ON THE IDENTIFICATION OF THE FIRST SECONDARY FOSSIL FOUND IN AUSTRALIA.

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In a paper entitled, "On the Carboniferous and other Geological Relations of the Maranoa District in Queensland, etc.,"* the late Rev. W. B. Clarke, F.R.S., wrote as follows:—"On the return of the late Sir T. L. Mitchell from his survey of the head of the Victoria, and on the subsequent return of the late Mr. Kennedy, I had an opportunity of inspecting a few of the specimens collected by them, consisting chiefly of fossil wood. . . After the publication of Sir T. Mitchell's report, I found that he had placed on one of his charts the word "*Belemnite*," and as all his collections had been placed in the British Museum, I wrote to the Very Rev. Dr. Buckland to ask him to ascertain for me whether such a fossil had been sent from Australia. The silence of my friend was accounted for by his subsequent illness and death. I then renewed my request to Professor Owen, but to this hour I have not heard a syllable on the subject of the fossil in question, the geological age of which I was anxious to determine, and which I thought might have been an Orthoceratite." Had my lamented friend Mr. Clarke but lived some few months longer it would have been in my power to have afforded him the information he required.

The collection made by the late Sir T. L. Mitchell during his expedition into the interior of Tropical Australia, was, as he tells us in the Preface of his work giving an account of

* Trans. R. Soc. Vict. 1865. vi., p 33.

the expedition,[1] deposited in the British Museum. He says, "The geological specimens collected during this journey have been deposited in the British Museum, etc."[2] The organic portion of this collection consisting of Molluscan remains in a *ferruginous* sandstone, silicified woods, and what I take to be the identical Belemnite referred to by the Rev. W. B. Clarke. This collection is now under my charge in the above Institution, and it affords me much pleasure in being able to be the means of again bringing to light this long-forgotten treasure. Forgotten, however, the specimens have not been by one person, my respected colleague Mr. Thomas Davies, F.G.S., in whose care the collection remained from the year 1848 to the time it was transferred to me, and who drew my special attention to it.

Mitchell's second journey was made, if I mistake not, in 1846, so that in the event of the specimen in question being that collected by him, the British Museum will have the satisfaction of possessing in its collection the first secondary fossil found in Australia.

Before describing the Belemnite it will perhaps be best to take a glance at certain events in the early history of Australian Geology, more particularly those referring to the discovery of secondary fossils.

In 1860 Mr. A. R. C. Selwyn reported the discovery of two specimens "imbedded in our Pliocene water-worn gravel near Melbourne. . . . Considered by McCoy to belong to decidedly chalk species. One is a very perfect Echinid, the other a fragment of a coral;"[3] this was of course written in 1859. The Echinoderm, which McCoy identified as *Conulus albogalerus*, the latter appeared to consider spurious, so far as their Australian identity was concerned.[4]

The Rev. W. B. Clarke informs us in his paper "On Marine Fossiliferous Secondary Formations in Australia,"[5] that during his own Explorations in 1851-53, he had received a portion of an Ammonite from the Clarence River district in New South Wales. This is probably the earliest discovery of secondary fossils in Australia, setting aside Sir T. L. Mitchell's Belemnite, although Mr. F. T. Gregory appears to have been the first to actually publish an account of such a discovery, for we find mentioned in an appendix to his paper, "On the

1. Journal of an Exped. into the Int. of Tropical Australia, etc., by Lt.-Col. Sir T. L. Mitchell, London. 2 vols. 8vo. 1848. 2. Vol. I., p. vii. 3. Quart. Jour. Geol. Soc. 1860. xvi., p. 148. 4. Trans. R. Soc. Vict. vi., 50.

5. Quart. Jour. Geol. Soc., 1867, xxiii., p. 7.

Geology of a part of Western Australia,"[6] *Trigoniæ, Ammonites* a *Pecten,* and a *Ventriculite,* as found in the neighbourhood of the Moresby Range. It was, however, only in 1862 that the Rev. Mr. Clarke's great announcement of the discovery by Mr. P. Gordon of a large series of fossils of secondary age on the Fitzroy Downs in Queensland was made,[7] and this was followed up in 1865 by Prof. McCoy's additional announcement of the discovery of certain Cretaceous forms at Walker's Table Mountain in Northern Australia.[8] It is unnecessary to continue this subject further, as enough has been said to show the general sequence in the progress of Secondary Palæontological Discoveries in Australia.

