

of these bosses had been blown out, pushed up, or melted down into the advancing column of the igneous magma. If any serious amount of material were incorporated by fusion into an eruptive mass we should expect to be able to detect some change in the chemical composition or crystalline structure of the rock so affected. The observations and deductions of Dr. Stecher on the change in the composition of intrusive sheets (Book IV. Part VIII.) deserve full consideration, for they appear to indicate that considerable differences may be induced on an igneous mass by the incorporation into its substance of portions of the surrounding rocks.

**Connection with Volcanic Action.**—There can be little doubt that in regard to eruptive masses, particularly of the dioritic, gabbro, and doleritic or basaltic series, though the portions now visible consolidated under a greater or less depth of overlying material, they must in many cases have been directly connected with superficial volcanic action. Some of them may have been underground ramifications of the ascending molten rock which poured forth at the surface in streams of lava, though these superficial portions have been removed by denudation. Others may mark the position of intruded masses which were arrested in the unsuccessful attempt to open a new volcanic vent. The gabbro and granophyre bosses of the Inner Hebrides were undoubtedly a part of the general Tertiary volcanic phenomena of that region.

**Connection with Crystalline Schists.**—In some regions masses of diorite, gabbro, diabase, etc., associated with crystalline schists, have undergone such a rearrangement of their component minerals as to pass into amphibolites and hornblende-schists. These changes