

ERNEST RUTHERFORD
HIS HONOURS AND DISTINCTIONS*

By P. P. O'SHEA

LORD RUTHERFORD of Nelson occupies a unique place not only in New Zealand and scientific history but in the history of mankind. His greatness is near immortal, though trying to assess his actual place in the history of science is most difficult. Some have said that he is the greatest scientist since Faraday; others, one of the greatest scientists of all time. In whatever manner history has, or may place him, Rutherford will remain one of the greatest scientists and equally a great man.

Evidence of this greatness may be found in the decorations and many scientific and academic medals awarded him which were presented to the University of Canterbury by his widow, Lady Rutherford, in 1938. The list includes the supreme scientific awards of practically every major country of his time. These and the many degrees, fellowships and memberships conferred make him undoubtedly the most honoured scientist of all time.

Each award has its individual degree of importance and prestige and therefore it is difficult to assess each when grouped together. However, the Order of Merit is the most exclusive honour that can be conferred by the Crown, while the Copley Gold Medal of the Royal Society of London is regarded as the supreme award of the scientific world. Rutherford received both.

Rutherford immensely enjoyed the ceremony and pageantry associated with the presentation of his distinctions, though he never considered them as personal rewards, but rather as tributes to his colleagues, family and parents. For him, to be called a New Zealander was his greatest personal honour as it was New Zealand that had given birth to all his opportunities.

The Copley Gold Medal of the Royal Society of London, awarded to Rutherford in 1922, 'is awarded annually to the living author of such philosophical research, either published or communicated to the Society, as may appear to the Council to be deserving of that honour' (1). The medal was founded in 1736 under the terms of the will of Sir Godfrey Copley, Bt., F.R.S., and was struck in gold and silver until 1942 when it was re-designed and is now struck

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in silver-gilt. It is presumed that Rutherford received a gold medal; however, the University of Canterbury holds only a bronze medal, presumably the replica sometimes made available to recipients.

Rutherford was elected a Fellow of the Royal Society in 1903 at the very young age of 32 and in 1904 was awarded the Society's Rumford Medal. This medal, issued in gold and silver, was instituted in 1796 by Count Rumford for award 'every second year to the author of the most important discovery or useful improvement which shall be made and published by printing or in any way made known to the public in any part of Europe during the preceding two years on Heat or on Light, the preference always being given to such discoveries as, in the opinion of the President and Council of the Royal Society, tend most to promote the good of mankind' (2).

In 1908 Rutherford received the eighth Nobel Prize for Chemistry from the Nobel Institute, Stockholm. This coveted and internationally recognized award consisted of money totalling £7000 and a gold medal. Aged 37, Rutherford was one of the youngest to have received the award which was presented to him by King Gustav V of Sweden for his research into radioactivity.

Among the many other awards from scientific institutions, the Franklin, Albert and Faraday medals are all internationally acclaimed in the fields for which they are awarded. The Franklin Medal, of gold, is conferred by the Franklin Institute of Pennsylvania and was awarded to Rutherford in 1924 for his signal and eminent service to science. The Albert Medal, the highest award of the Royal Society of Arts (full title, the Royal Society for the Encouragement of Arts, Manufactures and Commerce) was awarded to Rutherford in 1928. This gold medal was instituted in 1863 as a memorial to H.R.H. the Prince Consort who, for eighteen years, was president of the Society and is awarded annually for distinguished merit in promoting the Arts, Manufactures and Commerce. The award to Rutherford was 'especially for his pioneer researches in the structure of matter' and he received it from the hands of the president, H.R.H. the Duke of Connaught, on 19 July 1928. In 1923, for a paper entitled 'The Stability of the Atom', Rutherford received the Society's Silver Medal. The Institution of Electrical Engineers' Faraday Medal, presented to Rutherford in January 1930, is awarded 'for conspicuous service rendered to the advancement of electrical science, without restrictions'.

