loose, as yet uncompacted, débris out of which solid rocks may eventually be formed. Hence in the following arrangement, the modern and the ancient, being one in structure and mode of formation, are classed together.

It will be observed that, in several directions, we are led by the fragmental rocks to crystalline stratified deposits, some of which have been deposited from chemical solution, while others have resulted from the gradual conversion of a detrital into a crystalline structure. Both series of deposits are accumulated simultaneously and are often interstratified. Calcareous rocks formed of organic remains (p. 243) exhibit very clearly this gradual internal change, which more or less effaces their detrital origin, and gives them such a crystalline character as to entitle them to be ranked among the crystalline limestones.

1. Gravel and Sand Rocks (Psammites)

As the deposits included in this subdivision are produced by the disintegration and removal of rocks by the action of the atmosphere, rain, rivers, frost, the sea, and other superficial agencies, they are mere mechanical accumulations, and necessarily vary indefinitely in composition, according to the nature of the sources from which they are derived. As a rule, they consist of the detritus of siliceous rocks, these being among the most durable materials. Quartz, in particular, enters largely into the composition of sandy and gravelly detritus. Fragmentary materials tend to group themselves according to their size and relative density. Hence they are apt to occur in layers, and to show the characteristic *stratified* arrangement of *sedimentary* rocks. They may inclose the remains of any plants or animals entombed on the same sea-floor, river-bed, or lake-bottom.

In the majority of these rocks, their general mineral composition is obvious to the naked eye. But the application of the microscope to their investigation has thrown considerable light upon their composition, formation, and subsequent mutations. Their component materials are thus