## Miscellaneous.

2nd. The Permian, Triassic and Jurassic rocks have hitherto furnished us but few species for comparison, but the material is increasing, and I have now on hand a large collection which has not yet been studied. Enough is already known to show that the great revolution which took place in Europe at the close of the Permian epoch was matched by a parallel though lesssudden change in the flora of America.

Here as there the Lepidodendroid trees, the Sigillaria, the Næggerathiæ, the Asterophyllitæ, and the great variety of ferns that gave character to the Carboniferous vegetation were superseded by Voltzia, Taniopteris, Camptopteris and a varied and beautiful Cycadaceous flora, in which were many species of Zamites, Pterophyllum, Nilsonia, &c., the representatives of those of the "Age of Gymnosperms." which culminated in the Jurassic epoch of Europe.

During this great interval the generic correspondence between the floras of Europe and America was perhaps as plainly marked as during the Carboniferous age, but the relative number of identical species was apparently smaller.

3d. At the commencement of the Cretaceous epoch the flora of the continent was again revolutionized, and the vegetation of its temperate portions given the general spect that it now presents.

This statement will surprise many, for the flora generally ascribed to the Chalk period is greatly different from that of the present. Unger has thus represented it, and Brongniart calls it a transition from the great Cycadaceous flora of the Jurassic period to the Angiospermous flora of the Tertiary. In Europe the Cretaceous flora was apparently more like that of the Lias and Oolite than in this country, for while the genera Salix, Acer, Populus Alnus, Quercus, &c., were then introduced there as here, its general aspect was modified by the presence of numbers of Cycadacca, and its sub-tropical character attested by fan-palms.

We may find hereafter in other parts of the continent than those in which I have examined the Cretaceous strata, fossils which shall assimilate our flora of that period more closely to that of Europe; but as far as at present known, our plants of this age present an *ensemble* quite different. I have now some sixty or seventy species of Cretaceous plants, collected in New Jersey and in various parts of the great Cretaceous area of the interior of the continent, all of which indicate a flora very similar to that now