

of correlation of organic structure with environment. Faunas change as the physical surroundings change; but if the physical surroundings remain changeless, the faunas remain changeless. Down in the deep sea, with a constant temperature of freezing water; with perpetual absence of the stimulus of light; without motion; without change of chemical conditions—with almost absolute changelessness for ages, why should organisms change? They are now suited to the environment; they could not change without becoming *unsuited* to the environment. The forms from the Age of Chalk have survived because a deeper principle than that of succession of faunas has been dominant. It is the principle of *correlation of environment and organism*. The animal must be adapted to its surroundings. Nearly all the populations which have lived dwelt on land or in comparatively shallow water, where environment was undergoing progressive change; hence succession of faunas. A few deep sea species have dwelt where change of physical conditions is almost unknown; hence a nearly changeless fauna. Thus a piece of chalk reveals a deep and important principle.

The position of the chalk-beds in the series of geological formations is nearly at the top of the Cretaceous System. The System, besides the beds of chalk, contains strata of sand and clay. One variety of sand is green, and in New Jersey, opposite Philadelphia, it is dug extensively for fertilizing soils, since, as you will infer, it is not a purely silicious sand, but contains a large percentage of potash. The Cretaceous strata extend along the belt parallel to the Atlantic and Gulf coasts, into Mexico; but from Maryland to Georgia, the Atlantic belt is mostly covered and concealed by the Tertiary beds. From middle Georgia, a broad belt extends into eastern Mississippi, and thence north to the Ohio river near Cairo. West of this, the Cretaceous strata are concealed by Tertiary and Mississippi alluvium, as far as Little Rock. Near here an exposed belt begins which widens extensively toward the southwest, through Texas. Remember that the place of the Tertiary strata is always between the Cretaceous and the ocean. The Cretaceous