

minutes, acidify with about 25 cc. of a mixture of concentrated sulphuric acid and water (1 of acid to 1 or 2 of water, cooled to a moderate temperature), and complete the titration to the usual pink coloration. Some heat is developed upon adding the acid to the alkaline solution, but this is without harmful effect. The end reaction is sharp and the results are concordant. The copper in a solution of copper foil was determined electrolytically and also by the above modification with results as follows:

	Electrolytically.	Burette readings.
(a)	0.0442	29.3
(b)	0.0443	29.3
(c)	0.0442	29.3
(d)	0.0443	29.25
(e)	29.2
(f)	29.3
(g)	29.3

The iron value of the permanganate multiplied by 0.1602, and the resulting copper factor multiplied by the burette reading 29.3, gives 0.04430 gram of copper as against 0.04425 of electrolytic copper.

To show the concordant nature of the results obtained by this procedure, the readings from the titrations on four ores of widely different character are given as follows:

A.	B.	C.	D.
23.7	10.8	16.2	12.3
23.7	10.8	16.2	12.2

In case of bearing metals, etc., containing both lead and tin, one or the other must be removed because of the formation presumably of lead stannite, which reduces permanganate.

UNIVERSITY OF ILLINOIS.

THE AMERICAN ELECTROCHEMICAL SOCIETY.

BY JOSEPH W. RICHARDS.

PURSUANT to a call for a meeting signed by C. J. Reed, Carl Hering, E. F. Roeber, W. H. Wahl, of Philadelphia, and J. W. Richards, of Lehigh University, a preliminary meeting to found the above-named society was held at the Engineers' Club, Philadelphia, on November 1, 1901. As the result of that meeting, the

first general meeting of the proposed society was called for April 3d, 4th, and 5th, in Philadelphia, and committees were appointed to enroll members and secure papers.

The meeting for organization was called to order at 8 P.M., April 3rd, in the assembly hall of the Manufacturers' Club, in Philadelphia, with Dr. J. W. Richards in the chair and Carl Hering, secretary *pro tem*. Reports of committees showed that 357 persons had announced themselves for membership, and that 28 papers had been offered for reading at the meeting. The society then organized with title as above, and elected as officers the following:

President.—Prof. Joseph W. Richards, Ph.D., Department of Metallurgy, Lehigh University, and Vice-President of The American Chemical Society.

Vice-Presidents.—Prof. Charles A. Doremus, College of the City of New York; Prof. H. S. Carhart, University of Michigan; Charles M. Hall, Niagara Falls; Dr. W. D. Bancroft, Cornell University; Dr. Louis Kahlenberg, University of Wisconsin; Dr. W. R. Whitney, Massachusetts Institute of Technology.

Board of Managers.—Carl Hering, Dr. E. F. Roeber, Dr. Samuel Sadtler, of Philadelphia; E. G. Atcheson, Niagara Falls; C. O. Mailloux and W. D. Weaver, New York; Edward Weston, Waverly Park, N. J.; Dr. Samuel Sheldon, Brooklyn Institute of Technology; Colonel Samuel Reber, U. S. A., Washington, D. C.

Treasurer.—Dr. Pedro G. Salom, The Bourse, Philadelphia.

Secretary.—Charles J. Reed, 3313 N. 16th St., Philadelphia.

It was decided to hold two meetings annually and to publish separately the transactions of each meeting. The entrance fee was fixed at five dollars; annual dues five dollars. The next meeting was announced to be held at Niagara Falls the 15th to 18th of September, 1902.

On Friday, April 4th, the society met in the John Harrison Laboratory of Chemistry of the University of Pennsylvania, at 9 A.M., and at the morning session read and discussed the following papers:

A University Course in Electrochemistry, by Joseph W. Richards, Ph.D., Lehigh University.

Graphite Electrodes, by Clarence L. Collins, 2nd, Niagara Falls.

Note on the Gladstone-Tribe Couple, by Prof. W. D. Bancroft, Cornell University.

