

by an oldland area whether it be a region of metamorphosed rocks, such as we find in the great Archean areas of Canada, or by an oldland area consisting of sediments deposited at some preceding time, but subsequently uplifted. In this latter case there may be temporary irregularities in the supply of material for any one or two of the different zones, and it is quite probable that the coarser material in its  $(n + 1)th$ . transportation, assuming that the sedimentary beds supplying it represent the  $nth$  series of beds of which it has formed a part, will be in a somewhat finer state of division. Hence that material which in the  $nth$  series of sedimentaries occurs in the shore zone, may in the  $(n + 1)th$  series be found in part, at least, in the two outer zones. Quite frequently also, material derived from beds formed in a preceding cycle of deposition will retain in its new position, certain characteristics (of color, form, structure, content) which make it possible to recognize that it belonged to a preceding cycle of sedimentation. On the other hand, it will often lose these characteristics, and then it will be impossible to infer the number of cycles of sedimentation through which it has passed to its present resting place.

Directly or indirectly, the materials which go to form the sub-aqueous deposits are derived chiefly from the waste of the land. In the case of the limestones of various types and, in part, of some of the shales, the material of which they are composed is less often a direct derivative of the waste of the oldland, more frequently it is a secondary product due to the intervention of organic life or to chemical action. In the previous discussion reference was made to the normal existence of a zone in which limestone would be formed. When we consider the usual manner of the formation of this limestone it became necessary to *modify*, to a certain extent, our primary theoretical concept. Along the margin of the land within the zones of deposition of sands and shales, the materials