

the apparent decrease of θ_D at the low temperature end of the measurements is probably due to experimental error. Above 5 °K we have about 1% scatter in C_v . An error of about 0.5% has to be assigned to the determination of the sample mass. We therefore estimate the error in C_v above 5 °K at about 1.5%.

In tabulating the results we have proceeded as follows. Smoothed lines were drawn through the plot of Debye temperatures θ_D against T and extrapolated from about 5 to 0 °K

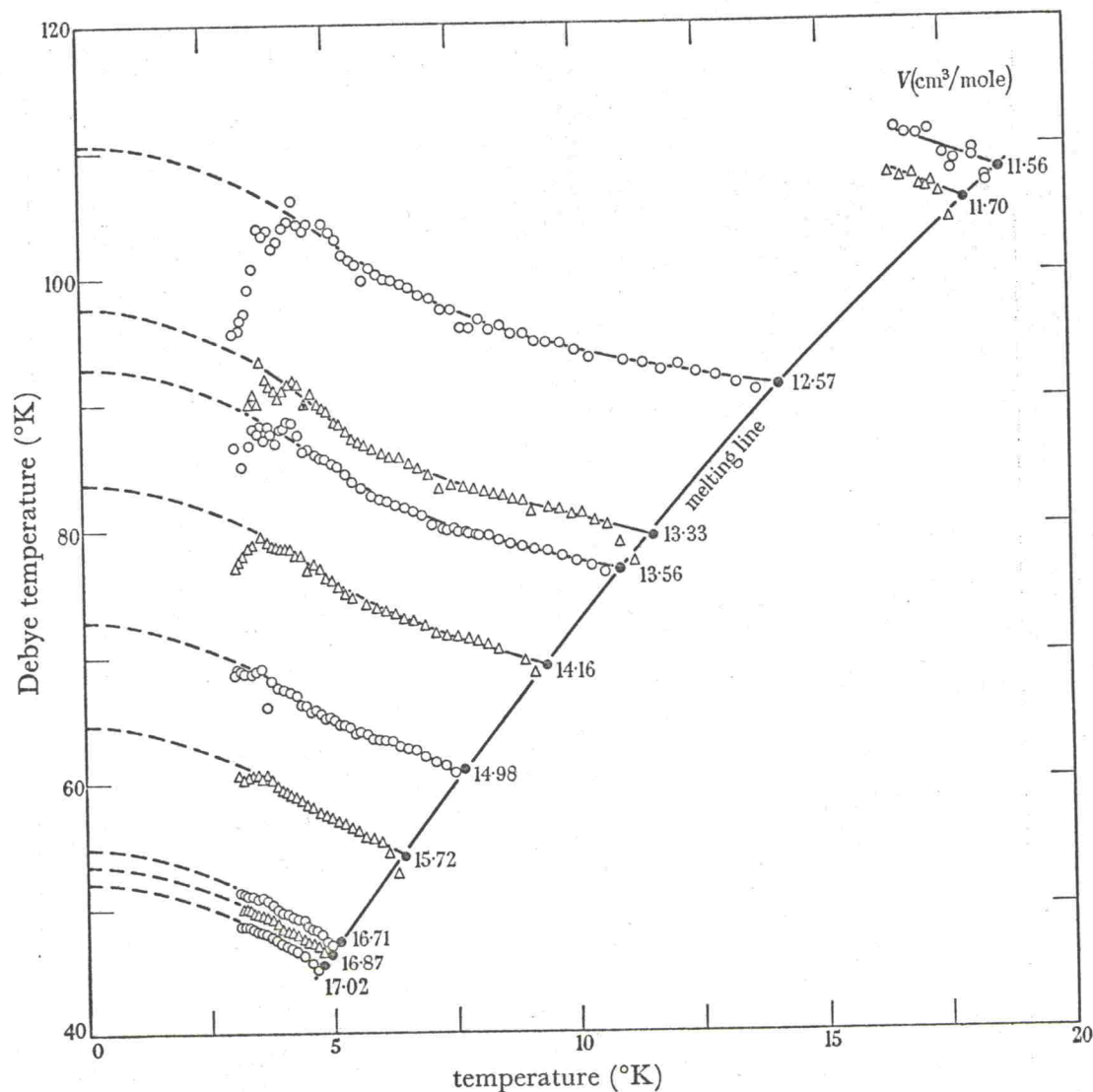


FIGURE 8. The Debye temperature of solid ^3He as a function of temperature at different molar volumes.

along the dashed lines. This extrapolation is at present very tentative and is discussed more fully in §4.1 together with the recent measurements of Heltemes & Swenson (1961, 1962). Values of the specific heat C_v were calculated from the smoothed θ_D plot above 3 °K at rounded values of temperature and are given in tables 1 and 2. It can be seen in figures 7 and 8 that close to the melting point the Debye temperatures tend to be low for some runs. This was attributed to pre-melting phenomena and depends probably on the method of freezing the sample. We have therefore extrapolated the θ_D plot smoothly towards the