

provisionally termed *protozoic*, and the lower Silurian rocks may probably be looked upon as its upper members. Below this, geologists place a *hypozoic* or *azoic* series of rocks.

Geologists differ as to the question whether these changes in the inhabitants of the globe were made by determinate steps or by insensible gradations. M. Agassiz has been led to the conviction that the organized population of the globe was renewed in the interval of each principal member of its formations.<sup>8</sup> Mr. Lyell, on the other hand, conceives that the change in the collection of organized beings was gradual, and has proposed on this subject an hypothesis which I shall hereafter consider.]

*Sect. 2.—Transition to Geological Dynamics.*

WHILE we have been giving this account of the objects with which Descriptive Geology is occupied, it must have been felt how difficult it is, in contemplating such facts, to confine ourselves to description and classification. Conjectures and reasonings respecting the causes of the phenomena force themselves upon us at every step; and even influence our classification and nomenclature. Our Descriptive Geology impels us to endeavor to construct a Physical Geology. This close connexion of the two branches of the subject by no means invalidates the necessity of distinguishing them: as in Botany, although the formation of a Natural System necessarily brings us to physiological relations, we still distinguish Systematic from Physiological Botany.

Supposing, however, our Descriptive Geology to be completed, as far as can be done without considering closely the causes by which the strata have been produced, we have now to enter upon the other province of the science, which treats of those causes, and of which we have already spoken, as *Physical Geology*. But before we can treat this department of speculation in a manner suitable to the conditions of science, and to the analogy of other parts of our knowledge, a certain intermediate and preparatory science must be formed, of which we shall now consider the origin and progress.

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<sup>8</sup> *Brit. Assoc. Report 1842*, p. 83.