

**Knott, Cargill Gilston** ( 1856-1922), physicist and seismologist, was born 30 June 1856 in Penicuik, Midlothian, the sixth son in the family of seven sons and one daughter of Pelham Knott, paper-maker and later commission agent of Penicuick, and his wife Helen Macintyre, daughter of Patrick McOmish, writer of Edinburgh. His father died prematurely and Knott was brought up by an aunt and uncle while attending Arbroath High School (1864-71). He went on to Edinburgh University in 1872. After gaining his B.Sc. in 1876 he became a research assistant to P.G. Tait [q.v.], professor of natural philosophy. Knott worked in his laboratory (an 'ill-equipped attic') until 1883, after obtaining his D.Sc. on researches in contact electricity in 1879.

In 1883 Knott travelled to Japan to succeed (Sir) J.A. Ewing [q.v.] as professor of physics in the Imperial College of Engineering (later Imperial University of Japan). Knott worked closely with J. Milne [q.v.], T. Gray, and F. Omori to develop the new science of seismology. He applied Fourier analysis to investigate annual periodicity of earthquake shocks (1886) and developed a theory to explain the reflection and refraction of earthquake waves at the boundary between rock and water (1888). In 1887 he and A. Tanakadate conducted the first magnetic survey of Japan. On his return in 1891, Knott was appointed lecturer in mathematics and in 1892 reader in applied mathematics at Edinburgh University.

In 1899 he extended his earlier theory to wave behaviour at the interface between two different types of rock. This work laid the foundation for the later unravelling of the interior structure of the earth, through observation of the behaviour of seismic waves as they are transmitted through it from distant earthquakes.

He became a fellow of the Royal Society of Edinburgh in 1880 and its general secretary in 1912, and was a principal founder of the Edinburgh Mathematical Society. He was Thompson Lecturer, United Free Church College, Aberdeen in 1905-6 and 1913-14. His publications include *Electricity and Magnetism* (1893); *The Physics of Earthquake Phenomena* (1908); and the *Life and Scientific Work of Peter Guthrie Tait* (1911).

He had the unusual distinction of being decorated by the emperor of Japan with the Order of the Rising Sun (class iv) in 1891 for his work on the magnetic survey of Japan. He received the Keith prize of the Royal Society of Edinburgh for work on the

magnetic properties of iron and nickel in 1897. He held an honorary LLD of the University of St. Andrews (1916) and was elected FRS in 1920.

Knott was kindly, painstaking, cheerful, and imperturbably good-natured. He enjoyed golf and chess and held office in the United Free Church of Scotland. In 1885 he married Mary, eldest daughter of the Revd James Main Dixon, minister of Free martyrs church, Paisley; they had one son and three daughters. Knott died 26 October 1922 in Edinburgh.