

# WELCOME TO PROF. HELMHOLTZ

## RECEPTION TO THE GERMAN SCIENTIST AT COLUMBIA COLLEGE.

As the Guest of President and Mrs. Seth Low He Meets Many Distinguished New-Yorkers--Sketch of His Remarkable Career--Admired Wherever Science Has a Friend--Eminent Equally in Physics and the Mathematical Relations of Physiology.

Prof. Hermann Ludwig Ferdinand Helmholtz, the distinguished German scientist, and Mrs. Helmholtz were given a large reception last evening in the Law Library of Columbia College by President Seth Low and Mrs. Low. There they met over 500 representative New-Yorkers in professional, business, and social circles.

The tables and desks were removed from the library, and the floor was covered with rugs. The collection of oil paintings of the Presidents of the college and of other celebrated men of learning were hung from the balcony ceiling, and behind the railing the great lines and banks of books formed an effective background. In the corners and in conspicuous places were clusters of palms and ferns.

Prof. and Mrs. Helmholtz dined with Dr. and Mrs. Low at their home, 30 East Sixty-fourth Street. They arrived at the college at 8:30 o'clock, and soon afterward guests began to pour in through the entrance to the library building on Forty-ninth Street. Holbrook Cushman, Reginald Gordon, Herschel C. Parker, C. C. Trowbridge, Asa S. Iglehart, Herbert T. Wade, Henry S. Curtis, Joseph T. Monell, and Andrew A. Foyé presented the guests to Dr. and Mrs. Low, who introduced Prof. and Mrs. Helmholtz. The reception was over at 10:30 o'clock.

Among the guests were Chauncey M. Depew, John Woodbridge Davis, Thomas A. Edson, L. G. Engel, Charles S. Fairchild, Mr. and Mrs. H. C. Fahnestock, Mr. and Mrs. Richard Watson Gilder, Mr. and Mrs. E. L. Godkin, S. D. Greene, J. Henry Harper, Mr. and Mrs. Abram S. Hewitt, Mayor and Mrs. Gilroy, Mr. and Mrs. James W. Alexander, Richard A. Anthony, Samuel D. Babcock, Mr. and Mrs. Charles C. Beaman, Mr. and Mrs. Frederic H. Betts, Prof. and Mrs. Bickmore, Mr. and Mrs. Silas B. Brownell, James C. Carter, Mr. and Mrs. Joseph H. Choate, Daniel H. Cockran, Dr. Francis Delafield, Prof. and Mrs. Henry Drisler, Prof. and Mrs. J. Howard Van Armingo, Prof. and Mrs. Ogden N. Rood, Prof. and John W. Burgess, Prof. and Mrs. Richmond Mayo-Smith, Prof. and Mrs. Augustus O. Merriam, Prof. and Mrs. Thomas R. Price, Prof. and Mrs. John Kom Kees, Mr. and Mrs. Brander Matthews, Prof. and Mrs. E. R. H. Seligman, Prof. and Mrs. Herbert L. Osgood, Prof. and Mrs. James M. Cattell, Prof. and Mrs. George R. Carpenter, Prof. and Mrs. Jasper T. Goodwin, Prof. and Mrs. Nicholas Murray Butler, Prof. and Mrs. A. V. Williams Jackson, Prof. James F. Kemp, Prof. John D. Quackenbos, Mr. and Mrs. Henry Holt, Judge and Mrs. Howland, Mr. and Mrs. Richard M. Hunt, Brayton Ives, Morris K. Jesup, George C. Kabbé, Henry S. Kissam, Peter Marie, D. O. Mills, J. Pierpont Morgan, Charles T. McKim, Oswald Ottendorfer, Mr. and Mrs. Samuel P. Avery, Bishop Potter, the Rev. Dr. Morgan Dix, Bishop Abram N. Littlejohn, W. Bayard Cutting, George L. Rives, Frederic K. Coudert, Prof. and Mrs. Henry S. Munroe, Prof. Frederick R. Hutton, Prof. and Mrs. Pierre de Peyster Ricketts, Prof. and Mrs. Thomas Egleston, Prof. and Mrs. Nathaniel L. Britton, Prof. and Mrs. Frank Dempster Sherman, the Rev. Dr. George R. Vandewater, the Rev. Dr. William C. Kainsford, Mr. and Mrs. Elihu Root, Rutherford Stuyvesant, Spencer Trask, Mr. and Mrs. Henry Clews, Dean and Mrs. William A. Keever, Prof. and Mrs. George M. Cuming, Prof. and Mrs. Francis M. Burdick, Prof. and Mrs. George W. Kirchwey, Prof. and Mrs. John B. Moore, Dr. and Mrs. James W. McLane, Dr. and Mrs. William Detmold, Dr. George L. Peabody, Dr. John T. Metcalfe, Dr. Edward Curtis, Dr. George M. Tuttle, Dr. Thomas M. Markoe, and Dr. T. Gaillard Thomas.

