$$V_n - V_s = V_s \frac{H_c}{4\pi}\left(\frac{\partial H_c}{\partial P}\right)_T + \frac{H_c^{\ 2}}{8\pi}\left(\frac{\partial V_s}{\partial P}\right)_T \tag{2}$$

where $V_n - V_s$ is the difference in the volume between the normal (n) and superconducting (s) states. Unfortunately, due to a lack of reproducibility and to hysteresis effects, the volume change, $V_n - V_s$, could not be measured directly and, therefore, had to be estimated. He used calorimetric values of H_c in his calculations (except for tantalum) and his results are given in Table 2. In order to calculate values of $\partial T_c/\partial P$ using the Maxwell thermodynamic relationship,[4]

$$\left(\frac{\partial T_c}{\partial P}\right)_{H=0} = -\left(\frac{\partial H_c}{\partial P}\right)_{T=T_c}\left(\frac{\partial H_c}{\partial T}\right)_{P=0}^{-1} \tag{3}$$

we express the measured values[5-7] of $C_s - C_n$ in terms of $(\partial H_c/\partial T)_{T=T_c}$ using the Rutgers relationship,[4]

$$(C_s - C_n)_{T=T_c} = \frac{VT_c}{4\pi}\left(\frac{\partial H_c}{\partial T}\right)_{P=0}^2 \tag{4}$$

The values of $\partial H_c/\partial T$, given in Table 2, derived in this manner are in good agreement with values obtained from directly measured critical field curves for vanadium[5] and tantalum,[6] but not for niobium.[7]

Using the thermodynamic relationship (4) we have calculated values of $(\partial T_c/\partial P)_{H=0}$, and these are compared in Table 2 with our observed values. Table 2 also includes the results for tantalum; $(\partial T_c/\partial P)_{H=0}$ was determined for this element by Hinrichs and Swenson.[9] The sign of $(\partial T_c/\partial P)_{H=0}$ obtained for vanadium agrees with that predicted from the thermal expansion data. The observed magnitude is in better agreement