

with regard to these ancient boulder beds is held by Professor Geikie and Mr. James Geikie, who mapped the country.¹

The Lower Silurian rocks of the south, pass underneath the Old Red Sandstone and Carboniferous rocks of the midland parts of Scotland, and rise again on the north in the Grampian Mountains. A great fault,

¹ I shall by-and-by have to notice the recurrence of glacial episodes at various epochs in geological history, a subject with which ever since 1855 I have had a good deal to do. (On Permian Breccias, &c. 'Journal of the Geol. Soc.' vol. ii. p. 185). It is difficult to make out the ground on which all the old, and many of the middle aged geologists, have cast aside the various evidences that have been adduced in support of the recurrence of glacial epochs or episodes, especially as I remember no argument that has been brought forward, excepting that in old times, the radiation of internal heat through the crust of a cooling globe, produced warm and uniform climates all over the surface, and that the further you go back in time the hotter they were. The Lias was accumulated in warm seas, and if so those of the Carboniferous times were warmer, and those of Silurian times warmer still, and I have heard a distinguished geologist declare in a public lecture, that the tropical vegetation of the Coal-measures, was due to the heat that radiated outwards from the earth's crust, aided by that produced by the flaring volcanoes of that epoch! Undoubtedly there must have been a *geologically prehistoric* time, when internal heat may have acted on the surface, and perhaps the sun may have been hotter than now, and that also had its effect. I, however, can see no signs of these internal and external interferences *since the times in which the authentic records of geological history have been preserved*, and these extend backward earlier than the Lower Silurian epoch. I recollect the time when what passed for strong arguments were urged to prove that the former great extension of the Alpine glaciers advocated by Agassiz, and the existence of glaciers in the Highlands, Cumberland, and Wales, proved by him and Buckland, were mere myths. Now, however, there is such a persistent run upon the subject, that more memoirs have been, and still are being, written about it, than perhaps on any other geological question. Coincident with this a beginning of the acceptance of the theory of the recurrence of glacial episodes, is slowly making its way both in England and the Continent.