

Discovery of the X-ray

In 1895, Wilhelm Conrad Roentgen (1845-1923) invented the X-ray. As a physics professor in Germany, Roentgen was conducting experiments with a Crookes tube – a sealed glass tube with two electrodes on either end. On a Friday evening in his laboratory on Nov. 8, 1895, Roentgen covered the tube with black cardboard in a dark room and supplied an electric current. He noticed that a greenish-yellow illumination appeared on a screen several feet away.

Roentgen continued the experiment, placing several different items between the tube and the screen. At one point, he held a lead pipe up to the ray and saw the bones of his fingers on the screen. Demonstrating his exciting discovery to his wife, Roentgen directed the ray at his wife's hand for 15 minutes, which resulted in the first X-ray image of a hand with a woman's ring (pictured at right).

Roentgen named his finding the "X" ray, as "X" is the algebraic term for unknown. In 1901, Roentgen was the first person to receive the Nobel Prize in physics.



Defining the X-ray

X-rays are pictures made by passing radiant beams through an object and capturing the image on the other side. The image is recorded digitally or on film. X-rays produce pictures of inside the human body and are used to view broken bones, problems in the lungs and abdomen, tumors and dental cavities. Solid objects, like bones, absorb X-rays the most and allow less light to pass through, so they appear white on the picture. Fat and bodily organs absorb less light and look gray. Air absorbs least, so lungs appear black.

Using the X-ray: Radiologic Technology

Before the invention of the X-ray, doctors had to poke, prod and use their sense of touch to find the source of injuries such as bullet wounds and broken bones. The term "radiology" is now used to describe functions using an X-ray. Today's radiology systems are highly sophisticated machines that can detect abnormalities, injury and illness, and in some cases provide therapeutic treatment for diseases.

Fun Facts



The X-ray played an important role in WWII by being used in military strategies such as radar, submarine detection and nuclear weapons development.



Today, the X-ray is used to screen bags and luggage in airports and at security checkpoints in government buildings to check for bombs and weapons.



Dental records obtained by X-ray can be used as evidence in court proceedings and as a means of determining identification.