The New Zealand Institute, now the Royal Society of New Zealand, awarded Rutherford its highest award, the Hector Memorial Medal and Prize in 1916. In 1933 he became the first recipient of the Society's T. K. Sidey Medal and Summer-time Prize (3).

From the Crown, Rutherford received three signal honours. In 1914 he was

created a Knight Bachelor and received the accolade from King George V at Buckingham Palace on 12 February 1914 (4).

The most exclusive Order of Merit was conferred in the New Year Honours of 1925 (5). This Order is limited to twenty-four persons who have rendered exceptionally meritorious service in the armed forces or towards the advancement of art, literature, and science. The Order was instituted by King Edward VII on 26 June 1902 and there is a military and civil division. Carrying no rank, title or precedence, appointments are made personally by the Sovereign as vacancies may occur. In accepting this proposed distinction, and indicative of his nature and the light in which he regarded such honours, Rutherford wrote (6):

20 December 1925

I appreciate that this award is not so much in recognition of my own personal services to science, for an individual can hope to accomplish but little, but rather a recognition by His Majesty of the importance of science and scientific study to the welfare of the Empire.

'For public services' Sir Ernest Rutherford, O.M., F.R.S., was created a Baron in the Peerage of the United Kingdom in the New Year Honours List of 1931 (7). His title, *Baron Rutherford of Nelson*, of Cambridge in the County of Cambridge, was granted under Letters Patent dated 22 January 1931 and he took his seat in the House of Lords on 20 May 1931.

The choice of *Rutherford of Nelson* was to honour his parents and family name and the province and town in New Zealand where he was born and received his secondary education. The much-quoted cable to his mother advising of his elevation to the Peerage is again another very good example of his attitude to honours and distinctions (8):

Now Lord Rutherford, more your honour than mine.—Ernest.

As a Peer of the Realm Lord Rutherford was granted Armorial Bearings by the College of Arms, the basic design for which he prepared. The two curved lines on the shield represent the growth and decay curves of radio-active materials, plotted by Rutherford at McGill University. The Martlets within the shield outlines are distinctive features of grants of Arms to others of the Rutherford name and, by coincidence, the Martlets also appear on the Arms of McGill University. Resting upon the shield is a Baron's coronet of rank and above the helmet of a Peer. The crest is a Kiwi standing upon a rock, which is unusual for this bird in its natural habitat, though common in heraldry. This possibly

signifies his firm, or traditional, upbringing in New Zealand. On either side of the shield are the supporters. To the left the medieval representation of Hermes Trismegistus, the Greek name for the Egyptian god Thoth, god of human intelligence, to whom were attributed all inventions of letters, arts, and sciences, and who was also the god of magic and alchemy. On the right side is a Maori Chief holding a club (mere) in his left hand. This symbolizes his New Zealand birth and his country's noble traditions. Below, Lord Rutherford's motto: PRIMORDIA QUAERERE RERUM (to seek the origin of matter), expresses his search for the ultimate particles of matter.

It is interesting to note that the United Kingdom Atomic Energy Authority's Arms incorporate the black Martlet within the shield outline in its crest, this being a tribute to the pioneer of atomic science.

To commemorate the centennial of the birth of this great New Zealander the Council of the Royal Society of New Zealand commissioned Mr James Berry, O.B.E., F.R.N.S.N.Z., of Wellington to design an appropriate medal. The obverse of the medal bears the outstanding profile of Lord Rutherford after the Francis Dodd pencil drawing (9). This is the first medallic Rutherfordiana, and it is somewhat appropriately being struck at the Franklin Mint, Pennsylvania, U.S.A.

The Academy of Sciences of the Union of the Soviet Socialist Republics is also to issue a commemorative medal. New Zealand, Canada and the U.S.S.R. have each issued postage stamps to mark the centennial.

