we will now proceed to describe the fossil flora of the coal measures; but before doing so, it is perhaps better to say a few words upon the way these fossils were formed. It is a popular idea that they are petrifactions, or the original tree or plant turned into a This, however, is incorrect, as no such change is known in stone. nature. The nearest approach to it, is coal itself, which, as we showed before, was very much altered in the process of mineraliza-It is we believe, still a disputed point, how these fossils were tion. formed: but it is supposed that the mud in which the tree or plant was buried, contained silex (or whatever substance the fossil may be composed of) in solution, and that as it decayed piece by piece, and cell by cell, the silex was deposited in its place by permeation. The first fossil we purpose to describe is the

## SIGILLARIA.

The sigillaria derives its name from "sigillum," a seal, and is so called from the cicatrices, or seal-like impressions on the fossil where the leaf stalks (petioles) were broken off ere the original plant was entombed. It is by observing this mark on the stem that the reader will be easily able to distinguish this fossil. These impressions are generally oval or round, like the mark left by the end of the finger in mud. The stem which was cylindrical, was ribbed or fluted like a Grecian column, and it is between these flutings that the seal-like markings are always found on the fossil. When the sigillaria is parallel with the strata it is generally perfeetly flat, showing the bark on each side often turned into coal. This bark was very thick and strong, for when the fossil is found, upright or at right angles with the plane of stratification, it is always in a cylindrical form, the centre containing a cast of sandstone, and the bark carbonised or turned into coal. It is thus evident that when the tree died, the centre, which must have been quite soft, quickly decayed, while the thick strong bark remained long enough for the sand to reach its top, or drift into it, and when the tree was altogether buried up in the ocean bottom, or sand bank, its exclusion from the air caused the bark to turn into coal, The segillaria while the sand in the centre formed the stone cast. was one of the most common of the trees of the coal period. was straight and tall, growing to a height of from thirty to seventy feet. It was without branches, although some kinds were dichotomous or divided into pairs near the top. A friend of ours, who is enthusiastic on the subject of geology, has within the last month discovered and developed some very fine specimens of this plant in the strata not many hundred yards from Prince William street, where they now remain, and we have in our possession some very good ones from the same place. Where it is, for obvious reasons we shall not at present say, but may enlighten our readers when we treat of the coal measures of this Province.

## STIGMARIA.

The stigmaria is found in great numbers in the shale, or underclay, below the coal veins. We have some very fine specimens