an inch, "short, nearly twice as wide as long; the cell-denticles nearly rectangular to the axis."

Loc. Skiddaw Slates (lower beds): Outerside, near Keswick.

Climacograpsus tuberculatus, Nich.

I have so recently described this species (Ann. & Mag. Nat. Hist. ser. 4. vol. iv. p. 239, pl. 11. fig. 18) that any detailed reference to it is unnecessary. It is closely allied to *C. bicornis*, but is distinguished by the following points:—1. The base is furnished with a short central radicle, and two strong, curved, lateral cornua, which always enclose an angle of nearly 180°, or, in other words, are nearly rectangular to the axis of the frond. 2. The frond is furnished on each side with a row of tubercles, which appear to spring from the lateral angles of each cell-aperture.

Loc. Upper Llandeilo: rare in the Anthracitic Shales of Dobb's Linn, near Moffat.

Climacograpsus innotatus, Nich.

This species also has been recently described by myself in the paper just referred to (*op. cit. supra*, p. 238, pl. 11. figs. 16 & 17), and therefore requires little notice. It has recently, however, been confounded with the so-called *Climacograpsus minutus*, Carr., which is really nothing more than the immature form of *C. teretiusculus*, from which it differs in no characteristic of specific importance. *C. innotatus*, on the other hand, is at once distinguished by the possession of a short stout spine which arises from the inferior angle of each of the portions of the frond between the cell-apertures, and is directed horizontally over the mouth of the cellule immediately below. No such structure is recognizable in *C. teretiusculus* at any period of its development.

XXXVII.—*On an existing Coral closely allied to the Palæozoic Genus Favosites; with Remarks on the Affinities of the Tabulata.* By W. SAVILLE KENT, F.Z.S., F.R.M.S., of the Geological Department, British Museum*.

[Plates XVII. & XVIII.]

DURING a pleasant fortnight spent last year in studying the fine typical collection of Madreporæ contained in the Paris Museum, my attention was arrested by a worn specimen,

* A brief notice of this new form was given at the recent meeting of the British Association at Liverpool.

stowed away in a corner, as though undeserving of notice, which, on closer examination, was found to exhibit a most important and significant character.

In general external appearance this Coral bore a strong resemblance to *Alveopora fenestrata*, Dana (*Pocillopora fenestrata*, Lamk.); and on the under surface of the block which supported it faint pencil characters, implying that it belonged to that species, were just discernible. Unfortunately, no record suggestive of the locality whence this interesting specimen was obtained accompanied it, neither is any preserved in the archives of the museum; its recent character, however, is beyond doubt.

The prominent feature embodied with those of *Alveopora*, and which rendered it so strikingly distinct from any representative of that genus, lay in the presence of numerous irregularly scattered, but perfect and well-developed tabulæ or horizontal partitions. Taken altogether, these characters demonstrated it to be closely allied to the long extinct genus *Favosites*—*Koninckia*, of the Cretaceous epoch, forming an immediate connecting link.

Withdraw the tabulæ, and the specimen forming the subject of this paper is in no wise distinct from an ordinary *Alveopora*; it possesses the same reticulate structure of the general sclerenchyma and the same irregular trabecular septal arrangement; the individual septa, moreover, frequently coalesce as in that genus*.

In *Koninckia* we have a similar reticulate structure of the calices; but the septal system is regular, consisting of a series of six stout, short, conical, and widely separated elementary components, which never evince a tendency to coalesce. To this are added irregularly scattered tabulæ. On arriving at *Favosites* we find a septal and tabular system closely resembling what obtains in the last-named genus; but the general sclerenchyma can scarcely be called reticulate, the walls of the calices being composed of perfect laminae, with more or less evenly disposed perforations. The close affinity of the three forms, however, is so evident that they cannot be further than generically separated.

Favositipora is the generic name I propose for the Coral I here introduce; it embodies the structural characters of the two groups of the Poritidæ and Favositidæ, hitherto considered distinct; the specific name of *Deshayesii* I bestow upon

* It also very frequently happens that two opposite septa are most developed, and meet in the centre of the calyx; in this respect it shows its affinity to the genus *Madrepora*, also belonging to the Perforata, and in which this peculiarity is a dominant feature.

it as a slight tribute of regard for my friend M. Deshayes, the talented and energetic conservator of the Invertebrate department of the Paris Museum, to whom and to his *confrère* M. L. Rousseau, I am under the deepest obligations for the great facilities and considerable amount of personal assistance they rendered me during the fortnight I spent in familiarizing myself with the contents of their superb Museum. I can scarcely say more than that, if the establishment had been under my own immediate superintendence, I could not have studied the collection with greater advantages.

