numbers of minute gas- or vapor-cavities, usually drawn out in one direction, also abundant crystallites like those of obsidian. Owing to its porous nature, pumice possesses great buoyancy and readily floats on water, drifting on the ocean to distances of many hundreds of miles from land, until the cells are gradually filled with water, when the floating masses sink to the bottom.[181] Abundant rounded blocks of pumice were dredged up by the "Challenger" from the floor of the Atlantic and Pacific Oceans.

ii. Intermediate Series

In this series, the average percentage of silica is considerably less than in the acid series (56–66 per cent). Free quartz is not found as a marked constituent, although occasionally it occurs in some quantity, as microscopic examination has shown in the case even of some rocks where the mineral was formerly believed to be absent. A range of structure is displayed similar to that in the acid series. The thoroughly crystalline varieties are typified by syenite (and diorite), representing the granites of the acid rocks, those which possess a porphyritic ground-mass by orthoclase-porphyry, trachyte, and andesite, answering to quartz-porphyry and rhyolite, while the vitreous condition is represented among the trachytes and andesites by dark glasses of the obsidian and pitchstone types.

Syenite.—This name, formerly given in England to a granite with hornblende replacing mica, is now restricted to a rock consisting essentially of a holocrystalline mixture of orthoclase and hornblende, to which plagioclase, biotite, augite, magnetite, or quartz may be added. As already mentioned, the word, first used by Pliny in reference to the rock of Syene, was introduced by Werner as a scientific designation. It was applied by him to the rock of the Plauenscher-Grund, Dresden; he afterward, however, made that rock a greenstone. The base of all syenites, like that of granites, is thoroughly crystalline, without an amorphous ground-mass. The typical syenite of the Plauenscher-Grund, formerly described as a coarse-grained mixture of flesh-colored orthoclase and black hornblende, containing no quartz, and with no indication of plagioclase, was regarded as a normal orthoclase-hornblende rock. Micro-

[181] On porosity, hydration, and flotation of pumice, see Bischof, "Chem. und Phys. Geol." suppl. (1871), p. 177.