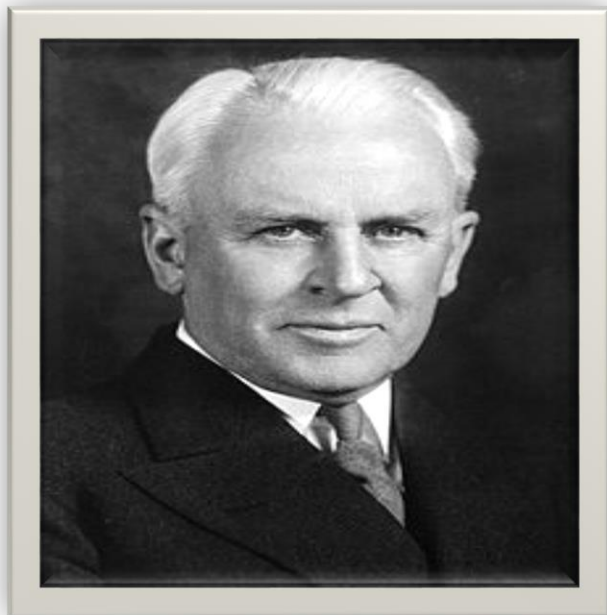


## Robert Andrews Millikan

(22 March 1868 – 19 December 1953)



An experimental physicist, Robert Andrews Millikan was born in Morrison, Illinois, U.S.A. Millikan received a bachelor's degree from Oberlin College in 1891 and doctorate in physics from Columbia University in 1895. He was honored with the Nobel Prize for Physics in 1923 for his study of the elementary electronic charge and the photoelectric effect.

While Millikan working as a professor at the University of Chicago in 1908, He worked on an oil-drop experiment in which he determined the charge on a single electron. His experiment measured the force on tiny charged droplets of oil suspended against gravity between two metal electrodes. Knowing the electric field, the charge on the droplet could be determined. Repeating the experiment for many droplets, Millikan showed that the results could be explained as integral multiples of a common value ( $1.592 \times 10^{-19}$  coulomb), which is the charge of a single electron. This result is lower than the modern value of  $1.602\ 176\ 53(14) \times 10^{-19}$  coulomb (It is probably due to Millikan's use of an inaccurate value for the viscosity of air.) In 1916, he took up with similar skill the experimental verification of the equation introduced by Albert Einstein in 1905 to describe the photoelectric effect. He used this same research to obtain an exact value of Planck's constant. In 1921 Millikan left the University of Chicago to become director of the Norman Bridge Laboratory of Physics at the California Institute of Technology (Caltech) in Pasadena.

*Teachers may suggest students to make a collage of photographs of scientists in physics depicting the advancements in the subject.*