By the kind permission of Prof. Milne-Edwards, M. Potteau (the skilful photographer, and preparer of natural-history specimens, attached to the Paris Museum) has executed for me some excellent photographs of this interesting Coral, from which the plates accompanying this paper have been engraved.

Since encountering the coral just described, I have discovered, while arranging the collection of fossil corals in the British Museum, a specimen to which no record is attached, but evidently belonging to the Palæozoic series, and most probably to the North-American Devonian or Carboniferous strata, which, in the structure of its corallum, certainly cannot be made generically distinct from the existing form now introduced, and, except in the coarser character of its reticulate sclerenchyma and the larger size of its calices, would not seem even to differ specifically. This last new species I propose to distinguish by the title of *Favositipora palæozoica*.

But not only is the existing *F. Deshayesii* interesting on account of its close relationship to extinct Palæozoic forms, but its affinity to the recent genus *Alveopora*, from which, as before observed, it differs only by its possession of scattered tabulæ, is weighty evidence in controversion of the theory advocated by Professor Agassiz that all the Tabulate Corals are the skeletal productions of Hydrozoa. *Alveopora* is a well-known Actinozoon, and it is more than probable that the closely approximating *Favositipora* is referable to the same class. But one of the most cogent objections that may be brought forward in opposition to Professor Agassiz's theory is the fact that the greater number of the Tabulata possess well-developed septa. Now septa are calcifications produced between the folds of the mesenteries; and mesenteries only occur in the Actinozoa, where they assume the form of fleshy bands connecting the wall of the alimentary canal with the external wall of the animal's body. In the Hydrozoa there is no distinct alimentary canal, and consequently no mesenteries; and it must necessarily follow that no Hydrozoon could possibly produce

septa, and hence that no septate coral can be referred to the Hydrozoa.

The affinities of *Favositipora* with *Favosites*, on the one hand, and *Alveopora*, on the other, also demonstrate that the recognition of the Tabulata and Perforata as two widely separated sections must now cease to be defensible, the first-mentioned genus showing how completely the one group merges into the other.

I may quote this form, again, as evidence bearing out the truth of my assumption, disputed by Mr. Lankester in a previous number of this Magazine, that the Corals of the Palæozoic epoch were equally complex and highly developed with those peopling the existing seas. *Favositipora*, as already shown, is little else than a more highly differentiated or tabulate *Alveopora*. In Palæozoic times there existed a coral generically identical with it, and a number of others closely allied and possessing in a still greater degree of development this more highly differentiated character.

The two plates accompanying this paper are prepared from the original photographs executed for me in Paris, the first one representing the coral of the natural size, and Pl. XVIII. illustrating a portion of the reverse side of Pl. XVII., considerably enlarged. As an experiment, they are highly successful, and promise much for the future of photo-lithography as applied to the representation of objects of natural history; at the same time, neither the tabulate arrangement nor the essentially trabecular character of the sclerenchyma are evidenced so conspicuously as in the original photographs. In Pl. XVIII., on the left-hand side the letter *a* is placed opposite an extraordinarily large calyx (about half an inch from the margin), in which a tabula has been fractured across its centre, leaving the larger half of the calyx entirely open. Recognizing this, it will be easy to detect where the tabulæ occur or are absent in the remaining portion of the plate.

XXXVIII.—*The Geographical Distribution of the Cetacea.*
By Dr. J. E. GRAY, F.R.S. &c.

I HAVE for years been collecting all the information I could find on the Cetacea, and have published the results in a series of papers in the 'Proceedings of the Zoological Society' and in the 'Annals and Magazine of Natural History,' and I have combined these, together with the materials I have been able to collect from various travellers and other scientific writers on Cetacea, in the 'Catalogue of Seals and Whales in the British

Saville-Kent, William. 1870. "XXXVII.—On an existing coral closely allied to the Palæozoic genus Favosites; with remarks on the affinities of the Tabulata." *The Annals and magazine of natural history; zoology, botany, and geology* 6, 384–387. <https://doi.org/10.1080/00222937008696272>.

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