form shown in Fig. 1 has proved so very useful in the laboratory and also that several teachers who have seen the apparatus have desired a duplicate for their work. And there may be others who would find such a cell as useful as this one has been.

The principal object in the design of this cell is to present the concept of "molecular conductivity" of an electrolyte in such a clear and concise form that no one who is capable of making electrical measurements can misunderstand it. The apparatus consists of a strong glass tube provided with a small side tube for filling. Both ends are ground plane and closed by platinum-faced electrodes, the whole being firmly clamped together in a suitable framework. Good insulation between the electrodes is provided by making a portion of this framework of ebonite, as shown in the figure. Crushing strains due to the unequal contraction of glass and metal are avoided by
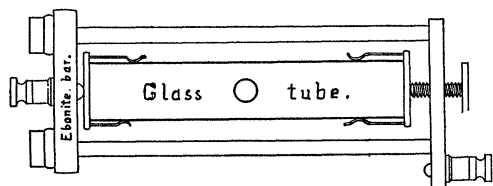

FIG. 1

the use of heavy rubber washers, one on each side, which take up the extra length without much increase in pressure. It has been found that a moderate pressure is sufficient to prevent leakage between the ends of the glass tube and the mental electrodes. The apparatus is supported by four short legs not shown in the figure.

The resistance of the column of liquid contained in this tube is measured by the method of Wheatstone's bridge, using a telephone and alternating current. The specific resistance, s, of such a conductor has the same meaning as for a metallic wire and is given by the same relationship,

$$s = r\,A/L,$$

where A is the cross-section and L the length of the column whose resistance is r ohms. Both A and L can be measured directly, and

each has a very definite and unmistakable meaning which is readily understood by the student. This can not be said regarding the equivalent "constant" of a cell which has no definite dimensions.

The specific conductivity, c, or the conductivity of a centimeter cube of the solution from one face to the opposite one, follows at once as the reciprocal of this. Or

$$c = 1/s = L/rA.$$

Since the conductivity of an electrolyte depends upon the amount of the substance in solution—that is, upon the number of ions per cubic centimeter—if the conductivities of different solutions are to be compared it is necessary to express the concentrations in comparable terms. This is usually done by stating the number of gram molecules, m, of substance that are dissolved in each cubic centimeter of the solution. The molecular conductivity, μ, of an electrolyte is then defined as the conductivity of a centimeter cube of the solution per gram molecule of salt within this cube. In symbols,

$$\mu = c/m.$$

Presented thus there is rarely a student who does not understand from the first the meaning and significance of the molecular conductivity of an electrolyte. No claim is made that this apparatus is specially adapted for refined research or that it is the best form for the expert. For example, it can not well be placed in a constant temperature bath as is necessary for all refined measurements. But nevertheless when working at room temperatures, and using solutions which have stood in the same room for some time, very satisfactory results can be obtained, and for the purpose for which it was designed this apparatus has met every requirement.

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THE AMERICAN ASSOCIATION OF MUSEUMS

THE American Association of Museums will hold its third annual meeting in Chicago, May 5–7, as the guest of the Chicago Art

Institute, the Field Museum of Natural History and the Chicago Academy of Sciences.

In addition to the usual program of papers, three special features are proposed for the meeting:

1. *An exhibit of museum devices.* This is intended to include devices of all kinds which, whether original or not, have proved useful in various museums.

2. *A discussion of the future work of the association.* An effort will be made to determine the advisability of undertaking certain lines of work which have been proposed. Among these the most prominent are:

(*a*) Publication of a Directory of American Museums of Art and Science. The secretary will submit data concerning the cost and scope of this work and general discussion of these data is desired.

(*b*) Publication of an annual table of museum statistics, either as a supplement to the directory of museums or independently.

(*c*) Establishment of a bureau of information and permanent exhibit of museum technique, to which museums would contribute plans of buildings and cases, samples of labels and other devices of installation, etc., and to which museums may apply for information on matters of museum practise and perhaps for loan of samples.

(*d*) Advisability of publishing a journal.

3. *A general discussion of topics of special interest.*

(*a*) Educational work of museums. In view of the wide interest manifested in various phases of the educational work of museums, the time seems ripe for a general discussion of the relation of educational work to other museum functions and for a concise review of the educational work actually being done, with a discussion of practicable means of co-operation between museums. It is desired that this discussion shall serve to define the attitudes taken by the various classes of museums of art and science to this subject.

(*b*) Reciprocal relations between museums in securing the services of lecturers and experts, in carrying on field explorations, and in exchange of economic and educational collections.

(*c*) Adaptation of buildings to museums, including a discussion of floor plans, natural and artificial lighting, and the general arrangement of exhibits and grouping of subjects. Exhibits of floor plans will facilitate discussion of this subject.

(*d*) Methods of exhibiting valuable books.

(*e*) Advisability of free distribution of museum publications.

Members who attend the meeting are requested to come prepared to discuss these subjects and to contribute to the exhibit of museum devices whatever is likely to be of interest to others. Inquiries and suggestions may be addressed to the secretary.

Announcement of headquarters and other details will be made shortly by the entertainment committee.

PAUL M. REA,
Secretary

THE CHARLESTON MUSEUM,
CHARLESTON, S. C.

SCIENTIFIC NOTES AND NEWS

As a matter of information for those who plan to attend the summer meeting at Dartmouth College, beginning on June 29, the local committee thinks it proper to mention the facilities for reaching that place. The railroad station is known as "Norwich and Hanover" on the Passumpsic Division of the Boston and Maine Railroad. White River Junction, four miles south of Hanover, is the center of four lines of railroad: The Concord Division of the B. & M. system; the Central Vermont Railroad and the Connecticut River Division, B. & M. R. R. (eight hours to New York) and also connecting at Greenfield and Springfield (Boston and Albany R. R.) for the West; the Central Vermont Railroad, making connection with Montpelier, Burlington and the West (thirty hours to Chicago); the Passumpsic Division, B. & M. R. R. (eight hours to Montreal). It may be added for the benefit of members who would come by way of New York that the White Mountain express will probably be put on for the summer about that time. This train has heretofore left New York at 8:40 A.M., and is due at Hanover Station at 4:45 P.M.—a through train from