









HEALTH HIGHLIGHTS



Dr. Morton operating an early X-ray machine, n.d.

In September 1896 . . .

Dr. William J. Morton published his book on medical uses for new X-ray technology.

Dr. Morton's text, The X-ray or Photography of the Invisible and Its Value in Surgery, was an early guide to the medical uses for X-rays, which had been discovered by Wilhelm Rontgen in 1895.

In late 1895, Wilhelm Rontgen, a German mechanical engineer and physicist was trying to take a picture of his wife's hand. While he was doing this he discovered what would become known as the X-ray. Rontgen was using electromagnetic waves, so the picture that he produced showed shadows of the bone underneath his wife's skin. Rontgen began distributing the image of his wife's hand. Since Rontgen's discovery, we have learned that X-rays show different parts of the body because they all absorb different amounts of electromagnetic radiation. High-absorption areas show up lighter than low-absorption areas in X-ray images.

The X-ray quickly became a widely adopted technology for medical and non-medical uses around the world. This is due to the fact that the necessary equipment was inexpensive and the device was relatively easy to use. Within the first year after its invention, the X-ray was the subject of at least 49 books and more than 1,000 articles — including Dr. Morton's book. By 1900, less than 5 years after the X-ray's discovery, the use of X-ray machines was widely considered essential for clinical care, especially for diagnoses of foreign bodies or bone fractures.

However, the safety risks of frequent, prolonged exposure to X-rays, especially for those administering them were not yet known. If the wavelength of the machine was not calibrated correctly, images would be too dark or too light and would not have enough contrast to be read. Often, the medical professionals administering X-rays to patients would calibrate the machines by inspecting their own hands and viewing the images produced.

Dr. Morton was a professor at the New York Post Graduate Medical School and Hospital, as well as one of the first American physicians to experiment with X-rays. Dr. Morton's text contains four primary sections. The first defines key terms and explains scientific theories on the methods that made X-rays useful. The second includes in-depth explanations of each part of the machine and how it works. The third details how to operate and calibrate the machine. The fourth part explains some of the medical uses for X-rays, including fractures, dislocations, bone disease diagnosis, dentistry, identifying foreign objects in the body, and viewing soft tissues and organs — many still used today.

Courtesy of the National Library of Medicine