preserved; in fractured portions imbedded in the limestone, the interstices are filled with calcareous spar, and the cancellated structure of the bones is often permeated by the same substance. The fossil vegetables occur bituminized, and in the state of casts of sandstone; the stems and branches are sometimes silicified; carbonized leaves and twigs are abundant in some of the strata. The shells in the clays have undergone but little change, and in many examples, the epidermis still remains; in the limestone, the substance of the shell is converted into spathose carbonate of lime. With these general remarks, I pass on to the enumeration of the principal organic remains.

44. FOSSIL VEGETABLES—FERNS.—From the abundance of the carbonaceous remains of vegetables in many of the laminated shales and clays of the wealden, and the occurrence of lignite, or brown-coal, in masses and layers, which sometimes alternate with beds of stone abounding in fresh-water bivalves, a striking analogy is presented to some of the divisions of the *coal measures;* and many years since, this resemblance gave rise to a search for coal at Bexhill, which, of course, proved abortive.* But notwithstanding the prevalence of vegetable matter in the strata, specimens exhibiting the nature of the original plants, in any tolerable degree of preservation, are rare; and, although my

* Geology of the South-East of England, p. xviii. Fossils of the South Downs, p. 35.