

**SOMETHING ABOUT  
X-RAYS FOR  
EVERYBODY**

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Something about X-Rays for Everybody by Edward Trevert

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**EDWARD TREVERT**

**SOMETHING ABOUT  
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**X RAYS**

For Everybody.



BY EDWARD TREVERT.



ILLUSTRATED.



LYNN, MASS.  
BUBIER PUBLISHING Co.,  
1896.

## FOREWORD.

X-rays were discovered in November 1895 by Professor W. C. Roentgen at the University of Wurzburg in Germany, and the medical applications of x-rays were immediately recognized in all advanced countries. In the United States, the first medical x-ray was taken February 3, 1896 by Professor Edwin B. Frost of Dartmouth University. He took an x-ray of a broken bone for a patient of his brother, Dr. G. D. Frost.

The wonders of x-rays were often discussed in the popular press. A book about x-rays, written for the public, was published in the summer of 1896, only about six months after that first x-ray was taken. This is a replica of that book. It is appropriate that it appear as we approach the centennial of the discovery of x-rays.

The copy from which this reprint was made was first owned by Professor C.W. Freeze. In the 1920s, he gave the book to one of his students, Albert E. Kidd, who later taught physics at Sam Houston University in Huntsville, Texas. Professor Kidd gave the book to one of his students, Leroy J. Humphries, in 1966. Dr. Humphries plans to donate the book to an appropriate library such as the American Institute of Physics' Neils Bohr Library at the Center for the History of Physics.

This One



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Funds for the reprinting of this book were provided by Dr. Humphries through the CNMC Company. At his request, one half of the net proceeds from sales will be donated to help fund the Robert J. Shalek Premasters and Predoctoral Fellowships in Clinical Physics at The University of Texas M.D. Anderson Cancer Center in Houston, Texas. The other half of the proceeds will be donated to Medical Physics Publishing Corporation, a non-profit organization devoted to promoting science education.

**JOHN R. CAMERON, PH.D.**

Professor Emeritus, University of Wisconsin-Madison  
Departments of Medical Physics and Radiology,

September 1, 1988

## PREFACE.

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No scientific incident for many years has interested the general reader so much as Prof. Röntgen's discovery of the X Rays and their mysterious action upon the photographic plate and various fluorescent substances. The layman as well as the professional has been experimenting and trying to obtain knowledge of the source, action and effect of these rays.

Considering the great interest taken in this subject by almost everybody, I have thought it prudent to compile this little book which is intended for the general reader; in no way is it to be considered technical. Some of the articles are compiled from the leading electrical journals of the day, and I am particularly indebted to BUBIER'S POPULAR ELECTRICIAN, The *Electrical World*, The *Electrical Engineer*, The *Electrical Review*, *Electricity* and The *Western Electrician* and to The New York *World*, The *Boston Post* and The *Scientific American*, for such articles. I trust that my efforts may be of sufficient value to interest the reader.

EDWARD TREVERT.

LYNN, MASS., JUNE 10, 1896.



## PROF. RÖNTGEN.

\*"Wilhelm Conrad Röntgen was born in 1845 in Holland. He graduated at the University of Zurich, taking his doctor's degree at the age of twenty-five. At this university he was the favorite disciple of Prof. Kundt. When the latter left Zurich for Würzburg, Röntgen went with him, and the two next received appointments in Strasburg University as professor and assistant respectively. This was in 1873. In 1875 he held the chair of mathematics and physics at the Agricultural Academy of Hohenheim in the kingdom of Württemberg.

Hohenheim is a hamlet some four miles south-southeast of Stuttgart, little known except for its school of agriculture. He returned a year later to Strasburg, and in 1879 was professor in and director of the University and Institute of Physics in the old university town of Giessen, a city rendered illustrious before this time by the labors of the great Liebig. In 1888 he returned to his old college at Würzburg, where he now holds his professorship."

We are indebted to *L'Illustration* for the portrait of Prof. Röntgen which we reproduce on opposite page.

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\*Scientific American.



PROF. RÖNTGEN.

## CHAPTER I.

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### **The Intensity Coil and the Crookes Tube.**

The intensity coil is necessary in the production of the X Rays, where a battery or a dynamo is used to furnish the primary current. It consists of two coils, a primary and secondary. To these are added, for the purpose of intensifying their action, a magnetic core consisting generally of a bundle of iron wires. An alternating or pulsating current is passed through the primary coil and produces (by induction) a current likewise pulsating in the secondary coil, although the two coils are entirely unconnected. In order to raise the voltage of the secondary coil it is made of a finer wire than the primary and consists of many more turns. To give the reader a clearer idea of the intensity or induction coil we will give directions for making one. Proceed as follows :

The coils are to be wound upon a tube built up of cartridge paper, wrapped around a cylindrical stick  $\frac{1}{8}$ -inch in diameter. The tube is to be 8 inches long and the paper to be wound on until it is  $\frac{1}{8}$ -inch thick, making the tube 1 inch outside diameter. Each turn, or