specific atomic volume or volume per atom, v_0, (in cubic Ångstroms, Å^3) and distance between nearest neighbours d_0 (in Å).

For a face centred cubic lattice, with the length of a unit cell $= a_0$ and 4 atoms/cell, the relationship between a_0, d_0 and v_0 is as follows:

$$v_0 = \tfrac{1}{4} \,.\, a_0^3 \quad \text{and} \quad d_0^3 = (\sqrt{2}) \,.\, v_0$$

and

$$a_0 = 1{\cdot}4142 \,.\, d_0 \quad \text{or} \quad d_0 = 0{\cdot}70711 \,.\, a_0 = 1{\cdot}1224 \,.\, v_0^{\frac{1}{3}}.$$

For a hexagonal close packed lattice d_0 also equals $1{\cdot}1224 \,.\, v_0^{\frac{1}{3}}$. Furthermore, if $N_{\text{Avog.}}$ is Avogadro's number, $= 60{\cdot}225 \times 10^{22}$ atoms per g. atom,

$$V_{\text{at.}} = N_{\text{Avog.}} \,.\, v_0 = \frac{\text{at. wt.}}{D_0}$$

Throughout this paper we understand, by the compressibility κ, the isothermal compressibility proper, defined as[16]

$$-\frac{1}{v_0}\left(\frac{dv}{dp}\right)_T$$

and *not* the instantaneous compressibility

$$-\frac{1}{v}\left(\frac{dv}{dp}\right)_T$$

which has a greater tendency to increase at high pressure, because the factor $1/v$ increases with pressure, while $1/v_0$ is, of course, constant. We express κ in c.g.s. units, i.e., in megabars^{-1}, and not in (kg/cm^2)$^{-1}$, as has been BRIDGMAN's preference, nor in atmospheres. The procedure adopted has the advantage that the data can be easily converted to other c.g.s.-units. The conversion factors used were:

$$1 \text{ atm} = 1{\cdot}01325 \times 10^6 \text{ dynes/cm}^2 \text{ (or megabar}^{-1})$$
$$1 \text{ kg/cm}^2 = 0{\cdot}980665 \times 10^6 \text{ dynes/cm}^2 \text{ (or megabar}^{-1})$$

The data of Table 1 for Ne and Ar are based on HENSHAW's[13] a_0 values obtained by neutron diffraction at 4·2°K. A slight correction was applied (same as in the case of Kr and Xe) to extrapolate his values to 0°K. The data for Kr and Xe are based on SMITH's[14,15] values of the density in the range of 20° to 120°K, obtained by X-ray diffraction. From the known coefficients of expansion, α, in that range, and the fact that $\alpha = 0$ at 0°K, extrapolations were made to 0°K. The data for emanation were estimated by us on the basis, originally developed by F. PANETH, that the differences in atomic volume of elements from period to period in the last periods of the Periodic System are practically constant.

Our values in Table 1 are close to the earlier ones, given in Table 2 and used by BERNARDES[11] in developing the theory of solid noble gases at 0°K.

BERNARDES'[11,12] theoretical calculations of the change of volume, v/v_0, with pressure check STEWART's[7] experimental data on Ne at 4·2°K and his extrapolated data on Ar at 65° and 77°K and on krypton at 77°K.

[16] P. W. BRIDGMAN, *The Physics of High Pressure* (1st. Ed) p. 169, Bell, London (1931); reprinted (1949).