

of *final causes*, or the conditions of existence, affords a wide scope to our reason in Natural History, but especially in Geology. It becomes an interesting inquiry, if any reason can be assigned why at certain periods species began to exist, and became extinct after the lapse of lengthened periods of time, and why the higher classes of being succeeded the lower in the order of creation? The incompleteness of geological science, however, does not permit us to remove, for the present, the veil which hangs over this mysterious chronology; but our author is of opinion that in about a quarter of a century, in a favored locality like the British Islands, geological history "will assume a very extraordinary form."

It is a singular fact, which will yet lead to singular results, that Cuvier's arrangement of the four classes of vertebrate animals should exhibit the same order as that in which they are found in the strata of the earth. In the *fish*, the average proportion of the brain to the spinal cord is only as 2 to 1. In the *reptile*, the ratio is $2\frac{1}{2}$ to 1. In the *bird*, it is as 3 to 1. In the *mammalia*, it is as 4 to 1; and in *man*, it is as 23 to 1. No less remarkable is the foetal progress of the human brain. It first becomes a brain resembling that of a fish; then it grows into the form of that of a reptile; then into that of a bird; then into that of a mammiferous quadruped, and finally it assumes the form of a human brain, "thus comprising in its foetal progress an epitome of geological history, as if man were in himself a compendium of all animated nature, and of kin to every creature that lives."

With these considerations, Mr. Miller has brought his subject to the point at which Science in its onward progress now stands. It is to embryology we are in future to look for further information upon the most intimate relations which exist between all organized beings. We may fairly entertain the hope that the time is not far when we shall not only fully understand the Plan of Creation, but even lift some corner of the veil which has hitherto prevented us from forming adequate ideas of the first introduction of animal and vegetable life upon earth, and of the changes which both kingdoms have undergone in the succession of geological ages.

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