TO THEIR STATE OF IONIZATION-MACGREGOR.

241

differences between the values of $(P_1 - P_2)/n$ will be somewhat greater. As the (l-k)'s in this case, however, are more than twice as great as in the case of thermal expansion, the differences in the values of $(P_1 - P_2)/n$, if expressed as percentages of one of them, will be smaller than in the case of thermal expansion. Accordingly we find from Brückner's observations,

For
$$n = 0.5$$
 1.0 1.5 2.0 2.5
 $(P_1 - P_2)/n = 0_2 116 \quad 0_2 122 \quad 0_2 126 \quad 0_2 128 \quad 0_2 135$

For surface-tension l = k for NaCl is -0.096 and for KCl -0.116. The approximation to constancy (judged by the percentage criterion) will thus not be so close as in the last case. Rother's observations give, by graphical interpolation,

For
$$n = 1.0$$
 1.5 2.0
(P₁ P₂)/n = 016 0113 0105

For refractive index l - k for NaCl is +0.0054 and for KCl +0.0091. Thus the values of $(l - k) \Delta \alpha / \Delta n$ for the two salts are much more nearly equal than in the case of the other properties and consequently the differences in the values of $(P_1 - P_2)/n$ will be smaller than in the case of the other properties. Bender's observations give for the D line,

For
$$n = 1.0$$
 2.0 3.0
 $(P_1 - P_2)/n = 0.029$ 0.0317 0.024

If the value for n=2 be omitted from consideration, as being probably in error, $(P_1 - P_2)/n$ is seen to be more nearly constant so far as absolute magnitude is concerned than in the other cases considered. As the values of $(P_1 - P_2)/n$ however, are small, their differences when expressed as percentages are comparatively large, and the approximation to constancy, viewed in this way is less than, e. g., in the case of density.

The above account of this phenomenon may be further tested by the aid of Kohlrausch's observations of electrical conductivity; for in this case l - k is the molecular conductivity at infinite dilution (usually written μ_{∞}). The