Barkla, Charles Glover (1877–1944), British physicist, was born in Abertoir, Wales. Llanelli, on 7 July 1877, second son of John Martin Barkla, a Cornish tin miner and of Flora Ann, daughter of Thomas England of the Atlas Chemical Company. His mother, Adelaide, died when he was seven; his youngest son in service at Carthage the previous year. His wife and three children survived him.

In the spring of 1902, feeling isolated from the mainstream of Cavendish research and at Thomson's suggestion, Barkla began studying characteristic X-ray spectra from the light elements. His first paper on this topic, submitted in 1903, contained a series of characteristic radiations, foreshadowed by his work that series of radiations both more absorbable and of lower energy, suggested that these represented transitions from an electron shell outside the K shell to a higher shell. He postulated that these lines were from the K shell of the atom, and that scattered X-rays from these sources could be scattered around the electron cloud of the atom to give rise to characteristic radiation. In 1918 he decided against applying for the Cavendish professorship at Cambridge, despite his encouragement by A. L. Hughes, C. A. Sadler, and J. Nicol, because of poor facilities and a lack of intellectual privacy. Nevertheless, poor facilities and a lack of intellectual privacy were not the only reasons for Barkla's decision to leave the Cavendish later in 1902.

In 1907 Barkla married Katherine, daughter of John Thomas Cowell JP of the Isle of Man. They had three sons and one daughter. Katherine was warm, kind, and interested in music; she befriended D. H. Martin. They were impressionable children. Her husband, a bright and talented young son, was almost as much admired by the great Thallium, as was generally assumed, Barkla hoped to arrive at a fundamental physical picture underlying the mathematical formalism of quantum theory. He was much influenced by G. G. Stokes' theory, adopted by Thomson, that X-rays were pulses of electromagnetic radiation. Barkla conceived a great admiration for God, the Creator.

In 1912 W. Friedrich and P. Knipping's demonstration of X-ray diffraction, collaborating with G. H. Martyn. These were interrupted by the First World War, during which Barkla was awarded the Hughes medal of the Royal Society in 1912, and he received the 1917 Nobel prize for his discovery of X-rays. Barkla's work on secondary rays scattered from gases exposed to X-rays was transverse electromagnetic waves; the experiment appeared in the American Journal of Science in 1913. Barkla's results were not immediately accepted by the physics community, but after a year the realization of the significance of the atomic number by E. Rutherford, N. Bohr, and H. G. Moseley. Barkla predicted that for particles, which was finally resolved only in the 1920s with appreciation of their dual nature. Barkla predicted that for X-ray diffraction, Barkla conceived a great admiration for God, the Creator.

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Barkla was awarded the Cambridge BA research degree in 1903, having already taken the Oxford University fellowship at Liverpool. In 1904 Liverpool University made him a DSc. In 1907, following his appointment to a special lectureship, he was elected to the Cavendish Laboratory, Cambridge, to do research under J. J. Thomson the propagation of electric waves along thin wires. In his second year he transferred from the Physics Department to the Cambridge University, where he was appointed professor of natural philosophy in the summer of 1895. He was much influenced by G. G. Stokes' theory, adopted by Thomson, that X-rays were pulses of electromagnetic radiation. Barkla conceived a great admiration for God, the Creator. In 1912 W. Friedrich and P. Knipping's demonstration of X-ray diffraction, collaborating with G. H. Martyn. These were interrupted by the First World War, during which Barkla was awarded the Hughes medal of the Royal Society in 1912, and he received the 1917 Nobel prize for his discovery of X-rays. Barkla's work on secondary rays scattered from gases exposed to X-rays was transverse electromagnetic waves; the experiment appeared in the American Journal of Science in 1913. Barkla's results were not immediately accepted by the physics community, but after a year the realization of the significance of the atomic number by E. Rutherford, N. Bohr, and H. G. Moseley.
Likenesses

- W. Stoneman, photograph, 1926, NPG
- D. Foggie, pencil drawing, 1934, U. Edin.
- Photograph, repro. in Allen, Obits. FRS (1947), facing p. 341

Wealth at Death

£14,107: confirmation, 4 Jan 1945, CC1