

distances. Thus, the coal-plants of North America are, for the most part, identical with those of Europe, and all belong to the same genera. Some specimens, also, from Greenland, are referable to ferns, analogous to those of our European coal mines."\* The fossil plants brought from Melville Island, although in a very imperfect state, have been supposed to warrant similar conclusions†; and assuming that they agree with those of Baffin's Bay, mentioned by M. Brongniart, how shall we explain the manner in which such a vegetation lived through an arctic night of several months' duration?‡

It may seem premature to discuss this question, until the true nature of the fossil flora of the arctic regions has been more accurately determined; yet, as the question has attracted some attention, let us assume for a moment, that the coal plants of Melville Island are strictly analogous to those of the strata of Northumberland — would such a fact present an inexplicable enigma to the vegetable physiologist?

Plants, it is affirmed, cannot remain in darkness, even for a week, without serious injury, unless in a torpid state; and if exposed to heat and moisture they cannot remain torpid, but will grow, and must therefore perish. If, then, in the latitude of Melville Island, 75° N., a high temperature, and consequent humidity, prevailed at that period when we know the arctic seas were filled with corals and large multilocular shells, how could plants of tropical forms have flourished? Is not the bright light of equatorial regions as indispensable a condition of their well-being as the sultry heat of the same countries? and how could they annually endure a night prolonged for three months?§

Now, in reply to this objection, we must bear in mind, in the first place, that, so far as experiments have been made, there is every reason to conclude, that the range of intensity of light to which living plants can accommodate themselves is far wider than that of heat. No palms or tree ferns can live in our temperate latitudes without protection from the cold: but when placed in hot-houses they grow luxuriantly, even under a cloudy sky, and where much light is intercepted by the glass and frame-work. At St. Petersburg, in lat. 60° N., these plants have been successfully cultivated in hot-houses, although there they must exchange the perpetual equinox of their native regions, for days and nights which are alternately protracted to nineteen hours and shortened to five. How much farther towards the pole they might continue to live, provided a due quantity of heat

\* *Prodrome d'une Hist. des Végét. Foss.* p. 179. See also a late paper, *Quart. Journ. of Geol. Soc. London*, 1846, in which coal-plants of Alabama, lat. 33° N., collected by the author, are identified by Mr. Bunbury with British fossil species, showing the great southern extension of this flora.

† König, *Journ. of Sci.* vol. xv. p. 20. Mr. König informs me, that he no longer

believes any of these fossils to be tree ferns, as he at first stated, but that they agree generically with plants in our English coal-beds. The Melville Island specimens, now in the British Museum, are very obscure impressions.

‡ *Fossil Flora of Great Britain*, by John Lindley and William Hutton, Esqrs. No. IV.

§ *Ibid.*