

able, that strictly synchronous beds may be found in each of the three zones though the thickness *may vary considerably and the strata of some beds may not have synchronous representatives in the other beds.*

During the time of the formation of any given bed (or group of beds formed within a given small interval) the forms of life existing at that time will be distributed over the surface of that bed, each in its appropriate locality, the sand-loving forms in the sand zone, the mud-loving forms in the areas which afterwards become shale, and the forms which thrive best in deeper or clearer water, beyond. At the transition zones where there is a merging of conditions there will be a merging of forms. It may happen also that a form normally a habitant of one zone is accidentally carried to another. These may be regarded as accidents in the normal distribution. Occasionally a form migrating from one zone to another will, in the process of its migration, take on different features because of its environment, eventually undergoing such changes that it would be classed as a species different from the descendants of its parent forms which remained in the original habitat. Some few forms may exist in all three zones, and fossil forms of these types will be of special value in the correlation of beds of different zones. It must be noted, however, that in the study of fossil forms which are found common to all three zones the question whether the forms have migrated during the course of time from one zone to another must be considered, and the beds in which such similar forms are found need not necessarily be of the same age, but may be successively older or younger than the bed in which the like forms are found.

In the production of a series of deposits the final product is the function of many varying factors. The two most important of these factors, and which for this reason may be termed primary factors, are the *Rate of Depression of the Land* and the *Rate of Supply of Detritus*. Such a factor as the *Character of the Material* may, by