Poly-Component Systems

The theory of fractional precipitation of neutral salts and its application in analytical chemistry. *A. Findlay. Zeit. phys. Chem.* 34, 409 (1900).—The author points out that where two sparingly soluble salts may be formed, it is not necessarily the least soluble which precipitates first, the relative concentrations being also an important factor. The author then studied the reversible equilibrium

When lead sulphate and iodide are present as solid phases, the concentration of sulphate as ion should be proportional to the square of the concentration of iodine as ion. This was found to be very nearly true. The equilibrium constant was also determined electrometrically, though not with great accuracy. The author completed his research by adding lead nitrate to the solution.

W. D. B.

On the behavior of ammonia toward salts in aqueous solution. *D. Konowaloff. Jour. Russ. Soc.* 31, 985 (1899).—The conclusions arrived at are these:

1. Ammonia in aqueous solutions forms, with salts of silver, copper, zinc, and cadmium, definite compounds corresponding to the general formula, $\text{S}m\text{NH}_3$, where m is the equivalent of the metal entering into the composition of the salt S.
2. The formation of these compounds arises from substitutions for hydrate water and can serve as most excellent indirect proof of the existence of hydrates of salts in solution.
3. The changes of the pressure of ammonia in solutions of the salts of alkaline and the alkaline-earth metals are subject to an additive law; for an increase in strength of the acid entering into the composition of the salt, the solubility of the ammonia becomes greater, while for an increase in the strength of the base, it becomes smaller.
4. The changes of solubility both of the salts and the ammonia may be explained according to the physico-chemical theory of solutions.
5. The theory of electrolytic dissociation is insufficient to account for the abnormally large values of the osmotic pressure.
6. The values of the osmotic pressure determine the condition of the solvent in the solution, and for the cases of abnormally large values, we find evidence of chemical action between the solvent and the dissolved substance.
7. The physico-chemical theory of solutions agrees with the theory of liquids.
8. The relationship between the values of the maximum molecular electrical conductivity and the electrical conductivity at a given concentration can serve to characterize the degree of hydration; the electrical conductivity depends upon the relative strengths of the acids and the base.

C. E. L.

On the absorption of nitrogen and hydrogen in aqueous solutions of different substances. *L. Braun. Zeit. phys. Chem.* 33, 721 (1900).—Propionic acid appears to have no effect on the solubility of nitrogen or hydrogen in water, at any rate up to normal solutions. The presence of urea does change the ab-