

he will observe the same echinites associated with the same shells; nearly half these echinites he will perceive belong to divisions of that family unknown in a recent state, and indeed in any other fossil bed except the chalk. If he next proceeds to inspect parcels of fossils from the carboniferous limestone, from whichever of the above localities they may have been brought, he will find them to agree in the same manner with each other; that is, he will find the same corals, the same encrinites,* the same productæ, terebratulæ, spiriferæ, &c.; but if he lastly compares the collection from the chalk with that from the mountain lime, he will not find one single instance of specific agreement, and in very few instances any thing that would even deceive an unpractised eye by the superficial resemblance of such an agreement.

The difference between these distant formations, in this respect, is indeed much greater than that between those which are more nearly contiguous; but still even between these, there are generally considerable, though less striking distinctions, as to the species of organic remains contained.

If we cast a rapid view over the phœnomena of this distribution, the subject must appear to present some of the most singular problems which can engage the attention of the enquirer into nature; first, we have a foundation of primitive rocks destitute of these remains; in the next succeeding series (that of transition) corals, encrinites, and testacea, different however from those now known, appear at first sparingly; the fossil remains of the carboniferous limestones are nearly of the same nature with those in the transition rocks, but more abundant; the coal-measures, however, themselves, which repose on this limestone, scarcely present a single shell or coral; but on the contrary abound with vegetable remains, ferns, flags, reeds of unknown species, and large trunks of succulent plants, strangers to the present globe. Upon the coal rest beds again containing marine remains (the magnesian limestone); then a long interval (of new red sandstone) intervenes, destitute almost, if not entirely, of organic remains, preparing as it were the way for a new order of things. This order commences in the lias, and is continued in the oolites, green and iron sands, and chalk. All these beds contain corals, encrinites, echinites, testacea, crustacea, vertebral fishes, and marine oviparous quadrupeds, yet widely distinguished from the families contained in the lower beds of the transition and carboniferous class, and par-

* Of that important division of the encrinital family, *Crinoidea inarticulata* of Miller, which appears confined to the older rocks, i. e. carboniferous and transition limestone, as are the *Crinoidea articulata* to the more recent lias, oolite, chalk, &c.