

towards the north, Iceland and Greenland possessed not only pines and birches, poplars, willows, oaks, and alders, but also *Sequoia* and *Salisburia*, elms, hornbeams, figs, *Magnolia*, *Liriodendron* and vines, the analogues of which cannot now be found nearer than at least 12° more towards the south: these organisms required, in order to fructify and propagate, a mean temperature which M. Heer estimates at not less than $9^{\circ} \cdot 5$ C. ($=49^{\circ}$ F.). Even beyond the Polar circle, at Spitzbergen, about 79° N. lat., the Tertiary vegetation, according to the same author, still included hazels, hornbeams, and planes; and this vegetation was probably continued to the Pole itself.

Such was Europe in the Miocene age; only at the end of this period, in consequence of phenomena of which we are ignorant, or perhaps by the action of several combined causes, the temperature tended to diminish: this decrease, when once well marked, continued until the glacial times, when the cold, exceeding that of the present period, drove from our soil the greater part of the plants which previously ornamented it, and which, but for this circumstance, would have remained upon it, at least in part, and would have still subsisted there—our climate, in consequence of a fresh change, having subsequently been tempered.

L.—*On the Occurrence of Ichthyosaurus and Plesiosaurus in Australia.* By FREDERICK M'COY, Professor of Natural Science in the University of Melbourne, and Director of the National Museum of Victoria.

To the Editors of the Annals of Natural History.

GENTLEMEN,

Referring to my paper in your Journal for November 1865, on the discovery of Cretaceous fossils in Central Australia, I have now the great pleasure of announcing the important fact that additional specimens have been received from Messrs. Carson and Sutherland, from the same locality, on the head of the Flinders River, enabling me to demonstrate the existence of Enaliosaurian reptiles in continental Australia during the period of Mesozoic deposits, which most geologists suppose not to occur in Australia. The remains are of the two well-marked genera *Ichthyosaurus* and *Plesiosaurus*. Of the former there are numerous vertebræ, deeply biconcave with conical articular surfaces, the centrum 4 inches wide, 3 inches deep, and $1\frac{1}{2}$ inch long. The species I name *Ichthyosaurus australis* (M'COY).

One of the species of *Plesiosaurus* has a slight resemblance to the New Zealand species noticed by Professor Owen, but is

obviously a distinct species, from the difference of its proportions. The length of the centrum of the trunk is $2\frac{1}{4}$ inches, width $3\frac{3}{4}$ inches, depth $2\frac{1}{2}$ inches. I name it *Plesiosaurus Sutherlandi* (M'Coy), in honour of the finder.

The second but not so abundant species is known by cervical vertebræ only, and appears specifically distinct from the former by the extraordinary rugosity of the edges of the articular ends of the centrum, each of which presents a remarkably elongate form, from which, if the species prove distinct, I would name it *Plesiosaurus macrospondylus* (M'Coy). Each centrum is 3 inches long, 3 inches wide, and $2\frac{1}{2}$ inches deep.

With these are remains of two Cephalopods (tending to prove the correctness of my previous reference of the deposit containing these fossils to the Lower Cretaceous period), namely:—A gigantic species of *Ancyloceras*, exceeding the *Ancyloceras gigas* of the Isle of Wight in size, and differing by having the transverse ribs larger, forking on the sides, and a row of large compressed tubercles on each side of the back; it most resembles the *A. Zabarelli* of the French Lower Greensand. I name it *Ancyloceras Flindersi* (M'Coy).

The second important mollusk is a Belemnite with the two dorsal sulci and general size and broadly hastate shape of the *Belemnitella plena* of the English, French, and German Lower Chalk so closely reproduced as almost to warrant the reference of it to a variety of the same species. Like most specimens of *B. plena*, it is broken off at the bottom of the phragmacone. As it is rather larger, the dorsal furrows a little further apart, and I see no trace of the ventral furrow, I name it separately *B. diptycha* (M'Coy).

I remain, Gentlemen,

Yours, &c.,

Melbourne, Feb. 26, 1867.

FREDERICK M'COY.

LI.—On the Peculiarities of some Stylospores of Sphæriæ.

By H. KARSTEN*.

[Plate X. figs. 5–13.]

IN the opened anthers of *Fuchsia splendens* I found, besides the more or less irregularly developed pollen which was interwoven with a delicate colourless mycelium, some small, globular, grey *Sphæriæ*, finely villous externally and furnished at the vertex with a circular orifice, which was not drawn out, and was sur-

* From Karsten's 'Botanische Untersuchungen,' 1866, pp. 336–340; with an additional paragraph by the author. Translated by W. S. Dallas, F.L.S. &c.



McCoy, Frederick. 1867. "L.—On the occurrence of Ichthyosaurus and Plesiosaurus in Australia." *The Annals and magazine of natural history; zoology, botany, and geology* 19, 355–356.

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