observed for the SDW of Cr,[50] and thus results in the anomalously high-pressure dependence of T_c in α-U. It would appear that at pressures $\sim$10 kbar any remaining SDW has a negligible effect of T_c and therefore T_c achieves its maximum value. The subsequent decrease of T_c with further application of pressure is then typical of the behavior observed in the majority of superconductors.[51]

It is of interest to compare this reported pressure dependence of the T_c for uranium with that of thallium[2,3] since there is a superficial similarity. However, the maximum increase of T_c for Tl is two orders of magnitude smaller than that observed for U. Measurements[52] of the change of length along the principal crystal directions upon quenching the superconductivity of a Tl single crystal in a magnetic field indicate that the maximum in T_c arises from a strong anisotropy in the pressure dependence of T_c. An explanation of this anisotropy has been offered on the basis of the shape of the Fermi surface for Tl.[53]

A comparison may also be made with the maxima in T_c as a function of pressure, which have recently been reported by Köhnlein[54] for vanadium, niobium, and tantalum. However, this should only be done with caution since the maxima are not observed directly, but are produced by the method in which the data were represented. In addition, his direct observations are somewhat questionable since there is a serious discrepancy between his Ta data and those previously reported.[2,55] In the opinion of the authors the most reliable absolute determinations of the pressure dependence of the T_c for tantalum are those of Jennings and Swenson[2] and Hinrichs and Swenson[55] which were made to a maximum pressure of 10 kbar and which employed solid hydrogen as the pressure-transmitting medium. We therefore consider it advisable that further measurements of T_c, as a function of pressure, be made for these elements at pressures above 10 kbar before any serious attempt is made to compare these maxima in T_c with that observed in uranium. It is worth noting, however, that the maximum reported increase of T_c for V and Nb, whilst larger than that for Tl, is still considerably smaller than that observed for uranium.

ACKNOWLEDGMENTS

For discussions and comments on this work we wish to thank B. T. Matthias, W. Klement, Jr., G. Knapp, D. Wohlleben, and in particular N. E. Phillips, H. Montgomery and G. O. S. Arrhenius to whom we are further indebted for discussing their work prior to publication. The experimental assistance of C. W. Chu is gratefully acknowledged.

[50] D. F. Litvin and E. G. Ponyatovskii, Dokl. Akad. Nauk SSSR **156**, 69 (1964) [English transl.: Soviet Phys.—Doklady **9**, 388 (1964)]; F. F. Voronov, Zh. Eksperim. i Teor. Fiz. **47**, 1999 (1964) [English transl.: Soviet Phys.—JETP **20**, 1342 (1965)]; T. Mitsui and C. T. Tomizuka, Phys. Rev. **137**, A564 (1965). The Néel temperature of Cr decreases upon the application of pressure at the rate of -5.5°K/kbar, a value which is close to the value of -4°K/kbar which would be required to suppress the $\alpha \rightarrow \alpha_0$ transition below 2°K at 10 kbar.

[51] M. Levy and J. L. Olsen, in *Physics of High Pressure and the Condensed Phase*, edited by A. Van Itterbeek (North-Holland Publishing Company, Amsterdam, 1965), p. 525.

[52] J. L. Olsen and H. Rohrer, Helv. Phys. Acta **30**, 49 (1957); G. D. Cody, Phys. Rev. **111**, 1078 (1958).

[53] B. G. Lazarev, L. S. Lazareva, V. I. Makarov, and T. A. Ignat'eva, Zh. Eksperim. i Teor. Fiz. **48**, 1065 (1965) [English transl.: Soviet Phys.—JETP **21**, 711 (1965)]; V. I. Makarov and V. G. Bar'yakhtar, Zh. Eksperim. i Teor. Fiz. **48**, 1717 (1965) [English transl.: Soviet Phys.—JETP **21**, 1151 (1965)]; N. B. Brandt, N. I. Ginzburg, T. A. Ignat'eva, B. G. Lazarev, L. S. Lazareva, and V. I. Makorov, Zh. Eksperim. i Teor. Fiz. **49**, 85 (1965) [English transl.: Soviet Phys.—JETP **22**, 61 (1966)].

[54] D. Köhnlein, Kurznach. Akad. Wiss. Goettingen, II. Math. Physik. Kl. **17**, 77 (1966); Z. Physik (to be published). We are indebted to Dr. Köhnlein for a report of his work prior to publication.

[55] D. H. Bowen, in *Low Temperature Physics and Chemistry*, edited by J. R. Dillinger (University of Wisconsin Press, Madison, Wisconsin, 1958), p. 337; C. H. Hinrichs and C. A. Swenson, Phys. Rev. **123**, 1106 (1961); J. Hatton, *ibid.* **103**, 1167 (1956).