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Ivan Klobukoff (Zeit. Phys. Chem. IV, 429,) has observed that solutions of hydrochloric acid in ether and in amyl alcohol exhibit a diminution of molecular conductivity with increasing dilution of the solutions and has shown that it is not due to any chemical action of the acid upon the alcohol. This phenomenon evidently belongs in the same class with that which I have observed in the case of ferric sulphocyanate solutions.

Neither of the theories as yet advanced seems capable of explaining all the facts and more extended studies of the spectroscopic and electrical behavior of other colored salts in non-aqueous solvents must be made before any theory can be advanced with profit.

ELECTROLYSIS OF SILVER—LABORATORY NOTES.

W. S. HENDRIXSON.

(Abstract.)

The author exhibited some pieces of apparatus devised in connection with his work on the atomic weight of tin, and also a quantity of pure silver prepared by electrolysis of the pure silver of Stas in strong nitric acid solution. The method of electrolysis was essentially that of Abrahall* as modified by Richards†. By using a strong acid solution containing fifteen per cent of silver and a battery consisting of sixteen gravity cells the silver was obtained in large crystals and no peroxide was formed at the positive pole. Separate experiments showed that silver deposited under these conditions, from a solution to which copper had been added, contained no trace of the latter metal.

The apparatus exhibited included:

1. A platinum condenser for the preparation in pure condition of such substances as attack glass or metals other than platinum, viz, water, hydrochloric, hydrobromic and nitric acids. Cork or other connections are avoided by selecting a retort into the neck of which the condenser tube fits closely. The first portion of the vapor condenses between the glass and platinum and forms a seal. The condenser tube is bent so that the neck of the retort or flask may be inclined upward to secure a back flow and to avoid the mechanical carrying over of substances by the spray.

2. A separatory funnel having a doubly-bored stop-cock like that in the well-known Lunge's nitrometer. On turning the cock to arrest the flow of the liquid the column in the stem, which in the ordinary funnel remains in the stem, being held by atmospheric pressure, falls at once since it is replaced by air which enters the stem through the second hole in the stop-cock.

* Journal Chem. Soc., 1892. p. 660.

† Proc. Amer. Academy, Vol. XXVIII. p. 22.

3. An adjustable attachment for a Bunsen burner, having three upright posts for the support of dishes, and a platinum triangle, made of wire, passing through holes near the tops of the posts, to support a crucible, watch-glass or small dish. The attachment permits the use of a "crown top" if it is desired to evaporate a liquid rapidly without boiling, and it is provided with supports for a cylindrical chimney which encircles the posts and protects the flame from drafts of air.

4. An apparatus for electrolysis, consisting of a dessicator containing a platinum triangle to support a platinum dish. A wire of the same metal is connected with the triangle and passes through the side of the dessicator. To prevent loss by spray, the dish is covered by a large watch-glass, in which is sealed a large platinum wire ending in a spiral below to serve as the positive electrode. The wire extends through a very small cork fitted in the top of the dessicator, and thus can be raised, lowered or supported in any position.

EXPERIMENTAL ENGINEERING AT THE IOWA AGRICULTURAL COLLEGE.

BY G. W. BISSELL, PROFESSOR OF MECHANICAL ENGINEERING.

Experimental engineering at the Iowa Agricultural College is of two kinds. The first kind has for its object the instruction of the student in the use of and calibration of the instruments employed, and in the performance by improved methods of a series of graded experiments whose variety and selection are such as experience has shown to be productive of the best results attainable with the facilities of the laboratory.

The experiments under this head which are conducted by the students in mechanical engineering are: Tension, transverse and compression tests of the materials of construction, properties of lubricants, measurements of power by absorption and transmission dynamometers, steam gauge and indicator spring calibration, cement testing, fan-blower tests, calorimetry, weir and water-meter calibration, efficiency tests of steam engines, boilers, injectors, air compressor and steam heating, electric lighting and pumping plants, and the thermal analysis of the steam engine.

Owing to the number of experiments and students and the lack of duplicate apparatus, it is necessary as well as advisable to maintain all apparatus in working order, so that the student is not obliged to lose time and patience and courage in looking for things. While the experience obtained in arranging apparatus might be useful as instruction, such preliminaries are apt to discourage the beginner. Moreover, the practice, if followed with large classes, would cause confusion and sacrifice discipline. System is necessary in this particular.

The actual performance of the above or any other set of experiments is secondary to another feature of the work, which consists in the writing of