

of great breadth ; they seem to have sprung up in the rich soil of sheltered hollows and plains, and to have increased in diameter from half an inch to three quarters of an inch yearly ; while in other trees of the same species the yearly zones of growth are singularly narrow,—in some instances little more than half a line in thickness. Rooted on some exposed hill-side, in a shallow and meagre soil, they increased their diameter during the twelvemonth little more than a line in the severer seasons, and little more than an eighth part of an inch even when the seasons were most favourable. Further, whether the rings be large or small, we ordinarily find them occurring in the same specimens in groupes of larger and smaller. In one of my Helmsdale specimens, indicative generally of rapid growth, there are four contiguous annual rings, which measure in all an inch and two twelfths across, while the four contiguous rings immediately beside them measure only half an inch. “If at the present day,” says a distinguished fossil-botanist, “a warm and moist summer produces a broader annual layer than a cold and dry one, and if fossil plants exhibit such appearances as we refer in recent plants to a diversity of summers, then it is reasonable to suppose that a similar diversity formerly prevailed.” The same reasoning is of course as applicable to *groupes* of annual layers as to *single* annual layers ; and may we not venture to infer from the almost invariable occurrence of such groupes in the woods of this ancient system, that that ill-understood law of the weather which gives us in irregular succession groupes of colder and warmer seasons, and whose operation, as Bacon tells us, was first remarked in the provinces of the Netherlands, was as certainly in existence during the ages of the Oolite as at the present time ?

Twigs which exhibit the foliage of these ancient conifers seem to be less rare in our Scotch deposits than in those of England of the same age. My collection contains fossil sprigs,