is about 35 per cent at 10 MHz and 10 per cent at 20 and 30 MHz. It is felt that the original choices of background were definitely preferable, which is supported by the agreement among ω^2/α values at different frequencies. However, alternate background curves cannot be completely ruled out as limiting possibilities.

Figure 3 shows the NH_4Cl phase diagram

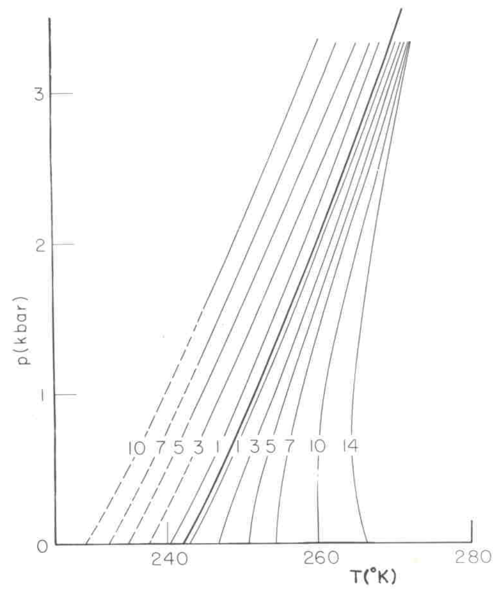

Fig. 3. Topology of the α-p-T surface. The heavy line is the lambda line as reported in Ref. [2] and the light contour lines represent the loci of constant values of ω^2/α (in units of 10^{16} cm sec^{-2}). The dashed portions of these lines indicate a region of greater experimental uncertainty; however, the 1-atm values are well known at low temperatures from Ref. [4].

with lines of constant ω^2/α added. In the low-temperature ordered phase these lines of constant attenuation lie nearly parallel to the lambda line. In the disordered phase, constant-attenuation lines are closely spaced at 3 kbar and spread apart considerably at lower pressures. This difference in behavior between the two phases is emphasized by the attenuation isobars shown in Fig. 4. These isobars were constructed from the smooth-curve values in Table 1. Although there was some scatter in the available points, no

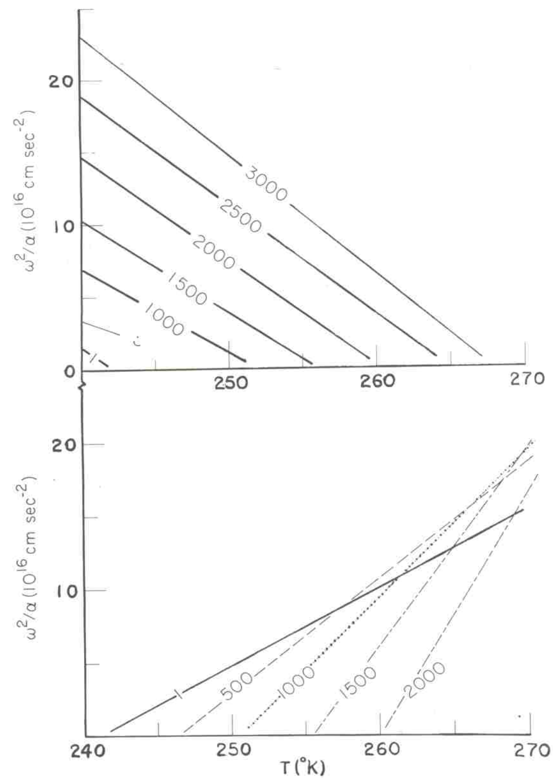

Fig. 4. Isobaric variation of ω^2/α with temperature. Pressure values indicated on each line are in bar.

systematic curvature could be seen and the best straight lines were drawn (giving greater weight to those points close to the transition temperature). Lines corresponding to directly measured one-atmosphere data [4] have been added to this figure for comparison with our high pressure results. The isobars in the ordered phase are roughly parallel and have slopes approximately equal to the one-atmosphere value of $7{\cdot}2\times10^{15}$ cm sec^{-2} deg^{-1}. Isobars in the disordered phase have slopes which are a strong function of pressure ranging from $5{\cdot}1\times10^{15}$ cm sec^{-2} deg^{-1} at 1 atm to $16{\cdot}4\times10^{15}$ at 2000 bar. Figures 3 and 4 both indicate a corresponding-states behavior for the ordered phase but not for the disordered phase. However, the variation $\alpha \sim \omega^2|T-T_\lambda(p)|^{-1}$ seems to hold at all pressures up to 3 kbar in both phases.

A brief review of Landau theory for the critical relaxation of long-range ordering near an order-disorder transition has been given previously in connection with the 1-atm attenuation measurements on NH_4Cl [3, 4]. Recently, there has been a rapid development of fluctuation theories which predict that $\alpha \sim \omega^2|T-T_c|^{-\theta}$ but do not yet agree on the critical exponent θ[9]. No theoretical work has yet been done on the isothermal variation of α as a function of $|p-p_c|$.

In the future we hope to extend these measurements with special emphasis on the immediate vicinity of the lambda line. One can already notice a distinct difference in the sharpness of the attenuation peak as p_λ increases (see Figs. 1 and 2). It would be of interest to follow this behavior up to higher pressures.

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