of the present experiments. Also included is the adiabatic bulk modulus of a polycrystalline sample calculated from Bridgman's isothermal value.[21] The large difference between the present results and those of Sundara Roa and Balakrishnan should not be taken too seriously since the latter were reported to be accurate only to within 10%. The agreement with Haussuhl's elastic constants is not very good, although the slopes of his elastic constants versus temperature agree quite well with those of the present measurements.

Constant-Temperature Data

The experimental values of c_{11}, c_{44}, and C' as functions of pressure at various constant temperatures are shown in Figs. 6–8. Data on the shear constants were obtained with 20-Mc/sec transducers, but these showed a bad tendency to break after several high-pressure runs. Measurements of c_{11} were made at 30 Mc/sec by using a 10-Mc/sec transducer, and this did not break on repeated runs at various temperatures. A tabulation of the smooth-curve values of these elastic constants as a function of pressure is given in Table IV. The limits of error in these elastic constant values at high pressures is somewhat greater than that at 1 atm due to greater uncertainty in the phase-shift correction term. (There is an appreciable increase in γ with an increase in the pressure.)

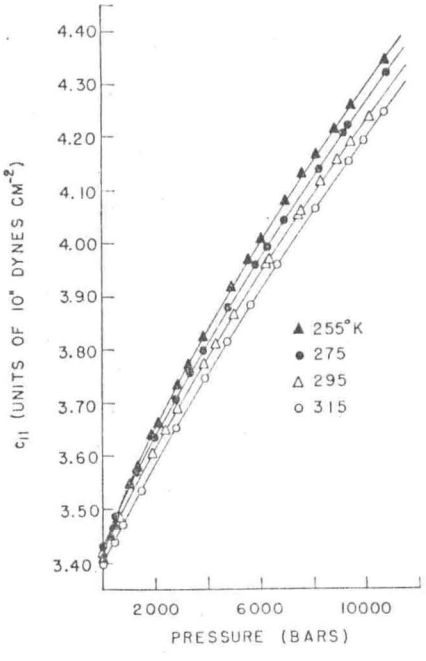

FIG. 6. Dependence of c_{11} on pressure at various temperatures.

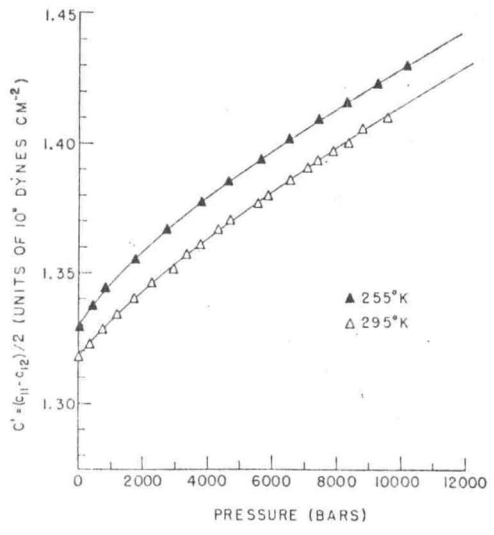

FIG. 7. Dependence of C' on pressure at two temperatures.

Bridgman[21] has measured $\Delta V/V_0$ as a function of pressure for ammonium bromide at 0° and 75°C. A comparison of his values with the values calculated from our present data shows that his values are about 6% high. Bridgman's difference between $\Delta V/V_0$ for a given pressure interval at the two temperatures is about 3 to 4 times greater than that observed in these experiments. The explanation for this difference seems to be that Bridgman's data were taken on a pressed polycrystalline sample, which one would expect to be more

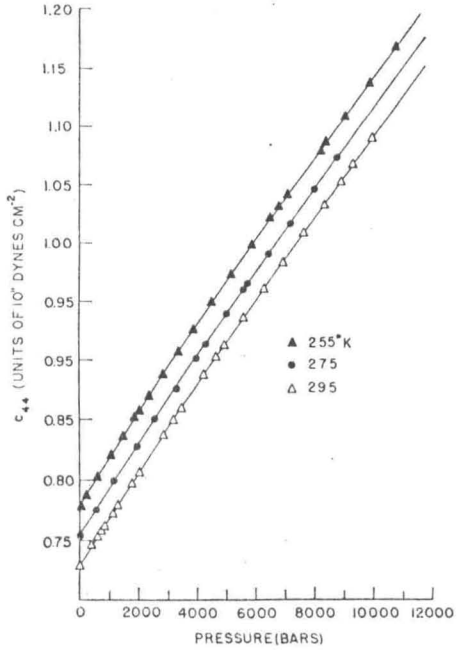

FIG. 8. Dependence of c_{44} on pressure at various temperatures.

[21] P. W. Bridgman, Phys. Rev. **38**, 182 (1931).