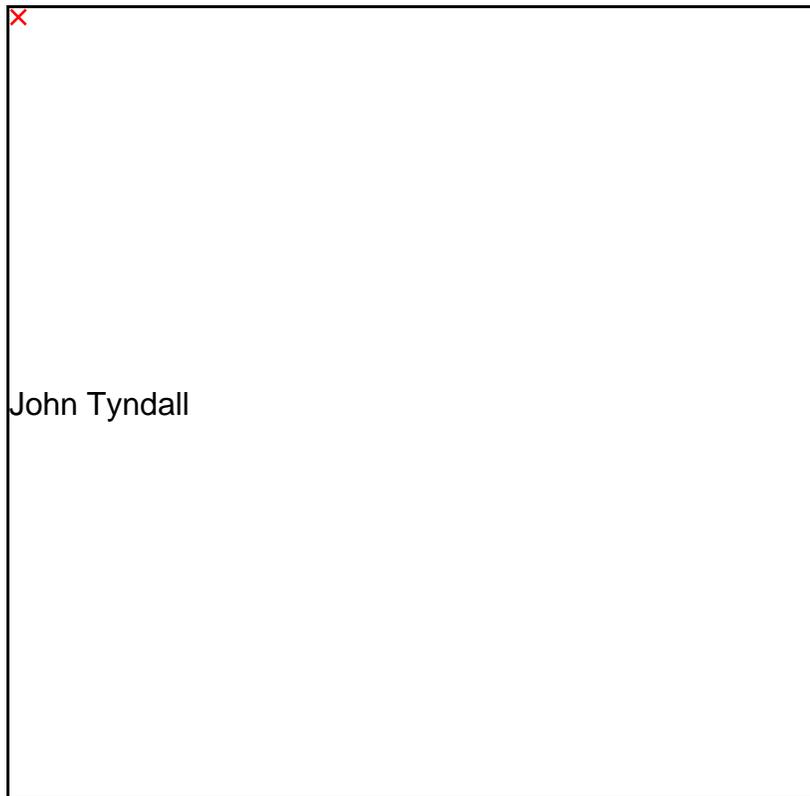




John Tyndall

1820 - 1893

John Tyndall must rank as one of Ireland's most successful scientists and educators. He reached the pinnacle of 19th century science and counted amongst his friends and collaborators many of the best-known scientists of that century. Born in Leighlinbridge, County Carlow, his early education has been likened to the "hedge school" variety, but the expert tutelage of his teacher, John Conwill, ensured he had a solid foundations in mathematics, English composition, drawing and surveying.



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He remained at school in Leighlinbridge until he was 17 or 18, unusual at the time, and then was employed as a surveyor by the Ordnance Survey of Ireland. He worked in Carlow, Youghal and Kinsale but in 1842 transferred to the English survey and re-located to Preston. While there he became interested in continuing education and attended night classes at the local Mechanics Institute. In 1847 he became a mathematics teacher at the Queenwood School in Hampshire, where with the chemist Edward Frankland, they established the first widely-used school teaching laboratory. They both travelled to Marburg, Germany, in 1848, to study for the newly-established PhD degree with Robert Bunsen (he of the Bunsen burner).

Tyndall completed his PhD in two years and returned to England, seeking various academic positions. Although initially unsuccessful, he displayed tenacity and focus and after a series of short-term positions and continued teaching at Queenwood, in 1853 landed the Professorship of Natural Philosophy at the Royal Institution in London. He would eventually succeed (in 1867) Michael Faraday as the Superintendent of the Royal Institution.

At the Royal Institution, Tyndall's primary responsibility was for the delivery of scientific lectures to the public. He was an excellent educator, practical demonstrator of scientific phenomena and populariser of science. He displayed great skill at making difficult scientific topics understandable to the layman. He became extremely well known and much sought-after and later, in the 1870s, toured the USA delivering public lectures which drew packed houses. Tyndall's scientific interests spanned heat, sound, light and environmental phenomena. Amongst his many achievements, perhaps he is best known for the explanation of why the sky is blue – the scattering of light by small particles suspended in the atmosphere. This colour is known as Tyndall Blue. His major scientific interest was the study of the interaction of light with matter, especially gases. He studied the absorption of infrared light by gases found in the atmosphere: he developed the first double beam spectrophotometer for this task (described by some as the first opto-electronic device), and made the first studies of atmospheric pollution in London.

He developed a practical demonstration of the propagation of light through a tube of water via multiple internal reflections. This he referred to as the light-pipe, which was a forerunner of the optical fibre used in modern communications technology. Tyndall's rigorous experimental approach was embodied in the optical methods he developed for measurement of particles, based on the light scattering idea (the Tyndall Effect). Using these methods he could make simple checks on the purity and cleanliness of purified air. This ability enabled him, following correspondence with Louis Pasteur, to resolve the great debate in biology at the time: he demonstrated that spontaneous generation of life did not occur and that bacteria, or germs, did exist. He subsequently invented a method for the destruction of bacteria in food, called Tyndallisation, which is more effective than Pasteurisation.

He invented the first fireman's respirator; was a keen mountaineer and glaciologist; was a member of the X Club and a Fellow of the Royal Society.

Further details on Tyndall can be found in:

"Life and Work of John Tyndall", by A.S. Eve and C.H. Creasey, Macmillan & Co., London, 1945
"John Tyndall – Essays on a Natural Philosopher" edited by W.H. Brock, N.D. McMillan and R.C. Mollan, Royal Dublin Society, 1981.