'In these faces of majesty, carved in tiny metallic memorials, we pick up an ageless echo: have faith—have patience—we, too, faced problems—we solved problems—mankind is here to stay.' (10)

A. OFFICIAL AWARDS (i.e., conferred by the Crown)

- 1931 Created a Baron in the Peerage of the United Kingdom. New Year Honours 1931 'for public services'. (No insignia.)
(Supplement to *London Gazette*, 1 January 1931.) Chose title, *Rutherford of Nelson*, of Cambridge in the County of Cambridge.
- 1925* Member of the Order of Merit, civil division. New Year Honours 1925.
(Supplement to *London Gazette*, 1 January 1925.) Insignia: 3¼ in., enamel and gilt with neck ribbon in case of issue.
- 1914 Knight Bachelor. Created 12 February 1914 by King George V at Buckingham Palace. (No insignia.)
(*London Gazette*, 24 February 1914.)
- 1935* King George V and Queen Mary Silver Jubilee Medal. 1¼ in. diam., silver, with ribbon.

* Insignia, held by the University of Canterbury, are unnamed as issued.

B. SCIENTIFIC AND ACADEMIC AWARDS

Held by the Registrar, University of Canterbury, with whose permission this list is published.

- 1895† The Medal of the University of Paris. $2\frac{1}{2}$ in. diam., silver 5 oz.
- 1904 Rumford Medal, The Royal Society of London. 3 in. diam., silver 8 oz.
Named on edge: ERNEST RUTHERFORD, F.R.S., 1904.
- 1904† Commemorative Medal of the Louisiana Purchase Exposition, St. Louis. Shield, $2\frac{3}{4}$ in. x $2\frac{3}{4}$ in., bronze.
- 1904† The Henry Shaw Medal of the Trustees of the Missouri Botanical Garden. The Buckingham Club, St. Louis, 1904. $2\frac{3}{4}$ in. diam., bronze.
- 1905 The Echegary Medal of the Royal Academy of Sciences, Madrid. $2\frac{3}{4}$ in. diam., gold, 10 oz.
Named on reverse: ERNEST RUTHERFORD.
- 1906† Franklin Medal. Commemorating the 200th Anniversary of the birth of Benjamin Franklin. 4 in. diam., bronze.
- 1908 The Nobel Prize Medal (Medal for Natural Science). 3 in. diam., gold 8 oz.
Named on reverse: ERNEST RUTHERFORD / MCMVIII.
- 1910 The Barnard Medal for Meritorious Service to Science, Columbia College, New York. 3 in. diam., gold 12 oz.
Named on reverse: ERNEST RUTHERFORD, / Sc.D., LL.D., F.R.S., / 1910.
- 1910 The Elliot Cresson Gold Medal of the Franklin Institute, Pennsylvania. $1\frac{1}{2}$ in. diam., gold 1 oz.
Named on reverse: ERNEST RUTHERFORD, F.R.S., / FOR DISTINGUISHED LEADING AND DIRECTIVE WORK FOR THE ADVANCEMENT OF OUR KNOWLEDGE OF ELECTRICAL THEORY.
- 1911† Avogadro Medal, Italy. 2 in. diam., bronze.
- 1913 Matteucci Medal of the Italian Society of Science. $1\frac{3}{4}$ in. diam., gold $2\frac{1}{4}$ oz.
Named.
- 1916 Hector Memorial Medal of the New Zealand Institute (now Royal Society of New Zealand). $2\frac{1}{2}$ in. diam., bronze.
Named on edge: TO SIR ERNEST RUTHERFORD, F.R.S., FOR RESEARCH IN PHYSICS, 1916.
- 1918 Plaque recording admission as a Fellow of the Royal Academy Dei Lincei, Rome. $5\frac{1}{2}$ in. x $7\frac{1}{4}$ in., bronze.
Named: ERNESTVM RVTHERFORD. . . .
- 1918 The Silvanus Thompson Medal of the Rontgen Society. $2\frac{1}{4}$ in. diam., bronze.
Named on edge: SIR ERNEST RUTHERFORD, F.R.S.
- 1919 Medal of the Literary and Philosophical Society of Manchester. $2\frac{1}{4}$ in. diam., bronze.
Named on edge: SIR ERNEST RUTHERFORD. 1919.
- 1920† Orsted Medal, Copenhagen. $1\frac{3}{4}$ in. diam., bronze.
- 1922 The Copley Medal, Royal Society of London. $1\frac{3}{4}$ in. diam., bronze (presumably a replica of gold medal issued).
Named on reverse in exergue: SIR ERNEST RUTHERFORD, F.R.S. / 30 Nov. 1922.
- 1923† Harvey Medal of St. Bartholomew's Hospital, Octocentenary commemorative Medal. 1123-1923. 2 in. diam., bronze.
- 1924 The Franklin Medal of the Franklin Institute of Pennsylvania for signal eminent service in science. $2\frac{1}{2}$ in. diam., gold $5\frac{1}{2}$ oz.
Named on reverse: SIR ERNEST RUTHERFORD.

