-0.22 to -0.25 from 300 to 1300° K. Anderson et al. [16] have collected results for corundum, periclase, spinel, forsterite, garnet, hematite, quartz, CaO, zincite, and bromellite, for which the values are -0.14, -0.12 and -0.16 (MgO as polycrystal and single crystal -0.13, -0.11, -0.20, -0.17, -0.10, -0.14, -0.13, and -0.12. The $(\partial K_S/\partial T)_P$ may be compared with $(\partial K_S/\partial P)_T$, which are given [16] for the above minerals as 3.98, 4.58, 4.18, 4.78, 5.43, 4.53, 6.4, 5.23, 4.78, and 5.52.

An open structure should produce a low K, a high K', and a low $\partial K/\partial T$. Such a substance should also have considerable thermal expansion and a high specific heat. Quartz meets this condition (apart from the thermophysical parameters), as do CaO and zincite to a certain extent. A future paper will examine the relation between these parameters on more extensive evidence.

REFERENCES

1. Belov, N.V., 1947. Struktura ionnykh kristallov i metallicheskikh faz [Structures of Ionic Crystals and Metallic Phases]. Izd. AN SSSR, Moscow.
2. Bragg, W. and H. Claringbull. Crystal Structures of Minerals.
3. Sobolev, 1949. Vvedeniye v mineralogiyu silikatov [Introduction to the Mineralogy of Silicates]. Izd. L'vov. Univ.
4. Povarennykh, A.S., 1966. Kristallokhimicheskaya klassifikatsiya mineral'nykh vidov [Crystallochemical Classification of Mineral Species]. Naukova Dumka, Kiev.
5. Handbook of Physical Constants. Geol. Soc. Amer. Memoirs, 97, 1966.
6. Aleksandrov, K.G., B.P. Belikov and T.V. Ryzhova, 1966. Vychisleniye uprugikh gornykh porod po mineral'nomu sostavu [Calculation of the Elastic Parameters of Rocks from the Mineral Composition]. Izv. AN SSSR, ser. geol., No. 2.
7. Bulakh, A.G., 1968. Metody termodinamiki v mineralogii [Thermodynamic Methods in Mineralogy]. Nedra, Leningrad.
8. Letnikov, F.A., 1965. Izobarnyye potentsialy obrazovaniya mineralov (khimicheskoye srodstvo) i primeneniye ikh v geokhimii [Isobaric Potentials of Formation of Minerals (Chemical Affinity) and Their Uses in Geochemistry]. Nedra, Moscow.
9. Birch, F., 1966. "Some geophysical applications of high pressure research." Solids at High Pressures [Russian translation]. Mir, Moscow.
10. Al'tshuler, L.V., R.F. Trunin and G.V. Simakov, 1965. Udarnoye szhatiye periklaza i kvartsa i sostav nizhney mantii Zemli [Shock Compression of Periclase and Quartz, and the Composition of the Lower Mantle of the Earth]. Fizika Zemli, No. 10.
11. Trunin, R.F., V.I. Gon'shakova, G.V. Simakov and N.Ye. Galdin, 1965. Issledovaniye gornykh porod pod deystviyem vysokykh davleniy i temperatur udarnogo szhatiya [A Study of Rocks at the High Pressures and Temperatures Produced by Shock Compression]. Fizika Zemli, No. 9.
12. McQueen, R.G., S.P. Marsh and J.N. Fritz, 1967. "Hugoniot equations of state for twelve rocks." J. Geophys. Res., 72.
13. Anderson, L. and H. Kanamori, 1968. "Shock-wave equation of state for rocks and minerals." J. Geophys. Res., 73, No. 20.
14. Galdin, N.Ye., 1968. K voprosu o sostave i upruzikh parametrakh verkhney mantii [Composition and Elastic Parameters of the Upper Mantle]. Dokl. AN SSSR, 182, No. 3.
15. Chung, D.H. and G. Simons, 1968. "Pressure and temperature dependence of the isotropic elastic moduli of polycrystalline alumina." J. Appl. Phys., 39, No. 11.
16. Anderson, O.L., I. Schreiber, R. Liebermann and N. Soga, 1968. "Some elastic-constant data on minerals relevant to geophysics." Rev. Geophys., 6, No. 4.
17. Magnitskiy, V.A., 1966. Vnutreneye stroyeniye i fizika Zemli [Internal Structure and Physics of the Earth]. Nedra, Moscow.