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SCRIPTURAL GEOLOGY;

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AN ESSAY

OR

HIGH ANTIQUITY ASCRIBED TO THE ORGANIC

REMAINS IMBEDDED IN STRATIFIED ROCKS:

Communicated, in Abstract, to the Geological Section of the British Association, at the Annual Meeting held in Newcastle.

IN TWO PARTS.

Part I.—Proving that the Strata, instead of requiring myriads of ages for their formation, may have been deposited nearly about one period.

Part II.—Shewing that the Deluge was the period, when all the Secondary and Tertiary Rocks were formed.

THE END.

BY

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But let me assure him that that common sense has so many partisans among the British public, that sooner or later, in spite of all his kicks and calculations, the opinions of common sense will ultimately prevail.

P R E F A C E .

The substance of the following Essay was communicated to the Geological Section of the British Association, at their recent Meeting in Newcastle; but owing to the number and length of other communications made to that Section, the First Part alone was admitted, and was read only in abstract. As the subject is one of no small importance, both to religion and to science, the author, following the advice of some respected friends, has enlarged his Essay, and now presents it to the public.

While the Essay was in progress, "The Doctrine of the Deluge," by the Rev. L. Vernon Harcourt, was announced; and the author at first supposed, that the publication of that respected Divine might have superseded his own; yet upon seeing that valuable work, he found it to be chiefly occupied with the historical evidences of the question, whereas the present work takes up its geological evidences. From notices in some periodical publications, it appears that others are engaged in the same task; but not having seen their productions, the author cannot say how far their views may coincide with his own.

It is common to raise a cry against theories, and to urge the necessity of collecting more facts; and the principle might be just, if all would adopt it; but what geologist is there, even among those who are most diligent in collecting facts, that has not his favourite theory, in support of which, his descriptions and statements are selected and arranged? No collector has been more indefatigable than Mr. Lyell; and yet none is more given to theorizing. Now, if theories wild and dangerous be

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advanced by one party; another may be allowed to bring forward a hypothesis more sober and rational.

In opposing the extravagant speculations of some popular geologists, the author has drawn his chief arguments from the phenomena of nature, partly as witnessed by himself, partly as described by others; and he has not scrupled to avail himself of useful statements and principles, laid down and illustrated by those authors with whom he is at variance on the main subject of his Essay. The advocates of the pre-adamite theory often speak as if all the facts and evidences were on their side, and nothing but the testimony of scripture on the other side. The gross injustice of such reflections, the reader, it is hoped, will not fail to perceive. These geologists complain, and have a right to complain, of those who stigmatize them as atheists, infidels, and enemies to revelation: yet they ought to remember, that they have no right, on their part, to denounce their opponents as bigots, fanatics, ignorant, and illiberal. It is not by hard names, but by strong arguments, that the cause of truth is to be established.

The author does not pretend to have brought forward a complete theory. He is aware that the subject is beset with difficulties: yet if these difficulties are more easily surmounted by his hypothesis, than by any other, his labour has not been in vain. He has at least exposed some of the absurdities of the pre-adamite scheme; and although he has little hope of making converts of those who have wholly given themselves up to that fascinating delusion, his Essay may be of use to guard others against running into those wild imaginations, which are alike dangerous to science and to religion.

Whitby, November 5th, 1838.

SCRIPTURAL GEOLOGY,

&c.

PART I.

Extravagant notions entertained respecting the antiquity of organic remains.—Not supported by any valid arguments.—Reasons for believing that fossil vegetables and animals did not live where they are found, but were drifted thither.—Appearances in the strata indicating that they might all be deposited about one period.—Objections answered.

From the nature of the materials with which Geology has to do, it might be thought to discourage the flights of imagination; and yet there is scarcely a science in which imagination has had more scope. The extravagant theories of ancient cosmogonists are well known, and have often been held up to ridicule; but many speculations of modern geologists are almost equally extravagant. Valuable collections of facts, illustrating the subjects of geological study, are indeed rapidly accumulating, and must eventually turn to good account; yet even some of the most diligent and zealous collectors of such facts, indulge in the wildest fancies, instead of making a legitimate use of the phenomena before them.

Such is the case with those authors who ascribe an almost immeasurable antiquity to the organic remains occurring in the crust of the earth. Assuming that the animals and vege-

tables imbedded in stratified rocks, have lived and flourished on the spots where we find them, and calculating on a number of ages as required for the gradual deposition of the strata, and for the production, increase, decay, and destruction of these organic bodies; each group or division of which, they assign to a distinct period in the annals of our globe;—such geologists would thus carry back its antiquity to a time inconceivably remote; the older groups being supposed to have existed millions of years, if not ages, prior to the creation of man. According to them, there have been on the face of this planet, a long succession of creations and destructions, corresponding with the successive formations of stratified rocks; the lowest fossiliferous bed being the first, and the present living world, the last in the series. In this process of extension, they eagerly lay hold on the most trivial circumstance that seems to favour their theory, as if resolved to spin out the duration of the globe to as great a length as possible. They picture to themselves a multitude of primeval worlds, each garnished with its peculiar race of animals and vegetables, each subsisting for thousands of years, but at length overwhelmed, to make way for a new race, destined in its turn to grow, to flourish, and to be destroyed.