- 1924 Medal of the Royal Society for the Encouragement of Arts, Manufactures and Commerce, London. $2\frac{1}{4}$ in. diam., silver 4 oz.
Named on edge: TO SIR ERNEST RUTHERFORD, O.M., M.A., D.Sc., F.R.S., FOR HIS TRUEMAN WOOD LECTURE "THE STABILITY OF THE ATOM" SESSION 1924-25.
- 1925† Volta Medal, Italy. $2\frac{1}{2}$ in. diam., bronze.
- 1926 Greek Academy Medal, London (University?). $2\frac{3}{4}$ in. diam., gilt and enamel with ring suspender.
Named on reverse: ΑΚΑΔΗΜΙΑ / ΑΘΗΝΩΝ/25 ΜΑΡΤΙΟΥ 1926.
Buttonhole miniature of above. $\frac{1}{2}$ in. diam., gilt, unnamed.
- 1927 The Medal of the Institute of France. 2 in. diam., silver $3\frac{1}{2}$ oz.
Named on reverse: SIR ERNEST RUTHERFORD / 1927.
- 1927† The Emile Picard Medal. Perpetual Secretary of the French Academy of Sciences. $2\frac{3}{4}$ in. x $2\frac{1}{4}$ in., bronze plaque.
- 1927† Volta Medal, Italy. $2\frac{3}{4}$ in. diam., bronze.
- 1928 The Albert Medal, Royal Society for the Encouragement of Arts, Manufactures and Commerce, London. $2\frac{1}{4}$ in. diam., gold $4\frac{1}{2}$ oz.
Named on edge: AWARDED TO PROFESSOR SIR ERNEST RUTHERFORD, O.M., LL.D., D.Sc., F.R.S., FOR HIS PIONEER RESEARCHES INTO THE STRUCTURE OF MATTER. SESSION 1927-28.
- 1930 The Faraday Medal, Institution of Electrical Engineers. For notable scientific or Industrial Achievement. 3 in. diam., bronze.
Named on reverse: TO SIR ERNEST RUTHERFORD, O.M., F.R.S.
- 1933 T. K. Sidey Medal of the New Zealand Institute (now Royal Society of New Zealand). $2\frac{1}{2}$ in. diam., bronze.
Named on edge: LORD RUTHERFORD OF NELSON, FOR DISTINGUISHED WORK IN RADIATION, 1933.
- 1935† Stefan Meyer Medal, Institute Radiumforschung. $2\frac{3}{4}$ in. diam., bronze.
- 1936 Gold Medal and Chains of the Pontifical Academy of Sciences of the Vatican. $1\frac{3}{4}$ in. diam. and double 36 in. chain, gold 3 oz.
Medal named on reverse: RUTHERFORD / LORD NELSON / AD / MCMXXXVI.
- 1936 Michael Faraday Medal, London. 3 in. diam., bronze.
Named on obverse: LORD RUTHERFORD OF NELSON, O.M., F.R.S., 12 Feb. 1936.
- n.d. Wilhelm Exner Medal, Vienna. 3 in. diam., bronze.
Named on reverse: ERNEST RUTHERFORD.

