and pressures, the vapor of water acts chemically like the water itself.

Co-operation of pressure.—The effect of pressure must be recognized as most important in enabling water, especially when heated, to dissolve and retain in solution a larger quantity of mineral matter than it could otherwise do,[26] and also in preventing chemical changes which take place at once when the pressure is removed.[27] In Daubrée's experiments above cited, the tubes were hermetically sealed and secured against fracture, so that the pressure of the greatly superheated vapor had full effect. By this means, with alkaline water, he not only produced the two minerals above mentioned, but also felspar and diopside. The high pressures under which many crystalline rocks have solidified is indicated by the liquid carbon-dioxide in the vesicles of their crystals. Besides the pressure due to their varying depth from the surface, they must have been subject to the enormous expansion of the superheated water or vapor which filled all their cavities, and sometimes, also, to the compression resulting from the secular contraction of the globe and consequent corrugation of the crust. Mr. Sorby inferred that in many cases the pressure under which granite consolidated must have been equal to that of an overlying mass of rock 50,000 feet, or more than 9 miles in thickness, while De la Vallée Poussin and Renard from other data deduced a pressure equal to 87 atmospheres (p. 199).

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[26] Sorby has shown that the solubility of all salts which exhibit contraction in solution is remarkably increased by pressure. Proc. Roy. Soc. (1862–63), p. 340.

[27] See Cailletet, Naturforscher, v.; Pfaff, Neues Jahrb. 1871; W. Spring, Bull. Acad. Roy. Belgique, 2d Ser. xlix. (1880), p. 369. Pfaff found that plaster does not absorb water under a pressure of 40 atmospheres.