



# THE HISTORY OF THE ATOMIC ERA, RADIOLOGY, AND ATOMIC ENERGY IN PHILATELY



In 1905 it was Einstein who explained the occurrence of radioactivity, stating that mass and energy were related (represented by the equation  $E = mc^2$ , in which "E" signifies energy, "m" mass, and "c" the velocity of light). At that time, these ideas were purely theoretical. However, they suggested that tremendous amounts of energy would be released if mass were converted into energy. Einstein's fundamental theory thus changed the concept which had been considered permanent since the time of the ancient Hindu and Greek philosophers -- namely, that mass and energy were separate and could be neither created nor destroyed. This Theory of Relativity became the basis for scientific activities relating directly to the development of atomic weapons, nuclear power plants, and atomic-powered ships. Albert Einstein was awarded the Nobel Prize for physics in 1921.

The structure of the atom was now being rapidly divulged, and in 1913 the Danish scientist Niels Bohr (1885-1962) designed an atomic model with a central nucleus encircled by electrons in orbit, similar to the solar system.

Further advances followed in swift succession, and in 1919 Rutherford, who had succeeded Thomson as Professor of Experimental Physics at Cambridge, discovered a further atomic structure, the proton. Consequently, in 1932, the neutron -- the key to atomic fission -- was discovered by James Chadwick.