

## THE ROENTGENOLOGICAL FIELD FOR NURSES.\*

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The study of the Roentgen ray and its usage may be considered new in the nursing world, but it is a lusty infant, and like every other, it requires time for development. When the discoveries of Roentgen, Becquerel, and Curie were first put into practical application by the medical profession, they were considered rather dangerous and it was thought that the Roentgenologist would never consent to the assistance of a nurse; instead there is, to-day, a vast field open to nurses who care to devote their time and study to this science.

The Roentgen ray has been, in the past few years, so studied and simplified by our expert scientists and Roentgenologists, that it proves to have untold value for the medical profession in the diagnosis and treatment of disease. Each day there is a greater demand for its usage, and like every other branch of the nursing profession, we cannot meet the demands for Roentgenographic technicians.

The purpose of this article is not to tell the mechanism of X-ray apparatus, but to present an idea of what is expected of a nurse technician.

In Roentgenographic work, we deal with physics, chemistry, and mechanical processes. There are a few simple laws governing the physics of X-ray, that are essential for the nurses to know, such as the laws governing control, voltage, spark gap, exposure, milliamperes, &c. Those who possess mechanical ability, may consider themselves most fortunate. The theory of shadow formation is very important and as the roentgenologist depends entirely upon the shadow formation in making a diagnostic reading, a nurse must familiarise herself with the normal shadows and their relation to each other, in their normal position, under normal conditions, or she will not be qualified to make a satisfactory plate. Thus the positioning of the object, the plate, and the tube, is a matter of elementary importance. The theory is that the image is made on the plate by the rays, passing perpendicularly from the tube through the object to the plate, in the normal position. For instance, if the patient cannot assume the normal position for picturing a certain object, then the plate and tube should be so positioned that the rays would pass perpendicularly.

The next procedure considered is the

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technique of the dark room. There are three main things to be observed: proper lighting, prevention of contamination, and careful manipulation. Doubtless only a few of us realise how delicate this work is, and what perfect technique should be used in handling and developing X-ray films. The slightest attempt to fold an Eastman Dupli-tized X-ray film will produce a shadow when it is developed, and this may prevent other shadows of importance from being detected by the interpreter of the film.

A standard formula should be used for mixing the developing solutions. The solutions are kept at a standard temperature and there is uniform exposure of the film, giving it the accurate time of exposure.

The technician soon controls the time of exposure of the film to the solutions by the time of exposure of the ray to the plate. The time of the exposure of the ray to the plate is controlled by the density of the object of which the image is to be made.

The technician should always bear in mind that the developing of X-ray films is a chemical process and should be handled with the greatest care. One of the most interesting features of this work is the gastro-intestinal examination, with the fluoroscope, watching the progress of the barium or bismuth meal throughout the entire intestinal tract. The general routine for this is to give the patient the barium meal at 8.30 in the morning, after which examination of the oesophagus and stomach is made, having the patient return for a six-hour reading, and on the following morning, for a twenty-four hour reading. At this time, the patient is given a barium and buttermilk enema, of one quart, and is placed in the dorsal position, so one can follow the shadow of the solution through the rectum, sigmoid, descending colon, transverse colon, ascending colon, and filling the caecum, in this way detecting any filling defect that may exist. Since my observation of the Roentgen rays, I have failed to see the distinction between a high and low colonic irrigation, which the former student nurses were required to learn. The study of the Roentgen ray, its mechanism, and value in Roentgen diagnosis and Roentgenotherapy certainly prove it to be one of the most interesting scientific fields, open to the nursing profession at present.

We commend this article to the attention of British nurses who desire to adventure into a new field of study and work.

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