Part VIII. Metamorphism, Local and Regional

At the outset some caution must be employed as to the use of the terms "metamorphism" and "metamorphic." It is obvious that we have no right to call a rock metamorphic, unless we can distinctly trace it into an unaltered condition, or can show from its internal composition and structure that it has undergone a definite change, or can prove its identity with some other rock whose metamorphic character has been satisfactorily established. Further, it must be remembered that, in a certain sense, all or nearly all rocks may be said to have been metamorphosed, since it is exceptional to find any, not of very modern date, which do not show, when closely examined, proofs of having been hardened by the pressure of superincumbent rock, and altered by the action of percolating water or other daily acting agent of change. Even a solid crystalline mass, which, when viewed on a fresh fracture with a good lens, seems to consist of unchanged crystalline particles, will often betray under the microscope unmistakable evidence of alteration. And this alteration may go on until the whole internal organization of the rock, so far at least as we can penetrate into it, has been readjusted, though the external form may still remain such as hardly to indicate the change, or to suggest that any new name should be given to the recomposed rock. Among many igneous rocks, particularly the more basic kinds (diabases, basalts, andesites, diorites, olivine rocks, etc.), alteration of this nature may be studied in all stages.[1]

But mere alteration by decay is not what geologists de-

[1] See Index, sub voce, "Weathering."