

Bucher, Müller, Olsen and Palmy¹⁹ that the disappearance of superconductivity at each end of the transition series is due to the rapid increase in K_C^* . Values of ζ for all of the superconducting elements shown plotted in figure 4 as a function of position in the periodic table support this suggestion. Estimates of ζ for V, Ta, Nb, Re, Ga, and Al, for which no direct isotope measurements are available, were made from φ using the empirical relationship of Bucher et al.¹⁹ It is concluded, therefore, that the increased influence of K_C^* upon the superconducting transition temperatures of Zr and V results in the observed sign of the pressure dependence of T_C . Such an explanation is also undoubtedly applicable for the dramatic pressure dependence of T_C observed for La¹³ and U,¹⁴ but here the situation is complicated by the presence of f character in the electron wavefunctions at the Fermi surface.

It is interesting to make a comparison, in figure 4, of ζ for V, Nb and Ta in group VB and Ru and Os in group VIII. This would indicate a decrease in the influence of K_C^* in going from the 3d to the 5d elements. This may be associated with the increasing width of the d band of the later transition metals.

We can see a definite need for further investigation of the pressure dependence and the isotope effect on the superconducting transition temperature of the remaining transition metal superconductors. Unfortunately the experimental difficulties involved are quite considerable.

We should like to thank H. London, K. Andres and M. A. Jensen for a number of informative discussions.