

## Topic Page: [Tyndall, John \(1820 - 1893\)](https://search.credoreference.com/content/topic/tyndall_john_1820_1893)

Summary Article: **Tyndall, John (1820-1893)**

From *The Hutchinson Dictionary of Scientific Biography*

**Place:** Ireland, Republic of

**Subject:** biography, physics

Irish physicist who is mainly remembered for the Tyndall effect, which is the scattering of light by very small particles suspended in a medium. The discovery of this effect enabled Tyndall to explain the blue colour of the sky.

Tyndall was born in Leighlinbridge, Carlow, on 2 August 1820. He went to school in Carlow and then held a succession of surveying and engineering jobs in Ireland and England. In 1847, he became a teacher of mathematics at Queenswood College, Hampshire, where he was a colleague of the chemist Edward Frankland (1825-1899). Drawn to the study of science by Frankland, Tyndall left with him in 1848 to enter the University of Marburg, Germany. There Tyndall studied physics and mathematics, and also chemistry under Robert Bunsen. Obtaining his doctorate in 1850, he returned to Queenwood in 1851, and in 1853 became professor of natural philosophy at the Royal Institution. From 1859 to 1868, Tyndall was also professor of physics at the Royal School of Mines.

In 1867, Tyndall became superintendent of the Royal Institution, succeeding Michael Faraday. In his position as lecturer at the Royal Institution and as a journalist and writer, he did much to popularize science in the UK and also in the USA, where he toured 1872-73. Tyndall also championed those he believed had been wrongly treated, and was responsible for the recognition of the UK of the pioneering work done on the conservation of energy by Julius Mayer. In 1886, Tyndall became seriously ill and he retired from the Royal Institution in the following year. He died from an accidental overdose of drugs at Hindhead, Surrey, on 4 December 1893.

The discovery of the Tyndall effect was made in 1869 when Tyndall was investigating the passage of light through liquids. He found that light passes unimpeded through a pure solvent or an ordinary solution, but that the beam becomes visible in a colloidal solution. Tyndall realized that the colloidal particles although invisible to the eye were big enough to scatter the light, and reasoned that a similar suspension of dust particles in the atmosphere causes the blue light in the sunlight passing through the atmosphere to be scattered more than the red, producing a blue sky. This explanation was confirmed by Lord Rayleigh in 1871, who showed that the scattering is inversely proportional to the fourth power of the wavelength.

This work led Tyndall to consider the likelihood that the air contains living micro-organisms, and he was able to show that pure air devoid of any suspended particles as indicated by the absence of the Tyndall effect did not produce putrefaction in foods. The air must therefore contain bacteria. This result was important in confirming the work of Louis Pasteur that rejected the idea of the spontaneous generation of life, and it also inspired Tyndall to develop methods of sterilizing by heat treatment.

Tyndall also carried out experimental work on the absorption and transmission of heat by gases, especially water vapour and atmospheric gases, which was important in the development of meteorology.

**APA**

Chicago

Harvard

**MLA**

---

Tyndall, John (1820-1893). (2018). In Helicon (Ed.), *The Hutchinson dictionary of scientific biography*. Abington, UK: Helicon. Retrieved from [https://search.credoreference.com/content/topic/tyndall\\_john\\_1820\\_1893](https://search.credoreference.com/content/topic/tyndall_john_1820_1893)

---



© RM, 2018. All rights reserved.



© RM, 2018. All rights reserved.

## APA

Tyndall, John (1820-1893). (2018). In Helicon (Ed.), *The Hutchinson dictionary of scientific biography*. Abington, UK: Helicon. Retrieved from [https://search.credoreference.com/content/topic/tyndall\\_john\\_1820\\_1893](https://search.credoreference.com/content/topic/tyndall_john_1820_1893)

## Chicago

"Tyndall, John (1820-1893)." In *The Hutchinson Dictionary of Scientific Biography*, edited by Helicon. Helicon, 2018. [https://search.credoreference.com/content/topic/tyndall\\_john\\_1820\\_1893](https://search.credoreference.com/content/topic/tyndall_john_1820_1893)

## Harvard

Tyndall, John (1820-1893). (2018). In Helicon (Ed.), *The Hutchinson dictionary of scientific biography*. [Online]. Abington: Helicon. Available from: [https://search.credoreference.com/content/topic/tyndall\\_john\\_1820\\_1893](https://search.credoreference.com/content/topic/tyndall_john_1820_1893) [Accessed 16 October 2019].

## MLA

"Tyndall, John (1820-1893)." *The Hutchinson Dictionary of Scientific Biography*, edited by Helicon, 2018. *Credo Reference*, [https://search.credoreference.com/content/topic/tyndall\\_john\\_1820\\_1893](https://search.credoreference.com/content/topic/tyndall_john_1820_1893). Accessed 16 Oct. 2019.