

from them. Hence in the following enumeration they are included as common accompaniments of the schists. Quartzite also may be placed in this subdivision, though in its typical condition it shows no schistose structure.

The origin of the crystalline schists has been the subject of long discussion among geologists. Werner held that, like other rocks of high antiquity, they were chemical precipitates from a universal ocean. Hutton and his followers maintained that they were mechanical aqueous sediments altered by subterranean heat. These two doctrines in various modifications are still maintained by opposite schools. In recent years much light has been thrown upon the origin of the schistose structure, which has been shown to be in many cases due to the mechanical crushing and chemical readjustment and recrystallization of the materials of both sedimentary and igneous rocks. This subject is discussed in a later part of this work. (See Book IV. Part VIII.)

It is obvious that a wide series of rocks embracing variously altered forms of both sedimentary and igneous materials hardly admits of any simple system of classification. Regarding them from the point of view of the nature of the metamorphism they have undergone, geologists have sometimes grouped these rocks as resulting either from contact metamorphism, that is, from the effects of the protrusion of igneous matter from within the earth's interior, or from regional metamorphism where the changes have been brought about by some widespread terrestrial disturbance (Book IV. Part VIII.). But this arrangement, though of value in discussing questions of metamorphism, has the disadvantage of introducing theoretical considerations, and of placing in different groups rocks which undoubtedly present the same general petrographical characters. Avoiding all disputed