by about 8 ml, i.e., by ~10 % of its molar volume. Our data, given in table 3, show that the volume of THF decreases by about 10 % at 2000 atm.

Inspection of fig. 4 reveals that the plot of log K against P for sodium fluorenyl in THF is curved; ΔV is, therefore, a function of pressure, slightly decreasing with its increase. The observed curvature seems to be real, although the deviations from linearity are within the experimental uncertainties. The decrease of ΔV with pressure might be expected—the compression of solvent molecules around the ions being less significant, as the bulk of the liquid is compressed. The curvature could not be observed for the lithium salt because the relevant K could not be accurately determined at higher pressures.

TABLE 3.—COMPRESSION OF THF AT ~22°C

P atm	% volume compression	relative O.D. ($\lambda_{\max}$ tight)+ O.D. ($\lambda_{\max}$ loose) corrected for the compression
1	0.0	1.00
940	6.2	1.11
1920	10.1	1.20
2920	12.8	1.34
3900	15.1	1.47
4900	extr. ~17.4	~1.58

Finally, we note the substantial increase of the linear extinction coefficients of the ion-pairs at higher pressures. The data collected in table 3 show that the sum of the optical densities at both $\lambda_{\max}$ increases by about 60 % (after being corrected for the volume contraction) as the pressure rises from 1 to about 5000 atm. The partial destruction of fluorenyl carbanions by glycerol, which leaked at higher pressures into the cell, makes the determination of the pressure dependence of the O.D. difficult. We believe that the leakage was negligible in expt. 2 given in table 1, and, at lower pressures, in expt. 2 and 3 given in table 2. Apparently, the absorption curves become sharper at higher pressure, presumably because the rotation and the soft vibrations of the pairs are impeded by the compression of the solvent.

APPENDIX

The equilibrium constants K are calculated from the experimentally determined R in conjunction with the auxiliary constants r_1 and r_2. Fortunately, the numerical values of K are not greatly affected by the values of r_1 and r_2 if R is substantially greater than r_1 and smaller than $1/r_2$. The most reliable values of K are obtained in this range of R, e.g., in the experiments involving sodium fluorenyl (see table 1).

Under conditions when both types of pairs co-exist, the r_1 and r_2 values cannot be obtained directly. Our choice may be criticised, e.g., one may argue that r_1 and r_2 decrease with pressure because the absorption curves become sharper. However, at increasing pressure the absorption peaks come closer together and this should increase the r_1 and r_2 values. It seems, therefore, that the assumption of constant, pressure-independent r_1 and r_2 may be valid.

Unfortunately, previous workers did not give their procedure to determine r_1 and r_2 and their temperature dependence. In a private communication [6] they confirmed our claims, i.e., at 25°C and 1 atm pressure both ion-pairs have the same extinction coefficients, $r_1 = 0.24$ for the sodium salt and 0.11 (compared with our 0.10) for the lithium salt. They found, however, that on lowering the temperature $\varepsilon_{\text{loose}}/\varepsilon_{\text{tight}}$ increases and r_1 and r_2 decrease, the latter diminishing more than the former. These conclusions were obtained from studies of the caesium salt in THF (only tight pairs are present in such a solution) and the lithium salt in DME (only loose pairs appear in the latter system). It is assumed then that the numerical results apply to the investigated systems—a plausible but not necessarily a correct procedure.