THE FIRST JOSIAH WILLARD GIBBS LECTURE

The first Josiah Willard Gibbs Lecture was delivered under the auspices of this Society on February 29, 1924, by Professor M. I. Pupin, of Columbia University, in the auditorium of the Engineering Societies' Building, New York City. A large and distinguished audience was present, including, besides members of the Society, many physicists, chemists, and engineers who had been invited to attend.

In introducing the speaker, President Veblen spoke as follows:

"In instituting the Willard Gibbs Lectures, the American Mathematical Society has recognized the dual character of mathematics. On the one hand, mathematics is one of the essential emanations of the human spirit,—a thing to be valued in and for itself, like art or poetry. Gibbs made notable contributions to this side of mathematics in his work on vector analysis and multiple algebras.

"On the other hand, mathematics is the handmaiden and helper of the other sciences, both in their most abstract generalizations and in their most concrete applications to industry. In this field Gibbs may be justly described as transcendental,—even if we think only of his work in thermodynamics. For his paper *On the equilibrium of heterogeneous substances* is one of the foundation stones of physical chemistry.

"It is hoped that the Willard Gibbs Lectures will remind the mathematicians of something that we fear they sometimes forget,—the existence of an outside world. It is equally hoped that they will remind the outside world that mathematics is a going concern,—not a pedantic exercise for the torment of school boys, but a living organism growing larger and stronger each year. Also it is intended that these should be lectures which we can all understand. We hope not to have an experience like one I heard of

last summer. A friend of mine, an astronomer, was describing to me his attempt to read a book by Einstein. At a certain point Einstein says 'Until you have grasped this point, dear reader, read no further.' 'At this point,' said my friend, 'I closed the book and have never opened it again.'

"In asking Professor Pupin to give the first Willard Gibbs Lecture we have made sure that we shall not be tempted to close the book before we finish it. For we all know him not only as an eminent physicist and electrical engineer, but also as a rich and vivid personality and a teacher who has inspired more than one generation of students. He is well known to you as a man who has made brilliant applications of mathematics to electrical problems. But on this occasion we recall with special pleasure his connection with the American Mathematical Society. He is one of its charter members. He contributed a very famous paper (*Wave-propagations over non-uniform electrical conductors*) to the first volume of its TRANSACTIONS, and since the recent incorporation of the Society he has been one of its trustees. May I introduce our fellow mathematician, Professor Pupin."

The very illuminating lecture that followed marked the inauguration of what is confidently expected to be a notable series contributing to an appreciation on the part of the educated public of the role that mathematics plays in modern thought. Under the title *Coordination*, the lecturer divided all physical phenomena into two groups: first, coordinated phenomena, illustrated by planetary motions, and second, non-coordinated phenomena, illustrated by molecular motions. Newton, Faraday, and Maxwell laid the foundations for the dynamics of coordinated phenomena, and prepared the way for the study of non-coordinated phenomena. Sadi Carnot, with his second law of thermodynamics, led the way into the study of the dynamics of non-coordination. The discovery of the fundamental laws of radiation by Kirchhoff, and the development of the kinetic theory of gases by Maxwell, Boltzmann, and Clausius, gradually disclosed the physical fact that all radiation from

hot bodies is a non-coordinated process, and that by far the greatest quantities of energy in the universe are in a non-coordinated form. The lecturer showed that the work of Gibbs in thermodynamics, in particular his generalization of Carnot's law, entitles him to the position of one of the founders of the science of non-coordinated motions.

R. G. D. RICHARDSON,
Secretary.

THE MARCH MEETING OF THE SOCIETY

The two hundred thirty-fourth regular meeting of the Society was held at Columbia University on Saturday, March 1, and was preceded, on February 29, by the first Josiah Willard Gibbs Lecture (see this BULLETIN, p. 289). The attendance at this meeting included the following forty-seven members of the Society:

Alexander, Babb, Barnum, Bernstein, W. M. Bond, E. W. Brown, R. W. Burgess, Coolidge, Cowley, Eisenhart, Fields, Fite, Gafafer, Gehman, Gilman, Glenn, Grove, Guggenbühl, Hausle, Hill, Hille, Himwich, Huntington, Joffe, Kellogg, Kline, Langman, Harry Levy, Mirick, H. H. Mitchell, C. L. E. Moore, Mullins, Pell, Post, Rainich, Reddick, R. G. D. Richardson, Ritt, Seely, H. D. Thompson, Veblen, H. E. Webb, Wedderburn, Weiss, H. S. White, Whittemore, J. W. Young.

The Secretary announced the election of the following persons to membership in the Society:

Dr. Maria Castellani, Bryn Mawr College;
Miss Laura Guggenbühl, Bryn Mawr College;
Mr. Henry Alfred Hoover, Washington University;
Professor Benjamin Hoffman Kerstein, State Teachers' College Silver City, N. M.;
Professor James Shannon Miller, Emory and Henry College.

Thirty-seven applications for membership were received.

On recommendation of the Council, the following amendment to the By-Laws was presented to the Society: to insert in Section 1 of Article III the words "of ex-presidents,