† Unnamed as issued, being commemorative medals.

C. ACADEMIC DISTINCTIONS

Marlborough Provincial Scholar, 1886.

Junior Scholar, University of New Zealand, 1889.

Senior Scholar and Bachelor of Arts degree, University of New Zealand (Canterbury College), 1892.

Master of Arts, with double first-class honours in mathematics and physics (Canterbury College), 1893.

Bachelor of Science (Canterbury College) and 1851 Exhibition Science Research Scholarship, 1894.

- Bachelor of Arts research degree, University of Cambridge, and the Coutts-Trotter Studentship of Trinity College, Cambridge, 1897.
 Fellow of the Royal Society of Canada, 1900.
 Doctor of Science, University of New Zealand (Canterbury College), 1901.
 Fellow of the Royal Society of London, 1903.
 Silliman Lecturer, Yale University, 1905.
 Honorary Member of the New Zealand Institute (since 1933 The Royal Society of New Zealand), 1904, Fellow, 1919.
 Nobel Laureate in Chemistry, 1908 (see list B).
 Bressa Prize, Turin Academy of Science, Italy, 1908 (value £384).
 Fellow, Royal Academy Dei Lincei, Rome, 1918 (see list B).
 Fellow, Trinity College Cambridge, 1919.
 Guthrie Lecturer, Physical Society of London, 1927.
 Honorary Fellow of the Royal College of Physicians, 1928.
 Honorary Doctor of Science, University of New Zealand, 1931.
 Faraday Lecturer, Chemical Society of London, 1936.
 Honorary Doctor of Science, Universities of Bristol, Cambridge, Cape Town, Dublin, Durham, Leeds, Liverpool, London, Melbourne, Oxford, Paris, Toronto.
 Honorary Doctor of Physics, University of Clark, U.S.A.
 Honorary Doctor of Laws, Universities of Birmingham, Copenhagen, Edinburgh, Glasgow, McGill, Manchester, Melbourne, Paris, Pennsylvania, Wisconsin.
 Honorary Doctor of Philosophy, Universities of Giessen and Yale.
 Member of 2 Societies; Honorary Member of 16; Corresponding Member of 9; Foreign Associate of 3.

D. PRINCIPAL APPOINTMENTS

- 1898–1907 Macdonald Professor of Physics, McGill University, Montreal.
 1907–1919 Langworthy Professor, University of Manchester and Director of the Physical Laboratory.
 1919–1937 Cavendish Professor, University of Cambridge.
 1921–1937 Professor of Natural Philosophy, The Royal Institution, London.
 1923 President of the British Association for the advancement of science.
 1925–1930 President of the Royal Society of London.
 1929–1937 Chairman of the Advisory Council of the Committee of the Privy Council for Scientific and Industrial Research.
 1931–1933 President of the Institute of Physics.
 1937 President-elect, joint meeting of the British Association and the Indian Science Congress, India.

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NOTES

- (1) *Record of the Royal Society of London*, 4th edit., 1940, p. 112, 115.
- (2) *Ibid.*
- (3) No citations exist for these awards but for conditions see *Royal Society of New Zealand Proceedings*, 94, 23-24 (1966).
- (4) *London Gazette*, No. 28806, 24 February 1914, p. 1546. The entry contains the unusual note, *To take effect as from 1st January*, after the list of the 22 gentlemen upon whom the honour of knighthood was conferred at the same ceremony.
- (5) *Ibid.* Supplement No. 33007, 1 January 1925, p. 3.
- (6) Eve, A. S. *Rutherford*, Cambridge, 1939, p. 304.
- (7) *London Gazette*, Supplement No. 33675, 1 January 1931.
- (8) McKown, R. *Rutherford*, London, 1964, p. 150.
- (9) In Fitzwilliam Museum, Cambridge. First published in *New Zealand Science Review*, August 1956, p. 101.
- (10) Dodson, O. H. *Money tells the story*, Wisconsin, 1962, p. 62.