

important class, the Gymnogens,—polycotyledonous trees represented by the coniferæ and cycadaceæ. And last of all come the dicotyledonous Exogens,—a class to which all our fruit, and what are known as our “forest trees,” belong, with a vastly preponderating majority of the herbs and flowers that impart fertility and beauty to our gardens and meadows. This last class, though but one, now occupies much greater space in the vegetable kingdom than all the others united.

Such is the arrangement of Lindley, or rather an arrangement the slow growth of ages, to which this distinguished botanist has given the last finishing touches. And let us now mark how closely it resembles the geologic arrangement as developed in the successive stages of the earth’s history.

The most ancient period of whose organisms any trace remains in the rock seems to have been, prevailingly at least, a period of Thallogens. We must of course take into account the fact, that it has yielded no land plants, and that the sea is everywhere now, as of old, the great habitat of the algæ,—one of the four great orders into which the Thallogens are divided. There appear no traces of a terrestrial vegetation until we reach the uppermost beds of the Upper Silurian system. But, account for the fact as we may, it is at

ascertained, the place of their first appearance in creation; while the double line of type below shows in what degree the order of their occurrence agrees with the arrangement of the botanist. The single point of difference indicated by the diagram between the order of occurrence and that of arrangement, viz., the transposition of the gymnogenous and monocotyledonous classes, must be regarded as purely provisional. It is definitely ascertained that the Lower Old Red Sandstone has its coniferous wood, but not yet definitely ascertained that it has its true monocotyledonous plants; though indications are not wanting that the latter were introduced upon the scene at least as early as the pines or araucarians; and the chance discovery of some fossil in a sufficiently good state of keeping to determine the point may of course at once re-transpose the transposition, and bring into complete correspondence the geologic and botanic arrangements.