

Text:

Development of the

Atomic Theory

Democritus

"Atoms are undivisible"

About 2400 years ago, (460-370 B.C.) a Greek philosopher named Democritus thought a lot about what things were made of. One day while slicing an apple, he wondered how small he could slice it. He figured that everything that could be touched could be divided again and again until there was a piece left that was so small it couldn't be cut. It turns out that he had the right idea, and that smallest piece we now know as the atom. The word atom comes from an ancient Greek word that means "uncuttable." Democritus could not see an atom (as we can today), but he had figured out something very important. His atom is what we talk about today as an element.



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John Dalton

"Atomic model of matter"

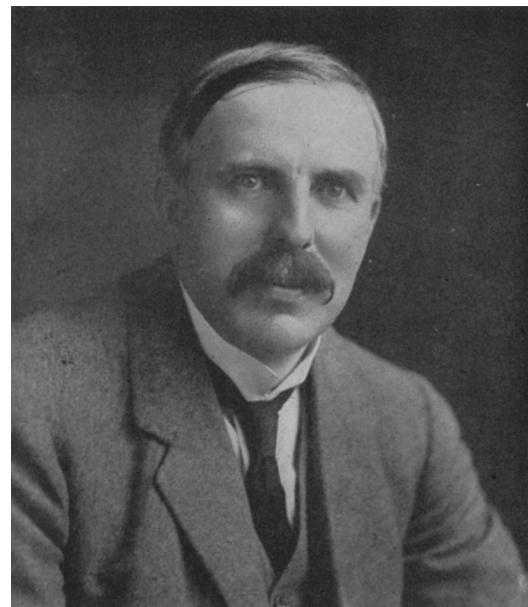
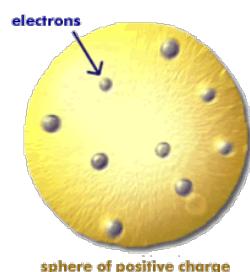
In 1803, John Dalton pictured atoms as tiny, indivisible particles with no internal structure. He believed that each of these atoms had its own unique characteristics and weight and could not be created, destroyed or subdivided in chemical changes. He also believed that compounds were created when atoms of different elements link together to form molecules.



J.J. Thomson

"Raison bun model"

In 1897 J.J. Thomson discovered that atoms contain particles called electrons. Each of these electrons have a small mass and contain a negative charge. He believed that the rest of atom was a sphere of positive charge and that the electrons were embedded in the sphere, resulting in a neutrally charged atom.



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H. Nagaoka

"Central Nucleus"

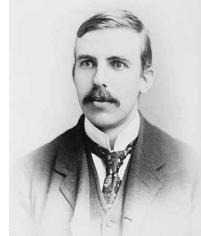
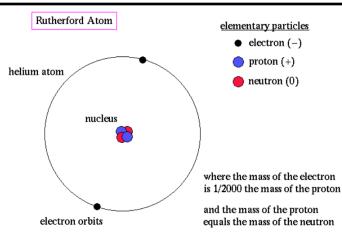
In 1904 Nagaoka modeled the atom as a large positive sphere surrounded by a ring of negative electrons.



Rutherford

"rapid moving electrons"

In 1911 Rutherford found that an atom has a small, dense, positively charged nucleus which is surrounded mostly by empty space that contains rapidly moving negative electrons.

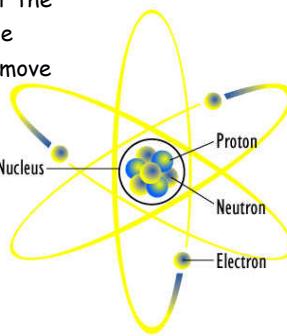


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Bohr

"planetary model"

In 1915, the planetary model or the Bohr model was developed. The model believed that electrons move around the nucleus in paths called "orbits" or "energy levels". It believed that electrons cannot exist between energy levels, but can jump from one level to the next.



Schrodinger

"Paths of Electrons"

In 1926 Erwin Schrödinger, an Austrian physicist, took the Bohr atom model one step further. Schrödinger used mathematical equations to describe the likelihood of finding an electron in a certain position. Unlike the Bohr model, this model does not define the exact path of an electron, but rather, predicts the odds of the location of the electron.

