value is smaller by a factor of about 3 to 4 than those values given by Blinc et al. [7, 8] and Novaković [6]. It is, however, almost the value $\Omega = 1.0 \times 10^{-14}$ erg which has recently been determined by Cochran [10] from Raman-scattering data of Kaminow and Damen [14].

Since the values of $S_1$ for $KH_2AsO_4$, $KH_2PO_4$, and $RbH_2PO_4$ differ only slightly (cf. Table 1), we used for $KH_2AsO_4$ and $RbH_2PO_4$, too, the value $\alpha\, S_1 = 9.4 \times \times 10^{-3}\,\mathrm{kbar}^{-1}$ determined for $KD_2PO_4$. In this way, we found $\Omega/k = 43$ °K for $KH_2AsO_4$, and $\Omega/k = 112$ °K for $RbH_2PO_4$. In this estimate we assumed the same value for $\zeta$ as for $KH_2PO_4$, because no experimental data for $\zeta$ are available for $KH_2AsO_4$ and $RbH_2PO_4$. However, this assumption is not so important because there is only a weak dependence of the estimated values of $\Omega$ on $\zeta$. This is shown in Fig. 5 where for the parameter value $\Omega/k = 75$ °K also curves with $\zeta = 0.15$ and 0.25 Å are given as dashed lines.

If instead of the dielectric data for the shift of $T_c$ with pressure of $KH_2PO_4$ and $KD_2PO_4$ the neutron diffraction data of Umebayashi et al. [1], $\mathrm{d}T_c/\mathrm{d}p = = -4.5$ deg/kbar and $\mathrm{d}T_{c,D}/\mathrm{d}p = -2.6 \times 10^{-3}$ deg/kbar, are used, the same method results in $\alpha\, S_1 = 6.1 \times 10^{-3}\,\mathrm{kbar}^{-1}$ and $\Omega/k = 93$ °K. The $\Omega$-value does not differ essentially from that obtained from dielectric data. For reasons of comparison, data from dielectric-constant measurements have only been taken in Fig. 5.

From (6), with $q^2 \sim m^{1/2}\,\zeta^2$, the ratio of the tunneling energies follows: $\Omega_D/\Omega = 2^{-1/4}\,(\zeta_D/\zeta)\,\exp\{-q^2\,[\sqrt{2}\,(\zeta_D/\zeta)^2 - 1]\}$, the quantities of the deuterated crystal having the index D. Assuming $\zeta_D/\zeta = 1.0$ to 1.1, for all three substances $\Omega_D/\Omega < 0.2$ and $\Omega_D/kT_{c,D} < 0.1$ result. This justifies our neglect of the influence of tunneling on the shift of $T_c$ for the deuterated crystals as assumed above. For these crystals, therefore, the linear relation $\mathrm{d}T_{c,D}/\mathrm{d}p \approx \approx -0.02\, T_{c,D}\,\mathrm{kbar}^{-1}$ is expected to hold.

Contrary to our determination of the value of $\alpha$ from experimental data Novaković [6], and Blinc and Žekš [7] determined $\alpha$ by a-priori assumptions which, however, resulted in very different values for $\alpha$. Novaković puts $\mathrm{d}\zeta/\mathrm{d}a = \zeta/a$, i.e. $\alpha = 1$. Blinc and Žekš assume that with compression the O–H···O bonds (two per lattice constant) are shortened only and that within these bonds the distance $2\zeta$ between the potential minima is reduced only, i.e. $\mathrm{d}\zeta = \mathrm{d}a/4$ or $\alpha = 9.5$. This value is approximately the same we used ($\alpha = 7.8$ to 8.3). According to the semi-empirical model for the O–H···O bonds of Lippincott and Schroeder [15] one might expect $\mathrm{d}\zeta/\mathrm{d}a \approx 0.29$ or $\alpha \approx 11$. A direct experimental determination of $\alpha$ (by neutron-diffraction measurements under pressure) would be of interest because the a-priori choice of $\alpha$ is affected with a considerable uncertainty.

Having determined $\Omega/kT_c$, $\Omega/J$ is directly obtained from (2). For the deuterated crystals, (2) simplifies to $J_D \approx 4\,kT_{c,D}$. In Table 1, values of $4\,\Omega/J$ and $J_D/J$ are also listed. Obviously, the ferroelectric interaction in the deuterated crystals is stronger; this fact corresponds qualitatively to the theoretical expectations

Within the range of the applied pressures up to 1.2 kbar, no deviation from the linear dependence between $T_c$ and $p$ was observed. From the above mentioned dependence of the values $\Omega$ and $J$ on $\zeta$, according to (2), we have to expect, however, that due to tunneling, at higher pressures the transition temperature $T_c$ decreases more rapidly, and ferroelectricity disappears com-