will clarify the questions about the importance of the strength correction in metals at lower pressures.

4. DISCUSSION AND CONCLUSION

Within the qualifications discussed above it has been shown that the extrapolation shock velocity data for most metals to zero pressure is consistent with sound velocity data to within ~ 2 per cent, comparable with the accuracy of the shock velocity data itself. Therefore the shock compression data is suitable for comparison with the static data of VK in the intermediate pressure range. Except for La the agreement found by VK between the two sets of compression data is everywhere consistent within an experimental error of several tenths of a percent in the static volume measurements and of 2 per cent in the shock compression measurements. It may thus be concluded that all three types of compression data are consistent up to 45 kbar.

Discrepancies between the isothermal compressibility calculated from fits to the static data of VK and from sound velocity data in some metals are apparently not real. In the case of Fe, Rotter and Smith[2] have also noted the differences between the compressibility obtained from sonic velocity data and fits to Bridgman's data. Such differences have usually been attributed to a loss of accuracy in taking differences between volume measurements in the static compression method. These discrepancies may also in part be due to inappropriate methods of fitting or representing static data. In this connection it should be noted that the simple U_s–U_p expansion used to fit shock wave data over a much larger range of pressures implies a volume dependence of the pressure along the isotherm which is different from either the Bridgman or Murnaghan form used by VK.

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