and Steele (1954).† In the latter experiments the c/a ratio changed simply because of the temperature change at constant (approximately atmospheric) pressure. As we shall see below, the almost totally predominating factor that determines the cross-sectional area of the needles is the c/a ratio. The results for the initial slope of the S_1–P curve are summarized in Table II.

TABLE II. Extremal cross-sectional area as a function of pressure in Zn (needles with field parallel to b_3)

$\partial \ln S_1/\partial P$	Observer
$32{\cdot}0 \pm 1{\cdot}5 \times 10^{-2}\text{b}^{-1}$	O'Sullivan & Schirber (1966)
$32 \pm 6 \times 10^{-2}\text{b}^{-1}$	Balain *et al.* (1960)
$30 \pm 3 \times 10^{-2}\text{b}^{-1}$	O'Sullivan & Schirber (1966)
$12 \pm 3 \times 10^{-2}\text{b}^{-1}$	Gaidukov & Itskevich (1963)

We can therefore conclude that the consistency between these different sets of experiments demonstrates that the helium gas technique gives reliable and reproducible results. We see, however, in Fig. 3 that the results obtained by the ice-bomb technique and by the oil–kerosene technique do not agree with each other or with the helium technique. The ice-bomb results are particularly notable because they give the wrong *sign* for the effect. Melz (1966a) (see also O'Sullivan and Schirber) has suggested that this effect can be understood as follows. In cooling the Zn crystal embedded in ice from the high temperature where the pressure is first generated, the crystal, because of its anisotropic properties, contracts more in the c than in the a direction. Because the ice cannot readily flow to compensate for this, the pressure in the c direction is reduced relative to that in the a direction. Thus the c/a ratio is *increased* instead of decreased as it would have been under hydrostatic pressure. Similarly, as both O'Sullivan and Schirber (1966) and Melz (1966a) point out, effects of this sort, but to a lesser degree, could account for the discrepancies in the measurements of Gaidukov and Itskevich (1963) using the oil–kerosene technique. More recent results at higher pressures (up to 15 kb) by Itskevich *et al.* (1965) indicate that at these higher values the pressure produced by this method may become more uniform and isotropic.

† In fact some re-interpretation of the data obtained by Berlincourt and Steele was needed.