebræ associated with Nos. R. 811 (B. M. No. R. 604) and with R. 1148, are smaller and more compressed than those of *I. Dawsoni*.

That the present form is distinct from *I. Mantelli* is shown by the femur; from *I. Dawsoni* it is distinguished by the size of the femur, and of the dorsal vertebræ, as well as by the size and contour of the ilium which is apparently referable to it. The sacral vertebra, No. R. 1632, which is believed to have been associated with the type specimen, distinguishes this species from *I. Fittoni*; this being confirmed by the sacrum No. R. 811, which is now known to have been associated with vertebræ and an ilium which are clearly not referable to *I. Dawsoni*, and still less to *I. Fittoni*.

Iguanodon hollingtoniensis approximates in the structure of its femur, ischia, and sacrum to *Camptosaurus*, but is distinguished by the peculiar pollex of *Iguanodon*, on which account I include it in the latter genus.

I am at present unable to say definitely whether the unnamed imperfect skeleton in the British Museum from Hollington numbered

¹ 'Cat. Rept. etc.,' *op. cit.* p. 217.

² *Op. cit.* p. 199.

R. 33¹ belongs to *I. Fittoni* or *I. hollingtoniensis*, although, as I have remarked in the work cited, it is certainly distinct from *I. Mantelli*. I may add that the bone in that skeleton catalogued as a fragment of an ilium proves to be the glenoidal portion of the right coracoid.

V.—THE OCCURRENCE OF GRANITE IN A BORING AT BLETCHLEY.

By A. J. JUKES-BROWNE, B.A., F.G.S.

IN the winter of 1886–7 a boring was made at Bletchley Junction for the London and North-Western Railway Company, and acquired importance from the report that, after passing through the Oxford Clay, it had entered a mass of granitic rock.² Probably many readers of this MAGAZINE wondered why no detailed account of the boring was published after this announcement; but the reason was, that when inquiries came to be made, some uncertainty was found to exist as to the position and mode of occurrence of the granitic rock. My attention was recently called to the boring by learning that the water obtained from it was salt. I then obtained all the information I could with regard to the rocks passed through, and think the results are of sufficient importance for publication. The interest naturally centres in the supposed occurrence of granitic rock at a depth of less than 400 feet from the surface, and it seems desirable that the facts with regard to this should be placed on record.

The boring was made by Mr. Ebenezer Timmins, of Runcorn, under the superintendence of Mr. F. W. Webb, the Engineer of the L.N.W.R. Company. The work was personally directed by Mr. Arthur Timmins, to whom I am indebted for the particulars given below; Mr. A. Timmins tells me he had the first handling of all samples which were brought up, and that he took some trouble to ascertain the nature of the rocks through which the boring was carried, making analyses of several of the specimens himself. All this information he has generously placed at my disposal, and the following is his account of the boring.

Old well 148 feet deep. Boring commenced from bottom of well. Level of surface about 260ft. O.D. :—

	Thickness.	Depth.
	ft. in.	ft. in.
1. Depth of old well.....	—	148 0
2. Blue limestone.....	8 0	156 0
3. Blue clay.....	9 0	165 0
4. Black shale.....	1 0	166 0
5. Yellow clay.....	2 6	168 6
6. Brown clay.....	17 6	186 0
7. Blue limestone.....	1 0	187 0
8. Brown clay.....	5 0	192 0
9. Blue limestone.....	12 0	204 0
10. Blue clay.....	8 0	212 0
11. Blue limestone.....	5 9	217 9
12. Blue clay.....	6 3	224 0
13. Blue limestone.....	1 0	225 0

¹ *Op. cit.* p. 226.

² See Prof. Hull's letter, *GEOL. MAG.* Dec. III. Vol. IV. p. 139 (1887).