the melting curve of helium up the 3500 atmospheres; they gave their results in the form of the following equation:

$$P + 17.80 = 17.315\, T^{1.5554},$$

where P is the melting pressure in kg/cm² corresponding to the temperature T in °K. Points of this curve have been plotted up to 20000 atmospheres in Fig. 1. Other experimenters [7] have made measurements up to higher pressures (up to 9000 atmospheres) but their results are less accurate. In any case, all measurements so far are consistent with the equation given by MILLS and GRILLY. It is seen that the agreement between the extrapolated experimental curve and the melting curve deduced, as described above, from Stewart's experiments is very close indeed.

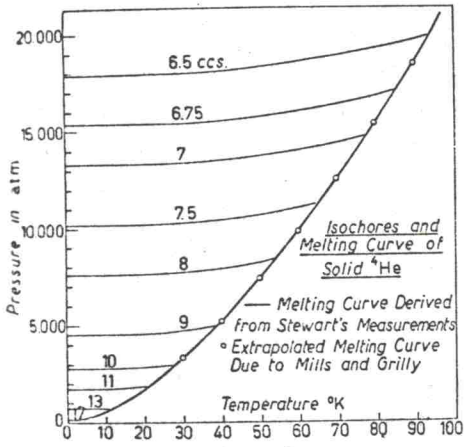

Fig. 1.

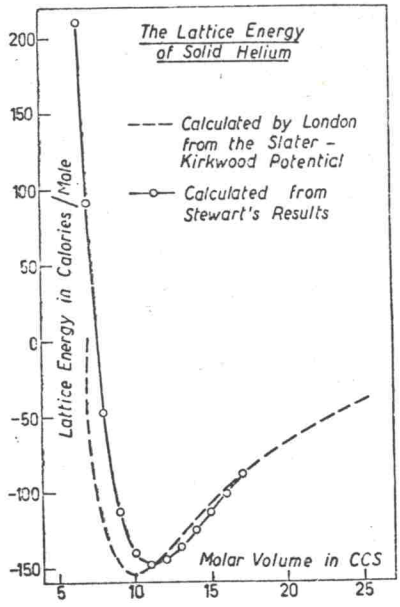

Fig. 2.

Fig. 2 shows the lattice energy of solid helium calculated as described together with London's calculation of the lattice energy assuming a Slater-Kirkwood potential [8]. The agreement for large molar volumes is satisfactory: at the minimum of energy and at molar volumes smaller than this the agreement is not good. It is of course known that the Slater-Kirkwood potential does not predict altogether correctly the properties of the gas phase [9]; moreover, the values of θ_D which have been taken were chosen to represent the low temperature specific heats [3] reasonably well and they may differ signi-