The Nascent State, by C. J. Reed, Philadelphia.

The Electrolytic Reduction of Lead, by Pedro G. Salom, Ph.D., Philadelphia.

The Refining of Composite Metals, by Titus Ulke, Sault Ste. Marie, Canada.

After lunch in Houston Hall, where the Society was the guest of the University of Pennsylvania, the meeting was resumed in the hall of the new Randal-Morgan Laboratory of Physics, and the following papers were read and discussed:

A Novel Concentration Cell, by Prof. H. S. Carhart, University of Michigan.

The Manufacture of Carbon Bisulphide in the Electric Furnace, by Edward R. Taylor, Penn Yan, N. Y.

Current Electrochemical Theories, by Prof. L. Kahlenberg, University of Wisconsin (read by Prof. C. F. Burgess).

A Zinc-Bromine Storage Battery, by Herbert H. Dow, Midland, Mich.

Continuous Electrolysis of Solutions of Metals, by N. S. Keith, Ph.D., New York City.

A Method of Electrolytic Production of Zinc from its Ores, by Samuel S. Sadtler, Philadelphia.

The Electrolytic Rectifier, by Prof. C. F. Burgess, University of Wisconsin and Carl Hambeuchen, Madison, Wis.

Caustic Alkalies and Chlorine by the Dry Electrolytic Process, by C. E. Acker, Niagara Falls.

On the Relative Speed of the Ions in Solutions of Silver Nitrate in Pyridine and Aceto-Nitrile, by Herman Schlundt, Ph.D., Madison, Wis. (read by Prof. W. D. Bancroft).

On the evening of April 4th, an informal reception was held in the parlors of the Manufacturers' Club, where the members had full opportunity of cultivating each other's personal acquaintance.

On Saturday, April 5th, the sessions were resumed in the John Harrison Laboratory of Chemistry, with reading and discussion of the following:

On a New Type of Electrolytic Meter, by Konrad Norden, Ph.D., New York City.

The Reversible Copper Oxide Plate, by W. McA. Johnson, Hartford, Conn.

A Thermodynamical Note on the Theory of the Edison Battery, by Dr. E. F. Roeber, Philadelphia.

Electrolysis of an Aqueous Solution by Alternating Current, by J. W. Richards, Ph.D., Lehigh University.

The Atom of Electro-Chemistry, by Arvid Reuterdaahl, Providence, R. I.

The papers presented were all freely discussed, and the discussion, being taken down stenographically, will be published with the papers.

On the afternoon of April 3rd, a party of about thirty visited the chemical works of Harrison Bros. & Co., Inc., where various chemical processes were seen, particularly the manufacture of sodium and nitric acid by Darling's process of electrolyzing fused sodium nitrate. On the afternoon of the 5th, over thirty participated in a trip to Bethlehem, Pa., where an hour was spent in the works of the Lehigh Zinc and Iron Co., two hours in the armor-plate and heavy-forging plant of the Bethlehem Steel Co., and a short visit was made to the Lehigh University.

Altogether, nearly 100 members of the new society were in attendance; every paper presented was received attentively and discussed freely, and the membership dispersed, feeling that a move had been made which will react with great energy on the development of the youthful science and industry—that of Electro-chemistry.

NEW BOOKS.

THE LETTERS OF JÖNS JAKOB BERZELIUS AND CHRISTIAN FRIEDERICH SCHÖNBEIN, 1836-1847. Edited by GEORG W. A. KAHLBAUM, Bâle. Translated by FRANCIS V. DARBISHIRE and N. V. SIDGWICK. London: Williams and Norgate. 1900. 112 pp. 12mo. Price, three shillings.

Schönbein, the illustrious discoverer of ozone, guncotton and collodion, was a voluminous letter writer; he corresponded with Faraday and other Englishmen, with Eisenlohr of Karlsruhe, Liebig, Pettenkofer, Wöhler, and other eminent German physicists and chemists, with some Swiss, including Marig-