

One trouble is that these usually obscure markings have been despised by the greater number of palaeontologists, and probably would not now be so much in controversy were it not for the use made of them in illustrating supposed phylogenies of plants.

It would be wrong to close this address without some reference to that which is the veritable *pons asinorum* of the science, the great and much debated glacial period. I trust that you will not suppose that in the end of an hour's address, I am about to discuss this vexed question. Time would fail me even to name the hosts of recent authors who have contended in this arena. I can hope only to point out a few landmarks which may aid the geological adventurer in traversing the slippery and treacherous surface of the hypothetical ice-sheet of pleistocene times, and in avoiding the yawning crevasses by which it is traversed.

No conclusions of geology seem more certain than that great changes of climate have occurred in the course of geological time, and the evidence of this in that comparatively modern period which immediately preceded the human age is so striking that it has come to be known as preëminently the ice age; while in the preceding tertiary periods, temperate conditions seem to have prevailed even to the pole. Of the many theories as to these changes which have been proposed, two seem at present to divide the suffrages of geologists, either alone or combined with each other. These are (1) the theory of the precession of the equinoxes in connection with the varying eccentricity of the earth's orbit, advocated more especially by Croll; and (2) the different distribution of land and water as affecting the reception and radiation of heat and the ocean currents, a theory ably propounded by Lyell, and subsequently extensively adopted either alone or with the previous one. One of these views may be called the astronomical, the other the geographical. I confess that I am inclined to accept the second or Lyellian theory for such reasons as the following: (1) Great elevations and depressions of land have occurred in and since the Pleistocene, while the alleged astronomical changes are not certain, more especially in regard to their probable effect on the earth; (2) When the rival theories are tested by the present phenomena of the southern polar region and the North Atlantic, there seem to be geographical causes adequate to account for all except extreme and unproved glacial conditions; (3) The astronomical cause would suppose regularly recurring glacial periods of which