at the top, have not unfrequently been mistaken for trees that have the true woody structure.

The progressive development and succession of more perfect forms, as we ascend from the ancient to the most recent strata, appears confirmed by the fossil remains both of animals and vegetables. These remains afford a mass of positive concurrent evidence that cannot be refuted by negative arguments. We are told, that the bed of the sea has not been dredged, to discover what species of animals have existed in former ages. The geologist can have no need of such an operation. If the bottom of the sea has not been dredged, it has been laid bare, and is now exposed, over an extent equal to that of the habitable globe. For every island and continent has formed part of an ancient bed of the ocean, and that not only once, but repeatedly and at distant epochs. This extended surface of the bed of the ancient ocean, is exposed to the examination of thousands of observers in every degree of latitude, not covered by polar snows. These examinations have hitherto confirmed the position (taken with certain limitations) that a progressive development of more perfect organic forms, both in the animal and the vegetable kingdoms, may be traced, from the most ancient rocks in which these remains appear, through the different classes of rock, until we ascend to the most recent, which contain remains of animals analogous to existing species. All or nearly all the instances that have been cited of animals of the higher classes being found in ancient strata have proved, on further examination, to be fallacious; yet when we consider what disturbing causes have acted on the crust of the globe, it need not appear surprising if recent species of animals should sometimes be found buried in the lower rocks: this, however, would not affect the present question. The subject will be referred to in a subsequent chapter.

In fossil vegetables, the original vegetable matter is, often, so completely removed, that no trace of it is visible, and the stem appears converted into ironstone, sandstone, or chert. In some instances, the surface of the stem is black and carbonaceous, and all the inner part is mineralized. Sometimes, even when the stem is completely silicified, the vegetable organization is still perceptible, and some traces of the vegetable principles may be obtained, by distillation.

As most of the vegetable remains found, both in the secondary and tertiary strata, are analogous to the plants of tropical climates, it has been inferred that the temperature of the globe was, once, considerably higher than at present. It cannot be denied, that there are many geological phenomena which strongly favour this conclusion: there are, however, some striking facts which seem opposed to it. The consideration of this question will, therefore, be resumed in another part of the present volume.