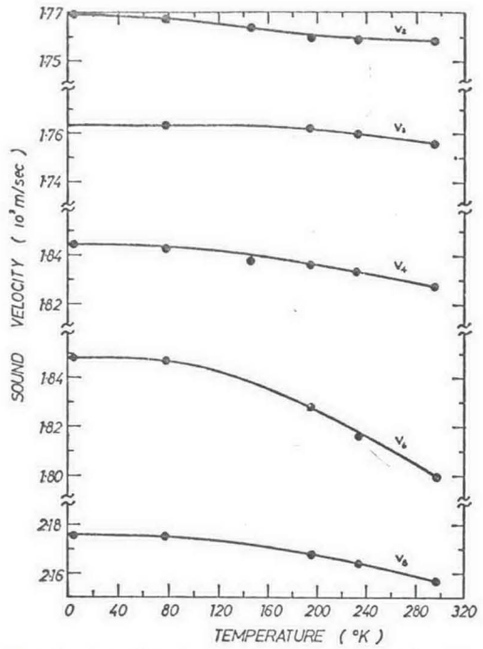

FIG. 2. Sound velocity for shear waves in different crystalline directions as a function of temperature.

Cadmium sulfide is very close to being an isotropic material, as the values of the ratios c_{11}/c_{33}, c_{12}/c_{13} and $(2c_{44})/(c_{11}-c_{12})$ are all close to 1. Hence, the procedure devised by ANDERSON[16] for evaluating the Debye temperature from the

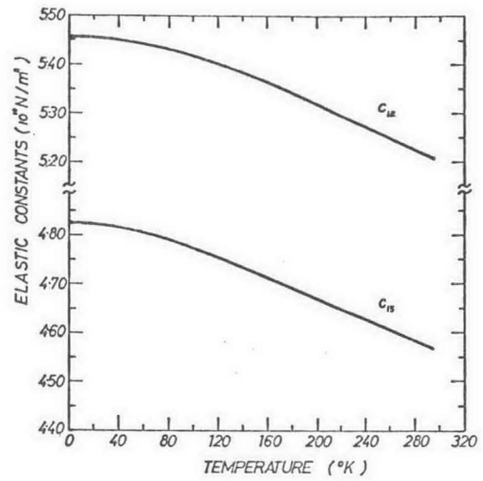

FIG. 4. The cross coupling elastic constants as a function of temperature.

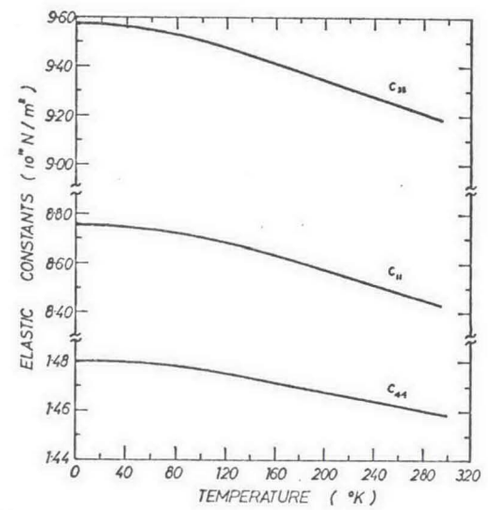

FIG. 3. The diagonal elastic constants as a function of temperature.

isotropic Voigt–Reuss–Hill–Gilvarry average of the elastic constants is certainly applicable in the present case. Proceeding in this manner, the Debye temperature at 0°K is calculated to be 219·3°K. Unfortunately, low temperature specific heat data for CdS are not available, and thus no comparison can be made with the Debye temperature determined from specific heat data.

REFERENCES

1. HUTSON A. R., MCFEE J. H. and WHITE D. L., *Phys. Rev. Lett.* **7,** 237 (1961).
2. SMITH R. W., *Phys. Rev. Lett.* **9,** 87 (1962).
3. MCFEE J. H., *J. appl. Phys.* **34,** 1548 (1963).
4. MOORE A. R. and SMITH R. W., *Phys. Rev.* **138,** A1250 (1965).
5. MASUMI T. and TANAKA J., *J. Phys. Soc. Japan* **14,** 1313 (1959).
6. BOLEF D. I., MALAMED N. T. and MENES M., *J. Phys. Chem. Solids* **17,** 193 (1960).
7. GUTSCHE E., *Phys. Status Solidi* **1,** 30 (1961).
8. BERLINCOURT D., JAFFE H. and SHIOZAWA L. R., *Phys. Rev.* **129,** 1009 (1963).

9. NINE H. D., *Phys. Rev. Lett.* **4,** 359 (1960).
10. NINE H. D. and TRUELL R., *Phys. Rev.* **123,** 799 (1961).
11. KAYME J. J., *J. acoust. Soc. Am.* **21,** 159 (1949).
12. HUTSON A. R. and WHITE D. L., *J. appl. Phys.* **33,** 40 (1962).
13. MCSKIMIN H. J., *J. acoust. Soc. Am.* **33,** 12 (1961).
14. MCSKIMIN H. J. and ANDREATCH P., *J. acoust. Soc. Am.* **34,** 609 (1962).
15. SEIWERT R., *Annln Phys.* **6,** 241 (1949).
16. ANDERSON O. A., *J. Phys. Chem. Solids* **24,** 909 (1963).