

The raisins in a bun model done by JJ Thomson and the discoveries that followed e...

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In the 1890's scientist found that invisible rays are emitted when matter is hit with a jolt of electricity. Such experiments involved transmitting electric arcs between two ends of cathode ray tubes. Some physicists discovered some substances that spontaneously emitted invisible rays regardless of electricity or any other type of energy. An example of these substances are: uranium and radium, which are named radioactive materials. X-rays were a portion of the emitted rays that had the ability to penetrate dense objects. Beta rays were labeled as rays that displayed high levels of energy.

They had the ability to, when covered with a saucer-shaped cathode, heat a piece of aluminum until it turned red. Beta rays were described as being streams of particles bent in a magnetic field with a negative charge. These beta rays were proven to be minute in size and collectively only amounted to the mass of the smallest known atom. They were all found to be identical despite their origin. Some scientists speculated as to their purpose in the universe. Some thought them to be the fundamental building block of the universe. Their name for these beta rays was soon replaced by the name electron.

The English physicist by the name of JJ Thomson, discovered the electron in 1897. He was certain that every atom consisted of electrons. He deduced that since an atom contains a neutral charge and consists of negative electrons, there must be some other positively charged material within the atom to balance out the negatively charged electrons. He realized that the electrons alone could not account for the mass of one atom due to their light

weight. He deduced that this other material must account for most of the weight of the atom.

From these observations, JJ created a model that represented an atom. He saw an atom as being a ball of positively charged matter, with small electrons scattered throughout, much like raisins in a bun.

His proposed model of an atom fitted experimental facts- particles could be charged by friction or chemical reaction. This was demonstrated by the addition or removal electrons. The addition of electrons would result in a negative charge, and deficiency in electrons would result in a positive charge. This theory of the motion of electrons is still in effect nowadays for chemistry, explaining chemical reactions. The fault in JJ's model lay in placement of the electrons. His model presented a rough idea of an atom for scientists, but failed to explain various experiment. This resulted in his model rapidly becoming obsolete.