cryogenic equipment problems, and expected to have data at this time, but the usual difficulties have intervened.

Examination of the data of Chynoweth, Logan and Thomas (1962) reveals that in Ge one has reasonable hope of determining the γ's for all mode types with the $\mathbf{k}$ at the zone edge in the [111] direction.

The situation in Si is not quite so clear, because the pressure shift of the characteristics will be due to both the pressure dependence of the phonon energies at constant $\mathbf{k}$ plus a shift due to the change in $\mathbf{k}$ of the conduction band minimum with pressure. This second contribution will probably not be critical in the case of the TA and TO modes which have little $\mathbf{k}$ dependence near the zone edge.

With a knowledge of the volume dependences of the frequencies at a few symmetry points from these experiments, coupled with the measured volume dependences of the slopes of the dispersion curves at $\mathbf{k} = 0$ from measurements of the pressure dependences of the elastic constants, one should be able to use Cochran's theory of the lattice vibrations in Ge to construct an entire set of dispersion curves at different volumes. The detailed knowledge of the anharmonicities, i.e. of the γ_j, will enable one to reconstruct accurately the temperature dependence of γ_{Gr}, or of the thermal expansion coefficient independently of thermal measurements, as well as to provide material for the theory of thermal conductivity in these structures.

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