

“ The consideration also of the evidences afforded by Geological phenomena may enable us to lay more securely the very foundations of Natural Theology, inasmuch as they clearly point out to us a period antecedent to the habitable state of the earth, and consequently antecedent to the existence of its in-

in immediate contact with them, yet are in the main his greatest safeguard, and indeed essential to his operations.

“ The same faults also, whilst they prevent the water from flowing in excessive quantities in situations where it would be detrimental, are at the same time of the greatest service in converting it to purposes of utility, by creating on the surface a series of springs along the line of fault, which often give notice of the fracture that has taken place beneath.

“ A similar interruption of continuity in the masses of the primitive rocks, and rocks of intermediate age between these and the coal-formation, is found to occur extensively in the work of metallic veins. The vein is often cut off suddenly by a fault or fracture crossing it transversely, and its once continuous portions are thrown to a considerable distance from each other. The line of fracture is usually marked by a wall of clay consisting of the abraded fragments of the rock, whose adjacent portions have been thus dislocated. Such faults are universally known in the mines of Cornwall by the term *flukan*, and they produce a similar advantage to those that traverse the coal-measures in guarding the miner from inundation, by a series of natural dams traversing the rocks in various directions, and intercepting all communication between that mass in which he is conducting his operations, and the adjacent masses on the other side of the *flukan* or dam.

“ It is probable that the greater number of springs, that issue from those rocks which are unstratified, are kept in action through the instrumentality of the faults by which they are intersected.

“ It may be added also, that the faults of a coal-field, by interrupting the continuity of the respective beds of coal, and causing their truncated edges to abut against those of uninflamable strata of shale or grit, afford a preservative which prevents the ravages of accidental fire from extending beyond the area of that sheet in which it may take its beginning, but which, without the intervention of such a provision, might lead to the destruction of entire coal-fields.

“ It is impossible to contemplate a disposition of things so well accommodated, and indeed so essential to the various uses which the materials of the earth are calculated to afford to the industry of its inhabitants, and even to the supply of some of their first wants, and entirely to attribute such a system to the blind operation of fortuitous causes. Although it be indeed dangerous hastily to introduce final causes, yet since it is evident that in many branches of physical knowledge, more especially those which relate to all organized matter, the final causes of the subjects with which they are conversant form perhaps that part of them which lies most obviously open to our cognizance, it would surely be as unphilosophical to scruple at the admission of these causes when the general tenor and evidence of the phenomena naturally suggest them, as it would be to introduce them gratuitously unsupported by such evidence. We may surely therefore feel ourselves authorized to view, in the Geological arrangement above described, a system of wise and benevolent contrivances prospectively subsidiary to the wants and comforts of the future inhabitants of the globe, and extending itself onwards, from its first formation through all the subsequent revolutions and convulsions that have affected the surface of our planet.”