down at the top to a mouth 1½" in diameter, the fundamental appears at once (*ss'* across the middle). If now the distance *sc* is decreased, the overtone will appear loudly. It is *not* the fifth above, however, but the *octave*, itself. As the kinematics of the stationary waves are given, the overtone belongs to an original wave of 3/2 longer wave-length than the fundamental.

Figure 3, 4, is another form of blower adapted for wide pipes, made of square brass tubing *pp'*. One edge of this has been filed down until a rift *cc'* may be cut with the fine blade of a knife. The strip *ss'* here advantageously covers the pipe *T* to be tested; or the hands may be used to cover projecting sides of *T*. The form, Fig. 3, with an alternative influx *P'*, may be duplicated, affording two opposed rifts and strips. Tin cups, funnels, etc., as well as long wide tubes respond to it sonorously.

Interference.—This experiment succeeded beautifully with the strip *ss'* of the blower, Fig. 1, placed between two coaxial pipes, *P* and *P'* (Fig. 2), each about 10 cm. long and 2 cm. in diameter (for instance) and closed at the outer end. Either pipe alone sounds vigorously when in position and actuated by the blower. With the two together there is a mere siffling, the wave running from end to end of the (virtually) double closed pipe *PP'*. Nevertheless, there is abundant room at *mm* for the escape of sound; indeed, one pipe, *P*, for instance, may even be placed at right angles to the other, leaving a wide open space, and still almost the whole compression of one pipe is alternatingly absorbed by the other. The experiment is an excellent illustration of the *reversal* of spectrum lines.

The nodes here are respectively dense and rare; *i.e.*, always opposite in the two pipes. Hence, the interference. In the cross pipe used heretofore, the nodes were necessarily identical in sign, and, therefore, gave marked reenforcement. The same will be true if the pipes *P*, *P'* are each open at the further end.

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THE WESTERN DIVISION OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

The first Annual Meeting of the new Southwestern Division of the American Association for the Advancement of Science was held in El Paso, Texas, on Thursday, Friday and Saturday, December 2, 3 and 4, 1920. The officers at the meeting, elected at the Organization Meeting in April, 1920, were: President, Dr. Edgar L. Hewett, of Santa Fe; Vice-president and chairman of the Executive Committee, Dr. E. C. Prentiss, El Paso; Secretary-Treasurer, Dr. A. E. Douglass, Tucson. The Executive Committee included also Dr. John D. Clark, Albuquerque, Mr. A. L. Flagg, Phoenix, Professor Fabian Garcia, Mesilla Park, Mr. Arthur Notman, Bisbee, Mr. Robert S. Trumbull, El Paso, Professor Milton Updegraff, Prescott and Dr. Chas. T. Vorhies, Tucson. Dr. D. T. MacDougal was chairman of the organization committee. The affiliated societies participating in this meeting were, The American Association of Engineers, Southwestern District, The Medical and Surgical Association of the Southwest, The New Mexico Archæological Society. The Sante Fe Society of the Archæological Institute, The Mexico Medical Society and the El Paso County Medical Society. The trustees of Temple Mount Sinai loaned their very convenient rooms and auditorium for two days. The El Paso High School did the same for the final day and provided lunch. The Ad Club of El Paso entertained the members at lunch; the El Paso County Medical Society were hosts at a reception and dance at the Toltec Club. Excursions to points of interests were provided.

An important event of the meeting was the session on Friday afternoon in the Mexican City of Juarez. As the members entered the Juarez theater, they were received with the strains of the "Star Spangled Banner," played by a Mexican military band. This was followed by the Mexican National

Anthem. An address of welcome was given in English by Sr. Esquival, a response by Dr. Hewett, a welcome by the president of the Chamber of Commerce of Juarez, an address in Spanish by Sr. Ignacio Salas, special representative of the Mexican government, reading of papers, a response to the address of Sr. Salas, by Dr. D. T. MacDougal, closing with "America" given by the military band. The members visited the Agricultural College in Juarez, the old church and other points of interest.

The papers presented at the El Paso meeting occupied four sessions and were given in three sections, Human Science, Biological Science and Physical Science. The subjects specially dealt with were Psychology, Archæology, Education, Forestry, Ecology, Bacteriology, Astronomy, Geology, Chemistry and Medicine. Besides these a half day was devoted to a Symposium upon Southwestern problems. Dr. MacDougal of the Carnegie Institution spoke on Organization of Scientific Interests; Dr. Coan of the University of New Mexico, on Salient Historical Features; Dr. Shreve of the Desert Botanical Laboratory, Tucson, on Plant Distribution in the Mountains, Dean Working, of the University of Arizona, on support of Agricultural Research, Mr. Lawson of the U. S. Reclamation Service, on Reclamation Problems, Dean Butler, of the University of Arizona, on Mining Industry and Dr. Prentiss of El Paso, on Special Features of Medical work in the southwest. The presidential address by Dr. Edgar L. Hewett given Thursday evening in the auditorium of Temple Mount Sinai, was entitled "The Southwest—Yesterday and Tomorrow." It dealt with anthropological lines closely related to the subject of the Symposium. The chief address at the opening meeting on Thursday was by Dr. David Spence Hill, President of the University of New Mexico, on Basic Principles of Research.

In the final business session, a new Executive Committee was elected, consisting of Dr. Edgar L. Hewett, Santa Fe, Dr. John D. Clark, Albuquerque, Dr. V. M. Slipher, Flagstaff, Mr. A. L. Flagg, Phoenix and Professor Romulo Escobar, Juarez, Resolutions of thanks and of appreciation of Mexican cooperation were passed. In a meeting of the executive committee, Dr. A. E. Douglass of the University of Arizona, was elected president and Dr. E. C. Prentiss, of El Paso was elected vice-president and chairman of the executive committee. The secretary-treasurer for the year 1921 will be Mr. Howard W. Estill of the chemistry department of the University of Arizona.

THE AMERICAN CHEMICAL SOCIETY

(*Continued*)

The use of platinum crucibles in electro analysis. Copper determination: HAROLD VAN DOREN and JAMES R. WITHROW; and *The use of platinum crucibles in electro analysis. Rapid Copper determinations:* RUFUS D. REED and JAMES R. WITHROW. We have found that platinum crucibles can be used with proper precautions as readily as platinum dishes and more satisfactorily than flag electrodes for this purpose. Early workers in electro analysis naturally used platinum crucibles but the development of this application of chemistry brought in a variety of other forms, losing sight of the simpler form whose use is now made imperative for economical reasons. The application of the ideas of Richards and Bisby for crowding the current density in a small volume between two platinum crucibles within each other has been tried out and found with slight modification to be eminently satisfactory. Toluene has been found more satisfactory to prevent spraying than kerosene which can be used and which was suggested by Richards and Bisby.

Preparation of manganates and permanganates: H. MCCORMACK. This paper embodies a short description of the customary method for the production of sodium and potassium permanganate and indicates some of the complications in this process and the desirability of avoiding such difficulties by the modification of the process. The modification suggested consists in the crystallization of the sodium or potassium manganate, formed in the reaction between alkaline hydroxide and manganese dioxide, from alkaline solution. The permanganate is then formed by dissolving the manganate crystals in water and oxidizing by some suitable oxidizing agent. The method of oxidation recommended is electrolytic, using an