and spherulitic structure was present in some places. In other experiments where Daubrée applied superheated steam, he obtained orthoclase and a micaceous substance. These experiments gave convincing evidence that the constituents of granite could be of aquo-igneous origin.

Almost simultaneously with Daubrée's investigations, Sorby was engaged in microscopic examination of thin sections of granite. He demonstrated, in 1858, the presence of water vesicles in quartz, and concluded that the granite magma had been saturated with water and had solidified under great pressure at a temperature not above a dull red glow. Delesse, in 1857, drew attention to the great differences between the phenomena of contact metamorphism produced by granite and those produced by lavas, and argued from his observations that the granites had not solidified from a state of dry fusion, but from an eminently plastic magma, whose plasticity was due to the presence of water under high pressure. The theory of the aquo-igneous origin of granite, and of the granite-grained massive rocks generally, began to win wider credence in geological circles.

The rapid progress made by microscopic research after the year 1860 entirely disproved all theories which had assumed an aqueous origin for porphyritic rocks. Examination of thin sections showed conclusively that basalt, phonolite, trachyte, porphyry, etc., were identical in internal structure and composition with true volcanic lavas. Corroborative evidence was afforded by the experimental researches which were conducted, more especially in France, with such eminent success. The attempts to reproduce rock-forming minerals artificially proved that the majority of the constituents in the granitic rocks, such as quartz, orthoclase, microcline, potash mica, tourmaline, hornblende, could be solidified from fused materials by the admixture of water vapours, chlorine, and other solvents, whereas the minerals occurring in volcanic and porphyritic rocks, such as olivine, augite, enstatite, hypersthene, wollastonite, the plagioclase varieties, melilite, nepheline, leucite, magnesia mica, garnet, magnetite, spinel, hæmatite, tridymite, etc., could solidify from a state of dry fusion.

In the year 1878, the efforts of Fouqué and Michel-Lévy to reproduce eruptive rock without the aid of superheated water were at last successful. The chemical elements were placed in