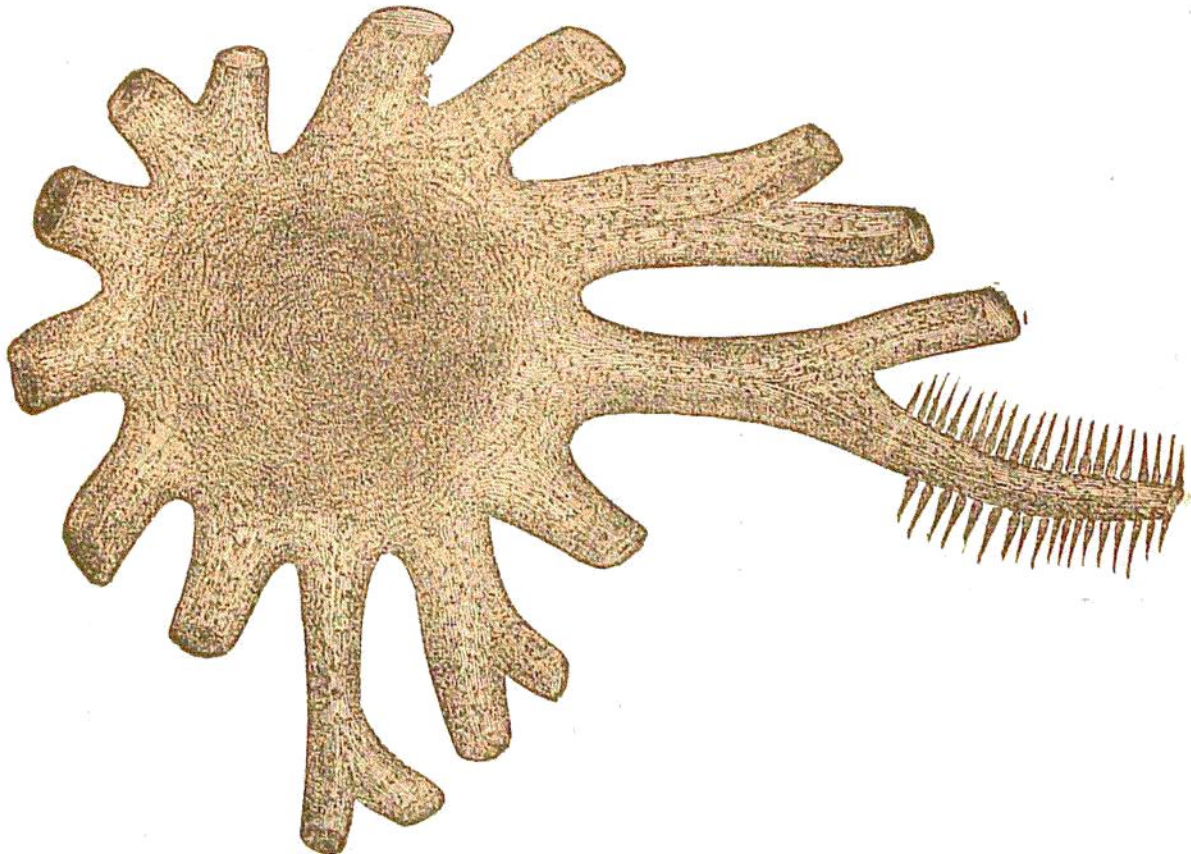


More than 250 species of ferns have been already dug from the coal strata in Europe, and it is an interesting fact that at present not more than fifty species of this tribe of plants are natives of Europe. They are far more abundant in tropical regions; and hence it seems a fair conclusion that the climate in Europe and the United States, during the coal period, was tropical.

Professor Lindley made some experiments to determine what sorts of plants would longest resist the action of water. The leaves and bark of most dicotyledonous plants, that is, our present forest trees and flowering plants generally, were destroyed in two years. The monocotyledons, such as the palms, were more enduring, but grasses perished. Funguses, mosses and most of the lowest forms of vegetables, soon disappeared; but ferns were the most enduring of all. In short, those plants most abundant in a fossil state endured the best. Hence it is inferred that the frailer sorts may have been much more abundant in early times than their number found fossil would indicate.

*Stigmaria*.—Immediately beneath every bed of coal (and sometimes twenty or thirty beds lie above one another in the same basin) is a layer of arenaceous shale, from six inches to ten feet thick, called *under clay* or *fire clay*. In this, and here only, is found the peculiar fossil called *Stigmaria*, Fig. 231. It is ascer-

Fig. 231.



*Stigmaria*.