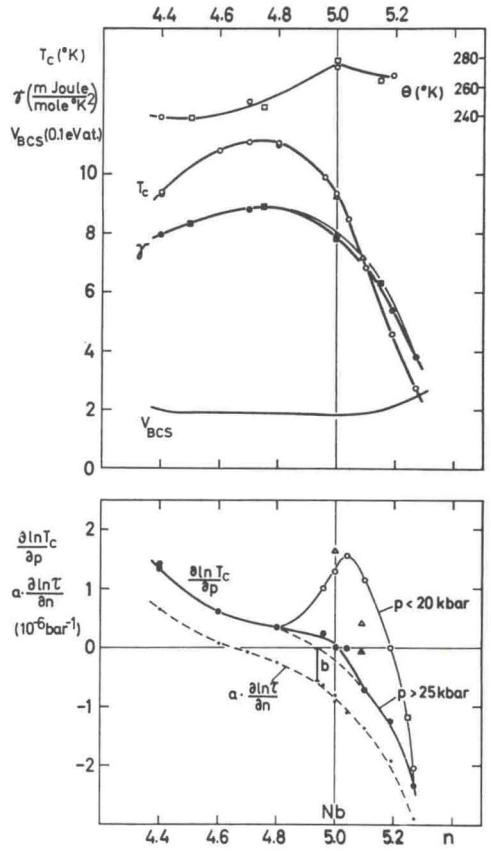

Fig. 3. Lower part: measured slopes $\partial \ln T_c/\partial p$. Due to the smallness of the pressure effect on T_c the error in writing $\partial \ln T_c/\partial p$ for $1/T_{c0} \cdot \partial T_c/\partial p$ is negligible. For $p > 25$ kbar comparison is made with $a \cdot \partial \ln \tau/\partial n \equiv a(\partial \ln T_c/\partial n - \partial \ln \theta/\partial n)$ (Eq. (1) in the text). Relevant parameters are plotted in the upper part in the usual nomenclature. Data for θ and $\gamma \propto N$ were taken from Ref. [12] (squares) and [21] (circles). Data points for ternary alloys are marked by triangles

bility)[24]. The value of $\partial \ln \theta/\partial p$ becomes $0.65 \cdot 10^{-6}$ bar^{-1} which equals our experimental term b within experimental error. Under the reasonable assumption that $\partial \ln \theta/\partial p$ does not change much with composition, Eq. (2) thus reduces to

$$\partial NV/\partial p = a \cdot \partial NV/\partial n \tag{3}$$

with the solution

$$NV = f(a\,p + n)\,. \tag{4}$$

24 Bridgman, P. W.: The physics of high pressure, p. 160. London: G. Bell & Sons, Ltd. 1958.

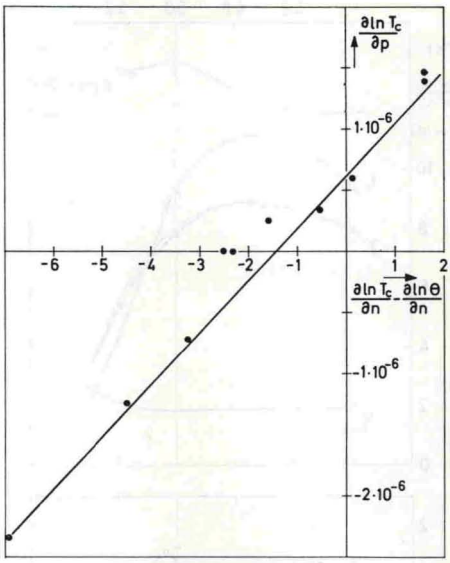

Fig. 4. Plot of $(\partial \ln T_c/\partial n - \partial \ln \theta/\partial n)$ as obtained from the upper part of Fig. 3, versus $\partial \ln T_c/\partial p$. The linear data fit is expressed in Eq. (1)

Thus we arrive at the result that for $p > 25$ kbar the shape of the function $NV(n)$ remains unaffected by pressure, i.e. is rigid with respect to pressure; within the composition range investigated NV can be changed by the same amount by either adding Δn electrons per atom or applying a pressure $\Delta p = \Delta n/a$.

Since in this alloy system V is a slowly varying function of n, the shape of $NV(n)$ is mainly determined by N. One is led to assume that this is also true for $NV(p)$, and to conclude from Eq. (4) that the effect of the application of pressure is primarily a filling of the d-band. A simple mechanism which would provide this can be seen in a pressure-induced shifting of the broad s-band relative to the narrow d-band.

We have used here the original BCS approach. The limited accuracy of the experimental information was thought to inhibit a discussion in terms of more advanced theoretical expressions for T_c which account for a more realistic model for the Coulomb interaction and the effect of electron-phonon interaction on the electronic properties[9,15,25,26]. Nevertheless, some comments are to be made:

25 Morel, P., Anderson, P. W.: Phys. Rev. **125**, 1263 (1962).
26 Garland, Jr., J. W.: Phys. Rev. Letters **11**, 111 (1963).