and form a common ing potential could ne derivative of the agreement between Au alloys is someintroduced into the oes not account for the Ag-Au alloys. uld be a reflection rith concentration. nce of d ln $\varrho_0/d \ln V$ uch as the Cu-Ag nd Ag are not very ring potentials init for the observed ys.

loys as compared l Au suggests that $\varrho^{-1} d\varrho/dP$ for the following simple t two terms in (3) ence of $\varrho^{-1} d\varrho/dP$. ained from Goree of Q1 was obtained re obtained from ctions should be 300 °K and was ns of (3) and the pared for the c =and 0.75 alloys. perature dependdetermined the P. Typically at where $\varrho_{\rm l}^{-1} d\varrho_{\rm l}/dP$ sign, the magnia result of the

The difference between the calculated and experimental curve in Fig. 5 can be ascribed to deviations from Matthiessen's rule. The limited accuracy to which the various pressure derivatives can be determined does not allow a very enlightening comparison of the deviations between the different alloys. The significant deviation observed does indicate the importance of considering deviations from Matthiessen's rule in pressure studies of the resistivity of alloys.

Acknowledgments

The author wishes to express his appreciation to Dr. A. R. Du Charme, Dr. R. W. Lynch, Dr. G. A. Samara and Dr. J. E. Schirber for helpful discussions and to C. W. Huddle for his expert technical assistance.

References

[1] J. S. Dugdale, in: Advances in High Pressure Research, Vol. 2, Ed. R. S. Bradley, Academic Press, New York 1969 (p. 101). (References to the original studies are given

[2] W. S. Goree and T. A. Scott, J. Phys. Chem. Solids 27, 835 (1966).

[3] J. S. Dugdale, in: Physics of Solids at High Pressures, Ed. C. T. Tomizulsa and R. M. EMRICK, Academic Press, New York 1965 (p. 16).

[4] J. E. Schirber, Cryogenics 10, 418 (1970).

- [5] P. W. BRIDGMAN, Proc. Amer. Acad. Arts Sci. 68, 27 (1933). [6] P. W. BRIDGMAN, Proc. Amer. Acad. Arts Sci. 77, 189 (1949).
- [7] C. A. Alers and J. R. Neighbours, Bull. Amer. Phys. Soc. 3, 70 (1958).
- [8] J. S. Dugdale and Z. S. Basinski, Phys. Rev. 157, 552 (1967). [9] R. G. Stewart and R. P. Huebener, Phys. Rev. B1, 3323 (1970). [10] M. H. LENNSEN and A. MICHELS, Physica (Utrecht) 2, 1091 (1935).

[11] L. NORDHEIM, Ann. Phys. (Germany) 9, 655 (1931).

- [12] W. J. O'SULLIVAN, J. E. SCHIRBER and J. R. ANDERSON, Solid State Commun. 5, 525
- [13] J. E. Schirber and W. J. O'Sullivan, Colloque International du C.N.R.S. 188, "Sur les propriétés physiques des solides sans pression", Grenoble 1970 (p. 113).

[14] J. M. Žiman, Phys. Rev. 121, 1320 (1961). [15] A. R. Du Charme and L. R. Edwards, Phys. Rev. B2, 2940 (1970).

[16] E. HAGA, J. Phys. C (Metal Phys. Suppl.) 1, 510 (1970).

[17] B. SEGALL, Phys. Rev. 125, 109 (1962). [18] N. F. Mott and H. Jones, The Theory of the Properties of Metals and Alloys, Clarendon Press, Oxford 1936, reprinted Dover, N.Y., 1958.

[19] D. Beaglehole and E. Erlback, Solid State Commun. 8, 255 (1970).

(Received February 10, 1972)

rature dependence of are derivative of the s ato Ag alloy