Prof. Helmholtz is admired wherever science has a friend. He is seventy-two years of age, and the history of his life is a record of amazing discoveries. He is the son of a modest teacher at the Potsdam Gymnasium, and has risen by merit alone to an elevated station. A profound philosopher among those whom it is always sufficient to designate as great, the element of honesty, of scientific honesty anxious to restore priority of inventions to their original authors, however obscure, has been so predominant in his work that his biographers in all languages have always made of it a particular reference.

He was primarily educated at Potsdam, graduated in medicine at the Military Institute of Berlin, practically trained in his profession at La Charité Hospital, and as a military surgeon at Potsdam. He became Professor of Anatomy at the Academy of Fine Arts at Berlin in 1848, Professor of Physiology at Königsberg in 1849, at Bonn in 1855, at Heidelberg in 1858, at Berlin in 1871.

He invented the mirror with which the retina of the living eye is studied, he revolutionized acoustics, he made researches on the relations of sound to sight that led to the establishment of the general conclusion of the existence of "Klangfarbe," a series of sound colors which may be arranged in accordance with the definite laws of the solar spectrum.

He invented the double siren for the investigation of the laws of interference of sound. He gave a satisfactory explanation of the cause whence arises difference of quality or timbre or acoustic color between different sounds. He showed conclusively that there are but few sounds which are of a perfectly simple character, that is, in which the fundamental is not accompanied by one or more overtones. He demonstrated the inaccuracy of many theories in many studies. His attributing of the disagreeable impression of beats on the ear to the same physiological cause as the one to which is due the painful effect on the eye of a faint, flickering light was a revelation to students of acoustics.

His ophthalmometer, which accurately measures the reflected images in the eye, his ophthalmoscope, which shows a virtual and erect or a real and reversed image of the retina; his table of compound colors produced by mixing other colors; his theory of color perception based on the assumption that three kinds of nerve fibres exist in the retina, the excitation of which gives respectively sensations of red, green, and violet, and in fine all modern progress in analysis of the sensations of the eye, attest the obligations that are due to him by students of optics.

He was ever tireless. He published in 1841 a work on "The Nerves of the Invertebrata"; in 1847, "The Nervation of Force"; in 1848, "On Heat Generated by Muscular Action"; in 1850, on "Measurements Affecting the Periodical Contractions of Muscles and the Distribution of the Nerves Contained in Them"; in 1852, "On a Method of Measuring Small Intervals of Muscular Action"; in 1856 to 1866, a "Manual of Physiological Operations."

He published on optics "A Sketch of the Construction of the Living Eye" in 1851, "The Theory of Permanent Colors" in 1852, "The Sight of Man" in 1855, "Brewster's New Analysis of Solar Light" in 1851, "The Lines in the Solar Spectrum" in 1855, and "The Telestereoscope" in 1857.

He published in 1862 his "Theory of the Impressions of Sound"; then his popular work on the "Sensations of Tone as a Physiological Basis for the Theory of Music"; in 1856, "Heat Considered as a Mode of Action"; in 1853, "The Formation of Electric Currents in Living Bodies"; in 1854, "The Origins of Force According to Claudius," and revised two collected editions of his works—one published at Leipzig in 1881 and 1883, the other consisting of his lectures and scattered articles published at Brunswick in 1884.

He wrote almost 150 scientific papers, every one of which is of the highest value. In a land of specialists he stands alone in being eminent equally in physics and in the mathematical relations of physiology.

All the scientific societies have conferred public distinctions upon him. The Royal Society of London awarded the Copley Medal to him in 1873, and the German Emperor issued a decree "raising him to the status of nobility" in 1883. All his works are authoritative.

All the reference books on optics, acoustics, and electricity have foundations on the labor that he has accomplished, or are studded with observations, discoveries, inventions which he made, and by which all branches of scientific knowledge have been extraordinarily developed.

A reception is to be tendered to Prof. Helmholtz by the Century Club this evening. He will sail on the Saale on Saturday.