TABLE 1.—TEST OF HOMOGENEOUS HYPOTHESIS FOR INTERNAL CONSISTENCY ON 150°C, DRY, DATA

Orientation	Strain for s = .1 per cent	σ_{obs}	F_a	F_b	$F_a + 1.41 F_b$	σ_{calc}	$\frac{\sigma_{calc}}{\sigma_{obs}}$
Q—Comp.	3.68	2250	.72	2.00	3.54	2030	.91
Q—Ext.	3.77	1680	2.20	.45	2.83	1620	.96
R—Comp.	3.10	1880	2.96	.27	3.34	1920	1.02
R—Ext.	3.01	2320	.64	2.68	4.42	2540	1.09
d—Ext.	3.08	2100	2.13	1.11	3.70	2120	1.01

by Griffiths (1937) to be 0.45 per cent. Since 0.52 per cent is the maximum achieved in these experiments, it would appear that the porosity is not sensibly increased under the conditions of our tests. Figure 3 shows the effect on the stress-strain curves of varying amounts of water, all other conditions remaining the same.

It had previously been reported (Griggs, 1940; Knopf, 1949) that at 150°C, in the presence of commercial carbonated water, the stress-strain curve was grossly different from

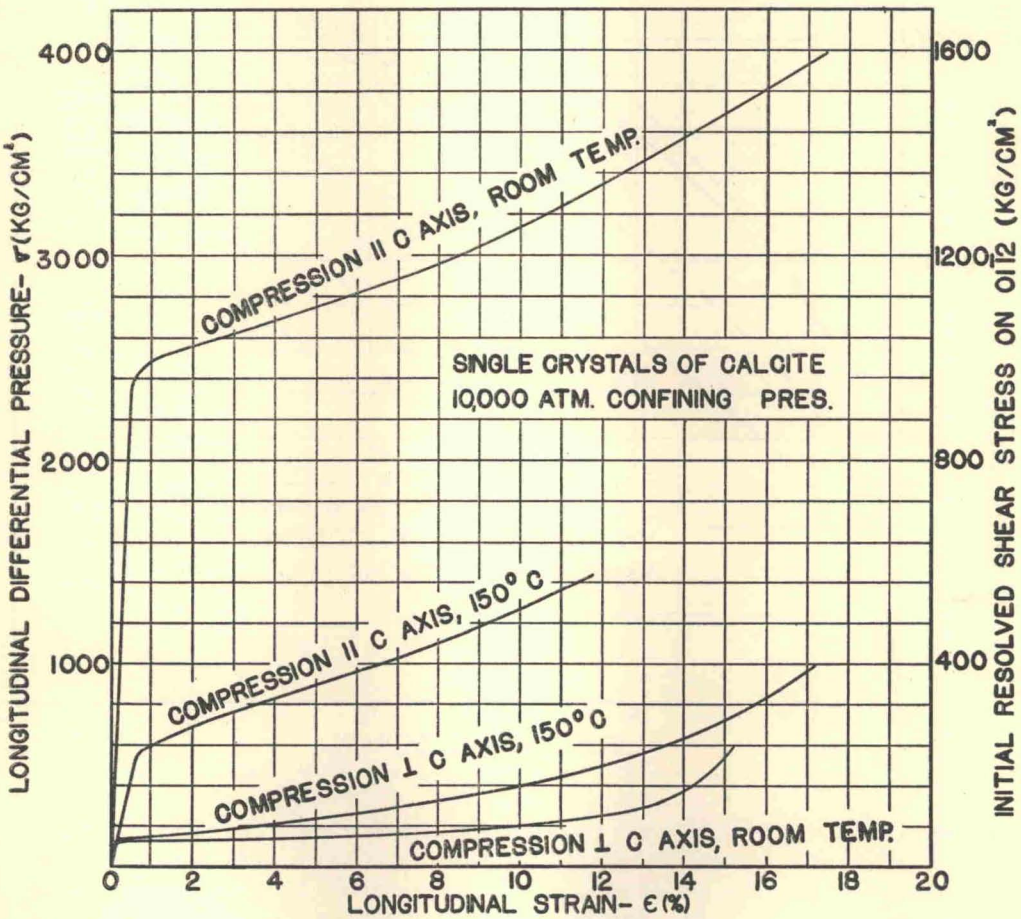

FIGURE 2.—STRESS-STRAIN CURVES OF CALCITE SINGLE CRYSTALS

the jacket broke, terminating the run. The *R* cylinder in compression had 0.49 per cent water, and the *Q* cylinder in compression had 0.52 per cent water, measured as described above. The normal porosity of Yule marble is reported that for marble deformed at room temperature (Knopf, 1949, Fig. 48) and that the texture of the deformed marble was also strikingly different (Knopf, 1949, Pl. 11). Present experiments with commercial carbonated water failed

