into dolerite and basalt. In fresh examples they are dark gray, or even black rocks with a compact ground-mass, through which striated felspar prisms may generally be observed. They often assume cellular and porphyritic structures. At the one end of the series stand rocks containing free silica (Dacite), while at the other are basalt-like masses of much more basic composition (Aguite-andesite). Under the microscope the ground-mass presents more or less of a pale brownish glass with abundant felspar microlites.

Dacite (Quartz-andesite)—composed mainly of plagioclase, quartz, and mica, with a varying amount of sanidine as an accessory constituent, and, by addition of hornblende and pyroxene, graduating into hornblende-andesite. The ground-mass has a felsitic, sometimes spherulitic, glassy, or finely granular base. Composition: silica, 69·36; alumina, 16·23; iron oxides, 2·41; lime, 3·17; magnesia, 1·34; alkalies, 7·08; water, 0·45. Mean specific gravity, 2·60. This rock is extensively developed in the Great Basin and other tracts of western North America among Tertiary and recent volcanic outbursts.

Hornblende-andesite[189] consists of a triclinic felspar (usually oligoclase), with hornblende, augite, or mica. The ground-mass resembles that of trachyte, presenting sometimes remains of a pale glass. The porphyritic minerals frequently show evidence of having been much corroded before consolidation. Composition: silica, 61·12; alumina, 11·61; oxides of iron, 11·64; lime, 4·33; magnesia, 0·61; potash, 3·52; soda, 3·85; ignition, 4·35. Hornblende-andesite is a volcanic rock of Tertiary and post-Tertiary date found in Hungary, Transylvania, Siebengebirge, and in some of the Western Territories of the United States. According to researches by Messrs. Hague and Iddings, gradations from this rock into basalt and hypersthene-andesite can be traced in California, Oregon, and Washington. These rocks, therefore, cannot be said to have sharply defined and distinct forms.[190] Under the name of Hornblende-mica-andesite American petrographers have described a frequent variety of rock throughout the Great Basin, characterized by the vitreous appearance of its felspar, its rough porous trachyte-like ground-mass, and the presence of mica

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[189] See Zirkel, "Microscop. Petrog." p. 122. King, in vol. i. of "Explor. 40th Parallel," p. 562. Hague and Iddings, Amer. Journ. Sci. xxvi. (1883), p. 230.

[190] Amer. Journ. Sci. Sept. 1883, p. 233.