

**J.J. THOMSON TREE #1**

**Edward J. Routh**  
(Cambridge, 1854)

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Discovery of electron (1897)  
**Thomson** model of atom (1903)  
conduction of electricity by gases  
**Physics Nobel 1906**

**Rayleigh** scattering (1871)  
**Rayleigh-Jeans** law (1900)  
**Physics Nobel 1904**

**Wilson** cloud chamber (1911)  
**Physics Nobel 1927**

**Charles G. Barkla**  
Discovery of Roentgen radiation of the elements  
**Physics Nobel 1917**

**Rutherford** back scattering formula (1914)  
disintegration of the elements; chemistry of radioactive substances  
alpha particles (1903 - 9), concept of atomic nucleus (1911)  
**Chemistry Nobel 1908**

**Sir George P. Thomson**  
experimental discovery of diffraction of electrons by crystals  
**Physics Nobel 1937**

**Bragg** equation, **Bragg** reflection indices  
**Bragg** angle of diffraction (1912)  
analysis of crystal structure by X-rays  
**Physics Nobel 1915**

**Townsend** effect (1922)

**Cecil Frank Powell**  
development of photographic method for studying nuclear processes; discoveries regarding mesons  
**Physics Nobel 1950**

**William H. Taylor**  
(Manchester, 1930)

**Kathleen Lonsdale**  
planarity of aromatic systems (1929 - 1934)

**John Desmond Bernal**  
(Cambridge, 1923)

**Sir Edward V. Appleton**  
Physics of upper atmosphere, Appleton layer  
**Physics Nobel 1947**

**John Kendrew**  
(Cambridge, 1949)  
**Chemistry Nobel 1962**

**Max Perutz**  
structure and function of hemoglobin (1950's to 1970's)  
**Chemistry Nobel 1962**

**Dorothy Crowfoot Hodgkin**  
X-ray structure of penicillin (1949), vitamin B12 (1957), and insulin (1969)  
**Chemistry Nobel 1964**

**John A. Ratcliffe**  
(Cambridge, BA 1924)

**Sir John T. Randall**  
(Manchester, MSc 1926)

**James Reekie**  
(Edinburgh, 1937)

**Arthur L. Hughes**  
(Liverpool, 1912)

**Francis H.C. Crick**  
**Watson-Crick** base pairs, DNA structure (1953)  
**Physiology & Medicine Nobel 1962**

**Sir Martin Ryle**  
**Antony Hewish**  
Radio astrophysics, Aperture synthesis technique (Ryle), Discovery of pulsars (Hewish)  
**Physics Nobel 1974**

**Maurice H.F. Wilkins**  
DNA structure (1953)  
**Physiology & Medicine Nobel 1962**

**Bertram N. Brockhouse**  
Development of neutron spectroscopy  
**Physics Nobel 1994**

**Lester C. van Atta**  
(Washington, 1931)

**Frank E. Myers**  
(NYU, 1934)

**Clifford G. Shull**  
Development of neutron diffraction technique  
**Physics Nobel 1994**