Let us now return to the collection made by Sir T. L. Mitchell during his second great journey. As before stated it consists of silicified wood, shells in ironstone, and a fragment of the "guard" of a Belemnite, besides rock and mineral specimens. The aspect of the Belemnite is so different from any of the other organic remains, that it at once arrested my attention when going over the series, and its identity became a matter of interest and importance. The specimen bears the ordinary label for the registration number used in the Department of Geology, British Museum, and bears the number 21,573. Upon turning to the old register of the department I found that the entry was made by Mr. G. R. Waterhouse, the present keeper of the Geological Department, and afforded the following information :—

No. 21,573	Belemnite, No. 27, of Sir T. Mitchell's Collection.	Presented by Sir T. Mitchell, Jan., 1848.	"From the Plains westward of Mount Abundance."

The specimen is that of a portion of the "guard" of a *Belemnite* after the type of *Belemnites Owenii* (Pratt), or *Belemnites abbreviatus* (Miller), and is, perhaps, indicative of an horizon in the Upper *Oolites*, near the Coral Rag or Oxford Clay of the English geological nomenclature. It is clearly water-worn, with the fractured edges a little rounded. The fragment measures 2in. in length; at the broader anterior or upper end, is 1in. in diameter, and at the lower posterior or smaller end is 9 lines. The specimen has been broken near the posterior termination of the alveolar cavity, and the surface is too much worn to preserve any traces of vascular or other markings.

6. Quart. Jour. Geol. Soc., 1861, xvii., pp. 475-483. 7. On the Occurrence of Mesozoic and Permian Faunæ in Eastern Australia. *Quart. Jour. Geol. Soc.*, 1862, xviii., pp. 244-247. 8. Note on Cretaceous Deposits in Australia, Annals Nat. Hist., 1865, xvi., pp. 333-34.

It may not be out of place before concluding to refer to the published accounts of Australian Belemnites; the literature of the subject is not large.

Amongst the fossils obtained by Mr. P. Gordon on the Fitzroy Downs, and forwarded to Professor McCoy through the Rev. W. B. Clarke, was a Belemnite, presumed to be undescribed, and allied to *B. giganteus*, and which the latter desired might be called *Belemnites Barklyi*, in honour of Sir Henry Barkly, the then popular Governor of Victoria.[9] So far as I know it has not been described, and the name remains a MS. one.

The second reference we have to another individual of this group in Australian rocks is that by Professor McCoy, who described a species of the subgenus *Belemnitella*, under the name of *B. diptycha*, from the Cretaceous rocks at the head of the Flinders River in Northern Queensland.[10]

In Mr. Charles Moore's interesting paper on "Australian Mesozoic Geology and Palæontology," the late Professor Phillips, F.R.S., described a well-marked species of Belemnite, as *Belemnites australis*.[11] The specimen, of which the guard was the only portion preserved, was from the Upper Maranoa River District, and was considered by its describer to be most nearly allied to *B. hastatus* (Blainville), which is found in the Oxford clay of England. Another specimen appeared to be like *B. sulcatus* (Miller), also of the Oxford clay. In addition to these two several other fragments are either noticed or described in the same paper, one an individual with the "phragmocone" in position appears to be most nearly allied to *B. paxillosus* (Schlotheim), and is from Wollumbilla. The second specimen was considered by Mr. Moore to be *B. canaliculatus* (Schlotheim).

A tertiary species of Belemnite has been described from the South Australian rocks,[12] but as this is without the scope of this communication it need not be referred to here, except to point out that Professor McCoy has suggested,[13] that the remains so described may perhaps be those of a Pennatulid zoophyte allied to his *Graphularia Robinæ* from the Miocene beds of the Geelong district.

9. Quar. Jour. Geol. Soc., 1862. xviii., p. 246. 10. Annals and Mag. Nat. Hist., 1867. xix., p. 356. Trans. R. Soc. Vic., 1868. viii., p. 42.

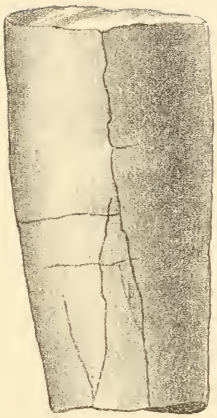
11. Quart. Jour. Geol. Soc., 1870, xxvi., p. 258. 12. Ibid, 1877, xxxiii. p. 257. 13. Prodromus Par., Victoria, dec. 5, p. 33.

EXPLANATION OF THE FIGURES.

Fig. 1. Sir T. L. Mitchell's Belemnite, side view, nat. size. Near Mount Abundance (Mitchell Collection, British Museum.)

Fig. 2. Larger or anterior end, showing termination of alveolar cavity, nat. size.

Fig. 3. Smaller or posterior end, nat. size.



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