work accomplished now and in former epochs by the physical and chemical agencies of subterranean water.

Chemical Action of Water.—The importance of water as a chemical agent was early recognised, and its corrosive effects on rocks were frequently discussed in the older literature. K. G. Bischof[1] created a new scientific basis for this field of geology. With admirable mastery of the subject, Bischof set forth in his *Text-book of Chemical and Physical Geology* (1846-47) all the chemical processes which take place when meteoric water and different kinds of aqueous solutions come in contact with rocks. He also enumerated and described the minerals and rocks according to their chemical composition, structure, texture, and characteristic modes of decomposition. The new branch of geology thus outlined by Bischof attracted great interest, and soon a large number of special memoirs made their appearance. One of the best known works on mineral decomposition was published in 1886 by Sterry Hunt; it treats for the most part the appearances of decay in crystalline rocks.

Evidences of meteoric weathering of the rocks are shown in the changes of colour produced by oxidation, and in the removal of the more soluble mineral constituents of rocks. The superficial inequalities and degradation produced by sub-aerial agents are enhanced by the percolation of water through the body of the rock. Continued disintegration of the rocks gives origin to soils and coarser *débris*, and the effect of disintegration may often extend to a considerable depth below the surface, gradually rotting and loosening a whole mass of rock. The weathering caused by chemical changes alone cannot, however, be regarded as a leading factor in producing land-forms. Only the minor features of surface conformation are due to the decay of rock *in situ*. The chemical and mechanical forces of water must combine to produce the major effects in surface conformation. The rapid removal of decaying mineral matter by streams and rivers exposes fresh rock surfaces to the disintegrating chemical action of the

[1] Karl Gustav Bischof, born 1792 in Nürnberg, studied in Erlangen, and was afterwards a university tutor there. In 1819 he was made extra-Ordinary Professor of Chemistry in Bonn; in 1822 he received the full professorship, and contributed in a high degree to the fame of that university; died 30th November 1870 at Bonn.