very good, however, as indicated by the measurement of a Bragg rocking curve with a full width at half maximum of only 7'. This high degree of perfection, which is of some interest in itself, is probably due not only to the annealing treatment, but also to the high pressure growth technique itself. Note that in this method of crystal preparation, in which the solidified rare gas fills an entire cell at a high pressure, the high vapor pressure exhibited by such crystals near their melting temperatures generates no additional problem in containment of the crystal during a long term high temperature annealing process. Moreover, it is felt that the reason the crystal was not damaged on cooling slowly from 166^{o}K down to 79^{o}K is that the pressure on the sample never becomes negative in that interval.

This apparent absence of crystal damage on cooling a solidified rare gas is consistent with the observations of Peterson, Batchelder and Simmons[2] on crystals of argon grown and handled in an essentially stress-free manner within a thin-walled mylar tube, but is in contrast with the behavior of crystals of solidified rare gases grown in inconel tubes by White and Woods[3] at pressures near 1 atmosphere. In the latter case, thermal conductivity data indicated the crystals to be quite imperfect. This could well have been due to crystal damage in pulling away from the tube, because of the large thermal contraction of the solidified gas relative to inconel. A positive external pressure at the solidus eliminates this effect, however, unless the sample is cooled down to a temperature at which the sample pressure passes through zero. It should be possible to grow krypton crystals at some higher pressure and cool them at constant density to $0^{o}K$ with no danger of pressure reversal.

The measurements reported here were carried out at several incident neutron energies between 18 and 35 meV. Typical neutron groups corresponding to the momentum transfer at the zone boundaries gave neutron counts of approximately 3/min above a backround of 2/min. Better signals were obtained for the neutron groups at smaller q values, however. The points in Figs. 1 and 2 contain the experimental dispersion relations obtained for the [100], [110] and [111] branches at a temperature of $79^{o}K$. The [110] axis of the crystal lay about 15^{o} away from the dewar axis, and this somewhat inconvenient orientation rendered it impossible to observe the transverse branch propagating along [110] polarized in the $[1\bar{1}0]$ direction. Since no data exist at present for the elastic stiffnesses of krypton, it is not possible to compare initial slopes of the dispersion curves with those associated with velocity of long wavelength acoustic disturbances.

The experimental work reported on krypton in this letter is being continued with the following objectives: (1) to obtain improved values of the phonon energies proper, (2) to