

A Young and Famous Scientist at Dardanelles War Henry Gwyn Jeffreys Moseley (1887-1915)

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Abstract /First paragraph...

On the tenth of August, 1915, a young physicist named Henry Moseley died at Gallipoli, shot through the head by Turkish bullet. He was twenty-seven, brilliant, energetic, and personable belligerents on both sides paused to observe his passing.

Key Words: Henry Moseley, Dardanelles War, periodic table

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British experimental physicist Henry Moseley, born in Weymouth-Dorset in 1887, came from a distinguished family of scientist. He is most famous to achieve the first experimental identification of the atomic number and nuclear charge of an element, Z. This enabled scientists to put the periodic table of elements into the correct footing and

understanding. He predicted 4 new elements missing in the Table and also, changed some to their correct positions.

He studied Physics (Natural Philosophy) at Oxford University and graduated from there in 1910... He had a chance to listen to Prof Ernest Rutherford in a seminar when he was visiting Oxford. After graduation, he joined Prof. Ernest Rutherford at University of Manchester He started to work on natural radiocativity, on beta emission from radium. Later, he moved to Cambridge to study x-ray spectra of atoms, by using the newly developed technique called x-ray diffraction.

Historically, Mendeleev had proposed to put all elements into an order (a practice list later to be known as the *Periodic Table*) according to their atomic weights, A, in 1869. In 1913, Moseley had established a relation between x-ray energies (frequencies) emitted (f) and atom's nuclear charge (Z), suggesting the use of these (atomic) numbers in the Periodic Table. From the data, he was able to infer a relationship-a line in f vs Z^2 - that permitted him to correct the ambiguities in the positions of several elements as well as to predict the existence of several then-unknown new elements. Moseley soon recognized the important link between his discovery and the structure of atom.

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By then, World War I had broken out and Moseley, after some unsuccessful attempts to find positions at some Universities in England, had enlisted in the British Army. In 1915, his troops which were being prepared for the German front, were sent to Gallipoli, the newly opened war front between the Allies and Ottoman Empire. He was killed on the Sari Bair (Sarı Bayır) and Chunuk Bair (Conkbayırı) battles on Aug 9-10, 1915, at the age of 27. This was the same fighting where then Col. (Albay) Mustafa Kemal had taken the command of Turkish troops one day earlier, and ordered an immediate attack on British troops (Mustafa Kemal himself had wounded and was saved by his watch, in his uniform's pocket!).



Moseley's death found memorable remarks in the science journals of the time which also led to discussions to exclude the prominent scientists away from such fierce war fronts.

Now that Moseley is lying for his eternal rest, on the soil of Gallipoli Peninsula, we Turkish scientists consider him, as one of 'us' as was poetically expressed by the then-president of Turkish Republic, Mustafa Kemal

Atatürk in 1934: "...after being fallen on our land, now, they have become our sons". The University at Çanakkale (ÇOMÜ) which is named after these battles, is a natural home of Moseley's memory.



After His Death

- 'a matter of great regret' Nature 1915;96: 33-34.
 - 'too valuable to die' and 'sacrifice of a genius' Nature 1919;104:82.
 - 'loss of this young man is a striking example of misuse of scientific talent' Nature 1915;96: 33-34 (E.Rutherford).
 - 'To use such a man as a subaltern is economically equivalent to using the warship Lusitania to carry a pound of butter for a [long distance]' Nature 1915;96: 33-34.
 - 'ein schwerer Verlust für the Naturwissenschaften' Naturwissenschaften 1916;4:381.
- '(Moseley's Law is) one of the greatest advances yet made in natural philosophy' Scientia 1920;27:105 (Luis de Broglie).



As part of this vision, we organised a meeting in September 2005 during the International Physics Year with the title of 'Role of Science and Scientist at War and in Peace' at Çanakkale University. We also proposed, in this meeting that, name of the Moseley should be given to one of the newly discovered but still unnamed Periodic Table elements, and also, more meaningfully, the establishment of a "Çanakkale-Moseley Physics Medal and Prize" for the best physics (or science) research work or achievement by scientists from those countries (Turkey, Germany, England, France, Australia, New Zealand, India, ...) who were again on this land in 1915, for purposes of war.

Now it is the turn of peace: National scientific institutions of these (and other?) countries may provide small but meaningful for the sums for the Price and Turkish National Scientific Research Council of Turkey (TUBİTAK) and/or Univ. of Çanakkale may act as the secreteriat for this selection and announcement event, at least, at the start. All these may turn, eventually, the memory of this fierce battle field into an occasion of friendship and piece!

Picture: Moseley Lecture Hall, Schuster Building, Manchester University (photo by ME Özel).

Further Reading

H. G. J. Moseley: The Life and Letters of an English Physicist, 1887-1915, University of California Press. Berkeley and Los Angeles, California, 1974.