$(\partial S/\partial V)_T$ can be obtained from the experimental results by numerical differentiation. By using Mills & Grilly's p-V-T data and equation (7) we can then obtain the pressure at constant molar volume as a function of temperature, i.e. the isochores

$$p(T) = p_m - \int_T^{T_m} (\partial S/\partial V)_T \mathrm{d}T, \tag{8}$$

$$p_m = p(T_m), \quad V = \text{const.}$$

The isochores are given in tables 6 and 7 for rounded values of the molar volume. The columns of these tables give immediately the isotherms, i.e. $p = p(V)$ at constant temperature.

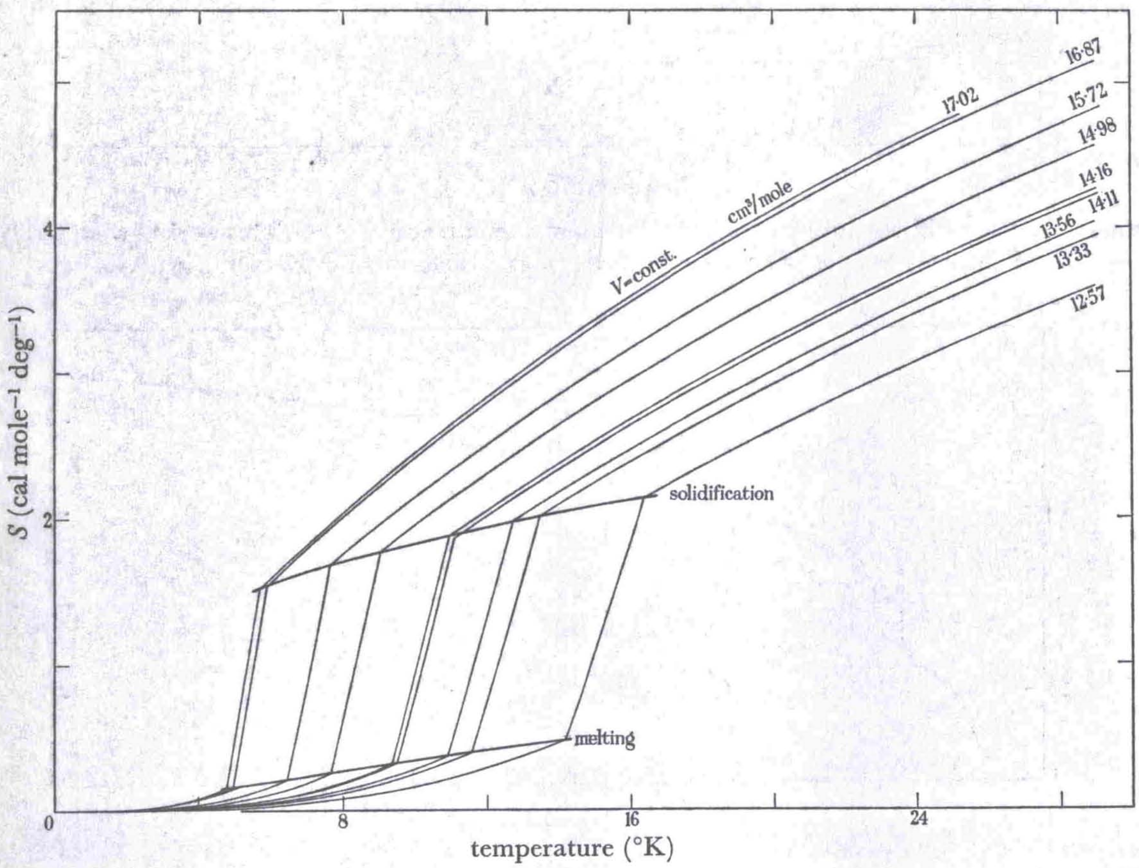

FIGURE 10. The lattice entropy of ^{3}He. The numbered lines are lines of constant volume.

3·6·2. *Compressibility*

We have calculated the compressibility of solid ^{4}He and ^{3}He at 0 °K from the 0 °K isotherm

$$\beta = -\frac{1}{V}\left(\frac{\partial V}{\partial p}\right)_{T=0}. \tag{9}$$

β is given at rounded values of molar volume in table 8.

3·6·3. *Thermal expansion coefficient*

The volume thermal expansion coefficient, α, can be obtained from the thermodynamical relation

$$\alpha = \beta(\partial p/\partial T)_V. \tag{10}$$

α for solid ^{4}He and ^{3}He is given as a function of temperature and molar volume in table 9.