

RANDOM WALK

ABSTRACT: The study of diffusion has a long history and the basic theoretical analysis and experimental techniques were established before the phrase 'random walk' came into existence in 1905. The phrase was introduced in a letter to Nature asking for the equation which would provide the distance of a man from his original starting point after taking n uniform steps. However the same concept was used in the same year by Einstein (the annus mirabilis year) when he published the four amazing papers on: $E=mc^2$, photo electricity, special relativity, and Brownian motion. Einstein did not use the terms Brownian motion or random walk and that paper has attracted the least attention. Nevertheless it was this paper that allowed an end to a century of discussion. [Wilhelm Ostwald](#), one of the leaders of the anti-atom school, finally accepted the reality of John Dalton's atom, convinced by Einstein's explanation of Brownian motion. Another century has passed with many amazing scientific and technical developments but it remains interesting to examine 1905, the year of random walk.

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