

*Cytherella lunata* (n. sp.), fig. 6.

Ovato-oblong; dorsal edge slightly concave, giving the valves a tendency to a semilunar figure; valves unequal; length  $\frac{1}{30}$  inch, height  $\frac{1}{45}$  inch.

The very strong resemblance these Entomostraca have to the subgenus proposed by Mr. T. R. Jones in his Monograph on the Cretaceous species, as well as the constant and great peculiarity of one valve projecting beyond the other, give the author no hesitation in placing it among the *Cytherella*. It is a much smaller species than the last.

*Ceriopora rhombifera* (Goldf.), figs. 7, 7 a.

Polypidom cylindrical, jointed, dichotomous; cells rhomboidal, immersed, diverging from the axis, arranged in quincuncial order, and opening on the surface; aperture in centre of cell, labiate; cells  $\frac{1}{90}$  inch long,  $\frac{1}{180}$  inch broad; branches from  $\frac{1}{57}$  inch to  $\frac{1}{36}$  inch in diameter.

*Poteriocrinus* —? fig. 8 a, b, c, d, e, f.

Ossicula (a, b, c) round, with a central aperture or depression, striated; striæ distant about  $\frac{1}{300}$  inch; the largest ossicula about  $\frac{1}{8}$  inch in diam., and the smallest  $\frac{1}{12}$ ; the central aperture  $\frac{1}{30}$  inch; the cast of the columnar cavity (fig. 8 e, f) =  $\frac{1}{90}$  inch; perisomic plate (d) granulated, granulations  $\frac{1}{180}$  inch in diameter, and distant about the  $\frac{1}{300}$  inch.

From the almost universal dismemberment of the specimen, the species has not yet been determined. It is about the size of Major Austin's *P. isacobus*; and as this species occurs not far from the locality, it may very likely turn out eventually to be identical. Unfortunately, no measurements are given in Major Austin's very beautiful monograph.

A great many more forms abound in this remarkable deposit, and may with equal facility be separated from the matrix and removed in a perfect condition.

L.—On the Influence of the Venation in the Reproduction of Monstrosities among Ferns. By W. KENCELY BRIDGMAN, L.D.S., R.C.S.E.

IN the propagation of Ferns, most of the "sports," or natural deviations from the typical form, may be reproduced from their spores; but, in thus multiplying them, it is well known that

many of the plants so obtained revert to the ordinary normal character of the species.

The venation in these monstrosities being equally inconstant and variable in its arrangement—differing considerably in the same leaf in the amount of its departure from the normal direction—and the spore-cases being so intimately connected with it by springing directly from the back of the vein, these experiments were undertaken with a view to discover, if possible, how far the former circumstance might be dependent upon the condition of the veins and position of the receptacle from which the respective spores had been obtained.

In the first instance, a leaf from the multifid variety of the common Hart's-tongue (*Scolopendrium vulgare*, var. *multifidum*) had been procured, selecting one of the most distorted, and the spores from it collected indiscriminately and sown. The plants coming from these, to the extent of many hundreds, presented every grade of variation, from the simple ligulate with a single acute apex up to the complex form of the parent, and beyond, or, as fern-fanciers express it, "greatly improving the sport," and this not in one direction only, but resulting in the production of three distinct varieties. The direction of the veins in the lower portion of the leaf from which the spores had been taken was all but normal, some parts entirely so, upon which several of the sori had been placed. But towards the upper and above the middle portion of the leaf, the veins, losing their regularity and parallelism, became somewhat zigzag and reticulate, the indusium only partially developed, the sori smaller, more numerous, and nearer to the external margin. In the extreme upper or multifid and crisped terminal expansion, the mid-vein became broken up into a number of nearly equal divisions, and these again dividing and subdividing into a reticulate mass of veins and venules. Instead of the regularly formed sori, the spore-cases were distributed about in patches, without the slightest trace of an indusium, and attached by their pedicels to the back of some of the larger bundles of veins, and also, in the axils, in scattered masses, the indusium having become perfectly obsolete.

Another variety, the "*laceratum*" of Moore ('Nature-printed Ferns,' 8vo edition, vol. ii. pl. xcii.), was now selected, having the two characters of venation separate and distinct. The sori from all the reticulate portions of the leaf were carefully scraped off, and the spores sown in baked peat in a pan by themselves. The plants resulting from these (which were pricked out from a seed-pan 4 inches in diameter, where they had come up as thick as they could grow) *contained not a single plant which had not the*

strongly marked characteristic of the variety, and some far more crested and crisped than the parent.

The spores from the remaining part of the leaf were sown in another pan, at the same time, and have produced an equally abundant crop. *There were not a dozen plants of the same character with the preceding; and, until the leaves were several inches long, with the exception of here and there a twin leaf, there were no external characters in the bulk of them to render their parentage recognizable.* A very large proportion of them were discarded as normal; and the only peculiarity at present shown among the remaining ones, the leaves of which average from 6 to 9 or 10 inches in length, and from  $1\frac{1}{2}$  to  $2\frac{1}{2}$  inches in breadth, is in a slightly sinuous margin, an occasional division of the apex into two or more lobes, and a disposition to become somewhat ragged—and this by no means general, but only one or two leaves on a plant.

But as these were planted out, not singly, but in little tufts, a number of plants grew together, thus giving the stronger ones the opportunity of outgrowing their weaker companions: this they speedily did; and whenever any of the previous type, which had been left to take their chance, were allowed to remain, they became weakly and made no way, while the others grew with great rapidity, showing the tendency by “selection,” in this instance, to be strongly in favour of *retrogression*.

Similar experiments with other varieties and species have been attended with corresponding results. The tufted end of the variety “*Crista Galli*” of the same species (*Scolopendrium vulgare*) produced many hundreds of plants, all, with scarcely an exception, equally complex with the original, or more so; and, what is more remarkable, the parent plant was upwards of two years old before it began to develop its peculiar character, while the progeny raised from it were all prominently characteristic in the first leaves.

With such forms as *Nephrodium molle corymbiferum*, *Lastræa filix mas cristata*, *Scolopendrium marginatum*, &c., where the entire frond has become deformed and the whole of the venation abnormal, the plants raised from spores procured from any part of the leaf reproduce the variety with little or no variation. Out of some thousands of *Filix-mas-cristata* seedlings, only one reverted to the normal form, and two others closely approach the *angustata* of Sim, all the remainder being identical with the parent.