often entirely destroyed, and only the ligneous lining remains, perhaps thickened by incrustation of mineral matter within. In this case the original lining of the cell may seem to be an external structure. I have examples both in Mesozoic conifers and in carboniferous plants. Long soaking in water and decay have thus often made what may have been a lining of wood-cells appear as an intercellular matter, or an external thickening of the walls. (3.) In decayed woods the mycelium of fungi often wanders through the tissues in a manner very perplexing; and I suspect, though I cannot be certain of this, that some fossil woods have been disorganized in this way. At the time when my description was published, I felt uncertain to which of these causes to attribute the peculiar appearance of Prototaxites. I have now, from subsequent study of the cretaceous Taxinez of British Columbia,* little hesitation in adopting the first and second explanations, or one of them, as probable.

Mr. Carruthers does not believe in the medullary rays of Proto-The evidence of these is the occurrence of regular lentitaxites. cular spaces in the tangential section, which appear as radiating lines in the transverse section. The tissues have perished; but some tissues must have occupied these spaces; and in fossil woods the medullary rays have often been removed by decay, as one sometimes sees to be the case with modern woods in a partially decayed state. Mr. Carruthers should have been more cautious in this matter, after his rash denial, on similar grounds, of medullary rays in Sigillaria and Stigmaria, contrary to the testimony of Brongniart, Goeppert, and the writer, and the recent exposure of his error by Professor Williamson. That the wood-cells have been in part crushed into the spaces left by the medullary rays is only a natural consequence of decay. The fact that the medullary rays have decayed, leaving the wood so well preserved, is a strong evidence for the durability of the latter. The approval with which Mr. C. quotes from Mr. Archer, of Dublin, the naïve statement that "the appearance of medullary rays was probably produced by accidental cracks or fissures," would almost seem to imply that neither gentlemen is aware that radiating fissures in decaying exogenous woods are a consequence of the existence of

[•] Report of Geol. Survey of Canada, now in course of publication. The collections contain wood showing the structure of yew, cypress, oak, birch, and poplar, all from rocks of cretaceous age.