

FIG. 2. Normalized Hall voltage vs pressure for lithium, sodium, and rubidium.

with Bridgman's value of 0.22. Because we suspected that our sample holder might be acting as a constraint we repeated Bridgman's experiment, which used a free wire of potassium. Although difficulties with the contacts caused sample current fluctuations and made it impossible to get accurate curves, the value of the normalized resistance at 15 000 kg/cm², 0.4, was confirmed.

Figure 4 shows a typical Hall voltage curve for cesium; this measurement was made at approximately 14°C. The reproducibility was good; the value of V_H at 15 000 kg/cm² was between 0.61 and 0.64 for six runs on two different samples.

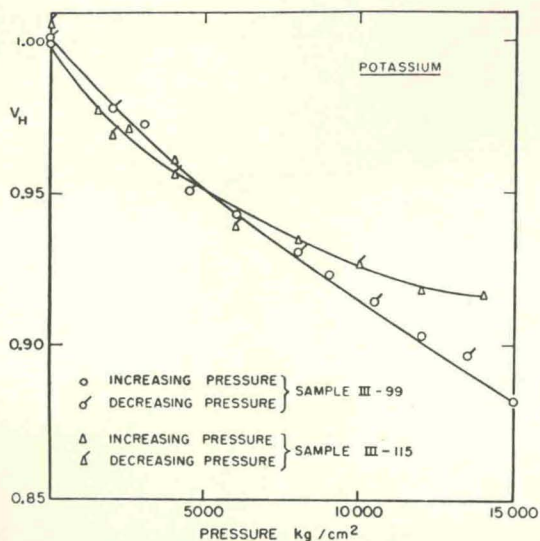


FIG. 3. Normalized Hall voltage vs pressure for two different potassium samples.

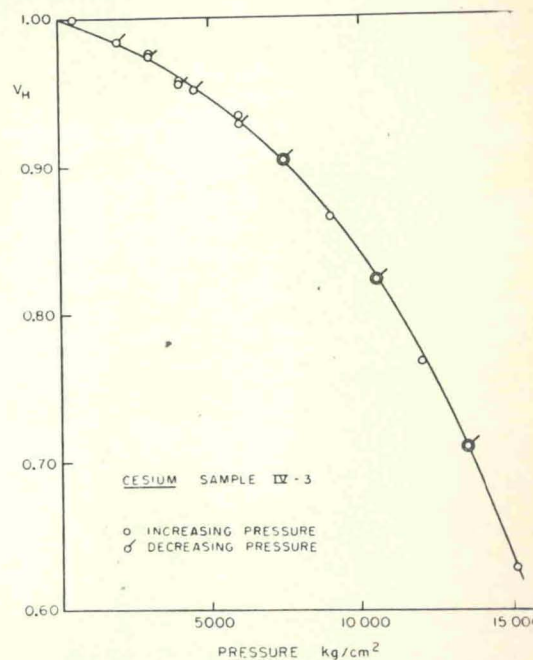


FIG. 4. Normalized Hall voltage vs pressure for cesium

Since the Hall voltage is

$$V_H = RHI/t = HI/Necn^*t,$$

where t is the thickness of the sample and I the sample current two dimensional corrections must be applied to obtain n^* . These give

$$n^* = V(P)/V_H(P)t(P),$$

where $t(P)$ is the thickness as a function of pressure and $V(P)$ the volume. $V(0) = t(0) = 1$. The values of $V(P)$ and $t(P)$ are obtained from Bridgman's compressibility data.^{4,15} n^* was arbitrarily normalized to unity at atmospheric pressure. The resulting curves of n^* vs pressure for the alkalis are shown in Figs. 5 and

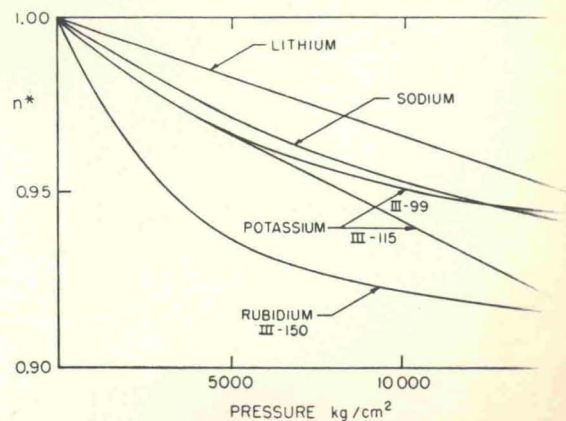


FIG. 5. n^* , normalized electrons/atom vs pressure for lithium, sodium, potassium, and rubidium.

¹⁵ P. W. Bridgman, Proc. Am. Acad. Arts Sci. 70, 93 (1940).