required for the gradual upheaval of the rocks, and the excavation of the valleys. The historical period seems scarcely to form an appreciable unit in this computation, for we find ancient Greek temples, like those of Girgenti (Agrigentum), built of the modern limestone of which we are speaking, and resting on a hill composed of the same; the site having remained to all appearance unaltered since the Greeks first colonized the island.

The modern geological date of the rocks in this region leads to another singular and unexpected conclusion, namely, that the fauna and flora of a large part of Sicily are of higher antiquity than the country itself, having not only flourished before the lands were raised from the deep, but even before their materials were brought together beneath the waters. The chain of reasoning which conducts us to this opinion may be stated in a few words. The larger part of the island has been converted from sea into land since the Mediterranean was peopled with nearly all the living species of testacea and zoophytes. We may therefore presume that, before this region emerged, the same land and river shells, and almost all the same animals and plants, were in existence which now people Sicily; for the terrestrial fauna and flora of this island are precisely the same as that of other lands surrounding the Mediterranean. There appear to be no peculiar or indigenous species, and those which are now established there must be supposed to have migrated from pre-existing lands, just as the plants and animals of the Neapolitan territory have colonized Monte Nuovo, since that volcanic cone was thrown up in the sixteenth century.

Such conclusions throw a new light on the adaptation of the attributes and migratory habits of animals and plants to the changes which are unceasingly in progress in the physical geography of the globe. It is clear that the duration of species is so great, that they are destined to outlive many important revolutions in the configuration of the earth's surface; and hence those innumerable contrivances for enabling the subjects of the animal and vegetable creation to extend their range; the inhabitants of the land being often carried across the ocean, and the aquatic tribes over great continental spaces. It is obviously expedient that the terrestrial and fluviatile species should not only be fitted for the rivers, valleys, plains, and mountains which exist at the era of their creation, but for others that are destined to be formed before the species shall become extinct; and, in like manner, the marine species are not only made for the deep and shallow regions of the ocean existing at the time when they are called into being, but for tracts that may be submerged or variously altered in depth during the time that is allotted for their continuance on the globe.

OSSEOUS BRECCIAS AND DEPOSITS IN CAVES OF THE PLIOCENE PERIOD.

Sicily.—Caverns filled with marine breccias, at the base of ancient sea-cliffs, have been already mentioned in the sixth chapter; and it was noticed, respecting the cave of San Ciro, near Palermo (p. 75), that upon