

be demonstrated to have been originally horizontal or nearly so, there could be no reason for refusing to concede that the same alteration had happened to the other vertical strata, even although they might not afford such obvious and convincing proofs of it. As Steno had long before pointed out, no stratum could have ended off abruptly at the time of its formation, unless against a cliff or slope that arrested its detrital materials from drifting further, nor could it have been accumulated in plicated layers. But nothing is more common than to find strata presenting their truncated ends to the sky, while in some districts they are folded and crumpled, like piles of carpets. Not only so, but again and again, they are found to be sharply dislocated, so that two totally different series are placed parallel to each other.

Hutton recognised that these changes, which were probably brought about at different periods, must be attributed to some great convulsions which, from time to time, have shaken the very foundations of the earth. He could prove that, in some places, the Primary rocks had in this way been broken up and placed on end before the Secondary series was laid down, for, as on the Berwickshire Coast, he had traced the older vertical strata overlain and wrapped round by the younger horizontal deposits, and had also observed, from the well-worn fragments of the former enclosed in the latter, that the interval of time represented by the break between them must have been of considerable duration.

Having been led by this train of observation and deduction, to the demonstration of former gigantic disturbances, by which the bed of the sea had been