

rods are placed sixteen wooden balls, eight on each rod as shown in the sketch. Across the top of the supports is fastened the horizontal scale, *SS*. This scale is divided into sixteen equal parts, the value of each division being the same as the diameter of a ball, or 28 mm. Between the third and fourth divisions, and between the twelfth and thirteenth divisions are placed two light strips of wood as shown at *BB* and *CC*. From the eighth division to

To make its use clearer let us take a concrete case. Suppose the anion of the electrolyte to have a velocity twice as great as the velocity of the kation. Placing the balls as shown in Fig. 1 with the wire *DD* bisecting the two rows, we move the middle of the lower row, the anions, from division 8 to division 10. We then move the upper row from division 8 to division 7. We have thus imparted a velocity to the anions twice as great as that

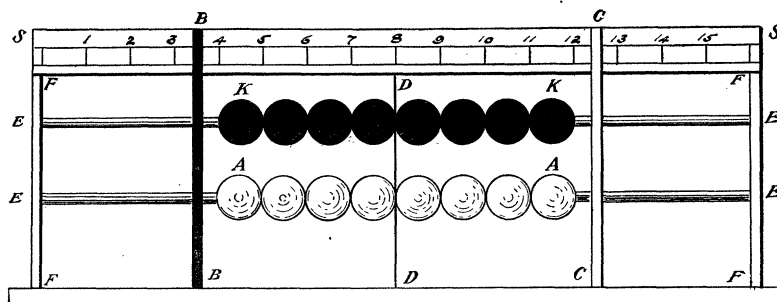


FIG. 1.

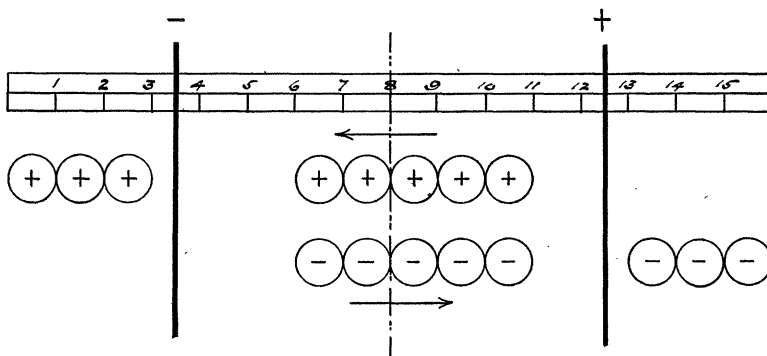


FIG. 2.

the base-board is stretched a vertical wire, *DD*, 1 mm. in diameter. The upper row of balls are painted black and are chosen to represent kations; the lower row are painted white and represent anions. The strip *BB* is painted black, representing the kathode, and the strip *CC* is painted white, representing the anode. The wire *DD* represents the trace of an imaginary plane of reference through the solution.

With this arrangement it is possible to demonstrate to a class Hittorf's theory as explained by Ostwald.\*

\* 'Lehrb. d. Allg. Chem.,' II., 595.

imparted to the kations. Now let three molecules discharge, the ions assuming the atomic or molecular condition. To represent this we move the three end ions beyond the electrodes *BB* and *CC*, when we have the condition represented in Fig. 2. It is obvious that the ratio of the kathode loss to the total number of molecules electrolyzed is 2:3, and the ratio of the anode loss to the total number of molecules electrolyzed is 1:3. These two values bear the same relation to each other as the velocities of anion and kation.

By varying the conditions it is possible to

illustrate in a very satisfactory manner the mode of ion transference.

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THE GEORGE WASHINGTON UNIVERSITY  
AND THE GEORGE WASHINGTON  
MEMORIAL ASSOCIATION.\*

THE annual meeting of the George Washington Memorial Association was held at Rauscher's on Wednesday, December 14. The president, Mrs. Archibald Hopkins, opened the meeting with an address recalling the events of the year, dwelling especially on the agreements of the association with the Columbian University, whereby the university changed its name from Columbian to the George Washington University and the association pledged itself to raise the sum of \$500,000 to construct the central building of the proposed new university group in Van Ness Park. This building, the administration building of the university, was to receive the name of 'The George Washington Memorial Building.' The president laid stress upon the need in Washington of such a building, which should contain an auditorium for meetings of international tribunals and of scientific organizations.

The executive committees of the university and of the George Washington Memorial Association have already designated the architects who were to compete for the memorial building. The park commissioner, the committee for Greater Washington, Mr. McKim, Mr. St. Gaudens, Mr. Olmstead, and Mr. Burnam, with whom is associated Mr. Bernard R. Green, have consented to act as jury of award, and the date of the competition will be fixed as soon as the program, which was being prepared by Professor Percy Ash, of the university, should be finished and submitted to the jury.

The most vital problem, therefore, which the association had to solve was the raising of funds for the Memorial Building. Fifty thousand dollars were already in the possession of the association, and the association desired to raise fifty thousand more before March,

\* From the *Bulletin* of the University.

1905, so that the building could then proceed.

The president felt justified in saying that the outlook was most encouraging. The enthusiasm of California and of Utah had been rekindled by the recent visits of Dr. Needham; in Ohio and South Dakota interest was reviving, and Virginia, Maryland, Pennsylvania and New York were organizing meetings to be held in January and February. Meanwhile, literature was being prepared, plans carefully considered and state organizations perfected. All was as yet tentative; yet, in view of the work of the past year, the evident reawakening of interest, and the hearty co-operation of the George Washington University, the future of the George Washington Memorial Association seemed to be full of promise. The president then called upon Dr. Needham.

In his address Dr. Needham laid especial emphasis on the national and scientific character of the governing board of the George Washington University, and gave a brief sketch of the organization of the university, which had in view primarily graduate and professional studies, but grouped about this higher university work, as feeder to it, the organization provides for a number of independent colleges for undergraduate students, governed by their own distinctive boards. The first of those, Columbian College, which embraced all the undergraduate work now being done in the university, has now 401 students, this organization combining the essential features of the English idea, of Oxford and of Cambridge, with the American idea of a university.

Dr. Walcott congratulated the association upon the firm relations established during the past year with the George Washington University. Some fear, he continued, had been entertained that the Carnegie Institution, established for scientific research and for graduate work, would materially interfere with the prosperity of the university. This apprehension, however, had been removed, for, by the election of Dr. Woodward as its president, the Carnegie Institution definitely limited its sphere purely to scientific research. The committee on nominations having presented the names of the officers of 1903-04 for re-election,