The pressure derivatives were obtained by combination of the derivatives of equations (1) and (2) with

$$\frac{d}{dp} (\rho v^2) = \frac{-2 (\rho v^2)}{K} \left(\frac{1}{T} \frac{dT}{dR} \right) + (\rho v^2) \left[\frac{1}{B_T} - 2 k_\theta^T \right] \qquad (3)$$

where R is the resistance of the pressure gage, T is the transit time of the ultrasonic echo, K is the pressure gage constant, and k_θ^T is the linear isothermal compressibility in the direction of propagation.

The reduction of the pressure data was greatly simplified by the orientations of the crystals (see Table 1). In the cases of the A and C crystals the derivatives of equations (2) immediately reduce to the desired dC/dP's with only very small perturbations. The only measurements determined with the H crystal are C_{13} and dC_{13}/dP and the reduction of pressure data for this crystal is a bit more involved due to the change of orientation (θ) of the crystal surfaces with pressure. The choice of $\theta = 45^\circ$ greatly simplified the dC_{13}/dP computation and the perturbation due to the change in θ with pressure amounted to approximately 1 per cent of the measured $d(\rho v^2)_{55}/dP$.