to produce either of these effects. The early stress-strain curve was known to be of doubtful accuracy because of the primitive nature of the apparatus then used, and this could possibly account for the difference observed. The apparent difference in texture previously recorded is not understood. It may possibly be explained by the fact that the orientation of the early specimens and section were in doubt, and it has since been learned that the texture of highly deformed Yule marble varies considerably with variations of the initial orientation. As shown in Figure 3, the carbonated water has approximately the same effect on the stress-strain curves as the same amount of distilled water would have. Cursory microscopic examination showed no peculiarities of those specimens impregnated with carbonated water.

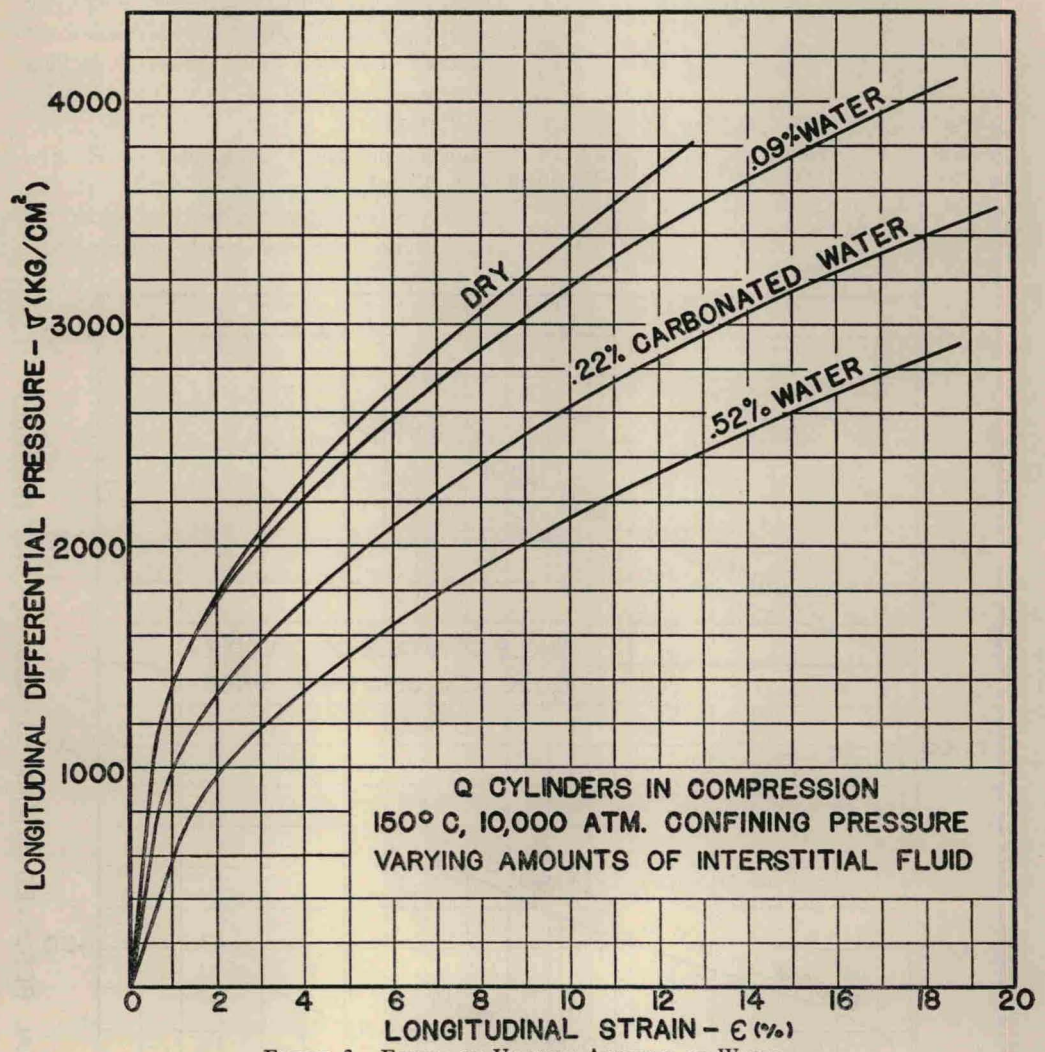

FIGURE 3.—EFFECT OF VARYING AMOUNTS OF WATER

It was initially thought that the pronounced effect of water on strength of the Yule marble was due to recrystallization. To test this, an experiment with water was done at room temperature, where any recrystallization would be expected to be small. The strength in this experiment was reduced proportionately to the same degree as with water at 150°C. Conse-