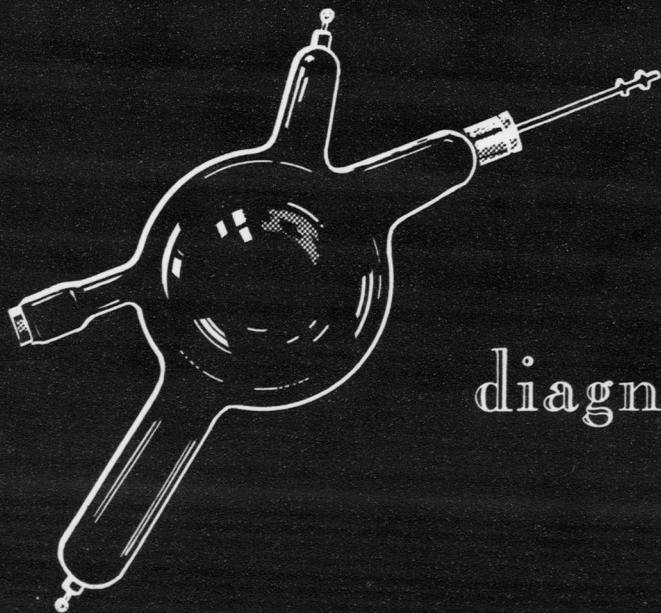


Roentgen's Laboratory—from Otto Glasser's "Wilhelm C. Roentgen," London 1933



diagnostic radiology

see overleaf

The X-ray and Diagnostic Radiology

The frontispiece, a reproduction of an old photograph, shows Dr. Roentgen's laboratory in Wurzburg, Germany. It was here in 1895 that he reported on his discovery of the rays which now bear his name. Professor Roentgen, however, termed them X-rays, because their nature was unknown.

Early X-ray equipment was awkward to use and inefficient. Early radiologists frequently complained that they spent more time maintaining the equipment than using it. Physicians had to be their own mechanics and electricians. Electrodes would overheat and melt. Power was obtained through the use of inductor coils or static machines. High tension wires were strung across radiographic rooms, with little regard for the hazards involved.

The first users of roentgen ray equipment were unaware of the dangers of radiation. At the turn of the century, physicians would demonstrate the painlessness of the technique to their patients by placing their hands into the ray. This method also served to test the ray's penetrative strength. In those days it took 20 minutes to get an exposure and 2 to 3 hours to develop a picture. The results were unreliable. While people were still worrying whether the ray might be used by unscrupulous

persons to read the letters in metal mailboxes, Clarence M. Dally, an assistant of Thomas Edison, became radiation's first victim in 1904.

The major use by physicians in the early 1900's was to visualize fractures and locate foreign metallic bodies. In 1900, the American Roentgen Ray Society was formed in St. Louis by a group of physicians who believed in the diagnostic possibilities of the X-ray.

The improvements in the early equipment began when the induction coil gave way to the high-tension alternating current transformer. Rectification systems utilizing both phases of alternating current waves were added. In 1913, the hot cathode tube was developed. The rectifiers were replaced with a valve tube rectifier. Other tube developments have been the shockproof tube, the "ray-proof" tube, and the rotating anode tube.

Double emulsion films took the place of the glass plates which were in use until about 1920. Another development produced a grid which minimized scattered rays. The spot-film apparatus was another important improvement.

A half century of progress has been dramatic in this field. The trends in diagnostic radiology today are discussed in this issue by Dr. Theodore Hilbish on page 1017.

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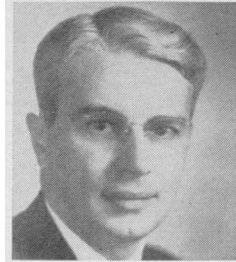
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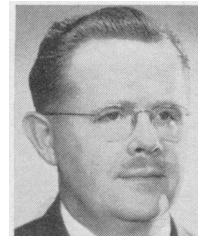
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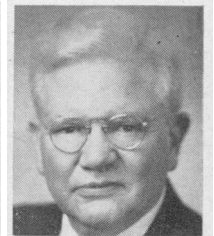
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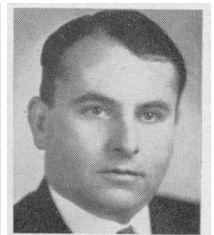
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