In these sports of fancy, there is doubtless something fascinating, as well as novel. The imagination delights to fly back into such remote ages, and to enjoy itself in roving amidst the

beauties and singularities of such distant and diversified worlds. But if we would follow the maxims of sound philosophy, we must not suffer our imagination to mislead our judgment. However gratifying to the fancy these pre-adamite creations may appear, we must regard them as utterly fabulous, unless we can discover some clear proofs of their existence. Is there, then, any thing in the strata, or their imbedded relics, to indicate such high antiquity? We see the crust of the earth composed of a vast series of beds, which must have been deposited one over another by water; with a number of irregular masses, which appear to be of igneous origin, and may be supposed to have been ejected from below, by some volcanic expansive force: but, as we discern nothing in the latter class of rocks to shew how long they were in being heaved up, so we perceive not any thing in the former, to shew what time was occupied in their deposition.

The regularity with which the depositions have been made, and the remarkable thinness of some of the seams, are, indeed, urged as proofs, that the process has been very slow, and that an immense period of time must have been required to form the whole series. The ripple-marks on many of the beds, and the laminated texture of others, are particularly appealed to, as decisive evidences of a leisurely and long protracted deposition. But do we not witness on our sandy shores, where ripple-marks abound, the formation of strata in miniature, often accumulating

to a considerable thickness in a few days? When a storm, or high tide, has broken down, and swept away, any large sand bank; its materials, in less than a week, are redeposited on another part of the beach, where they form a new bank, perhaps some yards in thickness, composed of regular layers of sand, clay, gravel, sea-weed, and comminuted coal. The orderly appearance and laminated texture of stratified rocks, therefore, cannot prove, that a vast period was employed in producing them. Suppose that the *lunineæ*, or seams, of the strata, are so thin that twenty are required to make an inch; if each successive wave deposits such a seam, and five waves occur in a minute, it will require only four minutes to deposit an inch: and as the ocean takes no rest at night, and keeps no sabbath, it is easy to see that, with every minute so employed, thirty feet of strata may be formed in a day, and no less than nine hundred feet in a month; provided there are currents to supply the materials. At this rate, the whole series of stratified rocks, instead of requiring ages, might be formed within a very limited period. In some instances, the process of deposition might be considerably slower; but in others it might be much more rapid, without causing any confusion or derangement in the beds produced.

Nor do we find in the imbedded relics any decisive evidence of extreme antiquity: for although each bed, or series of beds, may generally be distinguished by some peculiar fossils, it

does not follow, that they are of different creations. There is nothing to demonstrate, that long periods intervened between the successive depositions; nor are we warranted to affirm, that these diversified groups of animals and vegetables could not have been coexistent.

Some have alleged, in proof of the pre-adamite theory, that in tracing the beds upwards, we discern among the inclosed bodies, a gradual progress from the more rude and simple creatures, to the more perfect and completely organized; as if the Creator's skill had improved by practice. But, for this strange idea there is no foundation: creatures of the most perfect organization occur in the lower beds, as well as in the higher. Nor is there much more to support the assertion, that in ascending from the lower formations, we can trace a gradual approximation to the present living races. In some of the tertiary strata, or the beds above the chalk, the fossil genera and species are, indeed, nearly identical with those now existing; but what approximation can be seen in the secondary strata? Fishes, zoophytes, ammonites, belemnites, terebratulæ, &c., occur in almost every portion of them; but those in the inferior strata have as much similarity to the living races as those in the superior. The fishes and reptiles of the lias have fully more resemblance to existing species, than those of the chalk; and there are no shells in the cretaceous or oolitic beds, more closely allied to those of living mollusca,

than the shells of the *cardium*, *nucula*, *mya*, *unio*, and *ostræa* families, found in the lias. The alleged approximation, therefore, is in a great measure imaginary, and cannot be admitted as an argument on the point in question.

But the grand source of error, as to the antiquity of the strata and their contents, is the assumption, that the imbedded animals and vegetables lived, flourished, and died, on the spots which they now occupy, instead of being drifted thither. This is a subject which requires close investigation. Let us begin with the vegetable remains. It is now almost universally allowed, that coal is of vegetable origin, produced from the trees and plants of a former world; and of course, that vast forests must have perished, to compose the immense beds of coal, occurring in Britain, and other countries. Did each of these beds, then, originate in a submerged peat bog, or a forest overwhelmed *in situ*, as some allege? There are coal beds twenty or thirty feet thick: was there ever a forest or peat bog in the world, that when overwhelmed, and consequently compressed, could yield a bed of coal of such thickness? To produce such a stratum, the vegetable matter of a forest, or bog, must have been set afloat, and drifted together, one part being heaped up over another.

But, should we suppose it possible, that a submerged forest or bog could produce such a bed, without drifting or accumulation, a much stronger objection to the submerging system still remains.

There are numerous beds, or seams, of coal, in each coal field; in some instances, thirty, forty, or even fifty seams; alternating with strata of sandstone, shale, limestone, or ironstone; which strata have been all deposited by the waters of the ocean. Was each of these coal seams once a forest, growing on the spot? Did the land sink down, to become the bed of the sea; and then rise again, to become the site of a forest, fifty times in succession; without destroying the conformity of the strata, or leaving the slightest vestige of such mighty agitation? An idea so monstrous can never be maintained. It is clear, that the carboniferous series of rocks, both in the greater and smaller coal fields, have all been formed by ocean currents, drifting and depositing the materials, whether vegetable, animal, or mineral, in successive layers. Accordingly, Professor Phillips, in his valuable *Treatise on Geology*, p. 180, inquires from what land the materials of the carboniferous strata of England were drifted; and remarks on the subject; "The Lammermuir mountains, to the north, seem not to be of such composition as would yield the coarse quartzose sandstones; we must therefore appeal to the Grampian or Scandinavian ranges; or finally close all further discussion, by admitting that tracts of land which supplied part of the sediments, mixed with the limestone of the carboniferous period, have disappeared from the Northern and Western Oceans."

While the most judicious geologists allow

