

The BULLETIN of the HENNEPIN COUNTY MEDICAL SOCIETY

Official Organ of the Hennepin County Medical Society

Vol. 28

August, 1957

No. 8

Shoe-fitting Fluoroscopes

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During recent years, shoe-fitting fluoroscopes have received considerable attention from public health officials, pediatricians, and others concerned with the hazards of ionizing radiations.

Since nuclear reactors, radioactive isotopes, testing of atomic and hydrogen bombs with consequent radioactivity wastes and fallout, have become a part of our way of living, scientists have had to take a new look at older established sources of radiation. Now, man cannot afford to be reckless with ionizing radiation, in any form, because the effects are cumulative, no matter from what source they are obtained. It is now known that any excessive amount of radiation tends to shorten life and every effort should be made to keep it to a minimum.

Shoe-fitting fluoroscopes are x-ray machines which produce x-rays, the same as those used in doctors' offices and hospitals. They are operated by shoe salesmen who have little conception of the danger of x-rays and the machines themselves are often unsafe.

X-rays are known to be harmful especially if the exposure is prolonged or frequently repeated. In the practice of medicine, x-rays are extremely useful and their value far outweighs the risk of using them. Many radiologists have developed degenerative changes in their fingers or even more serious consequences from too much exposure to x-rays.

Shoe-fitting fluoroscopes are of very doubtful value in the fitting of shoes and are used most frequently on children whose tissues are more susceptible to damage by x-rays. For this reason, many authorities are anxious to outlaw them altogether. The State of Pennsylvania has recently done so and the District of Columbia has restricted their operation so that the effect has been essentially the same. In Minnesota the philosophy has been that if the operators will maintain their machines in good operating condition they should be allowed to continue to use them if they wish.

An attempt has been made in Minnesota and in many other states to set up certain standards of construction and operation of shoe-fitting fluoroscopes which will protect both the store operators and the public from over-exposure to x-rays. The standards have to be stringent because the total radiation to which a person should be subjected should never exceed 0.3 roentgens whole body radiation per week from all sources. Shoe-fitting fluoroscopes are only a small part of that possible exposure. The standards in use in Minneapolis, are sent to the owner by the Minneapolis Health Department along with the written report after a study of his x-ray shoe-fitting machine has been made.

The most commonly found defects in the machines are improper adjustments

so that too much power is used and the exposure is too prolonged. Other common defects are poor positioning of the machine and improper grounding. In New York State one machine was found to be delivering 102 roentgens per minute and set to operate for 25 seconds. On this machine, a child could receive at one time almost twice as much as he should receive over a twelve-year period.

A survey of 200 shoe-fitting fluoroscopes in Minnesota in 1950 showed only 8 per cent to be satisfactory in all respects. Forty-three of the 200 were located in Minneapolis. Of these, 14 per cent were found to be satisfactory.

Since 1950, the machines in Minneapolis have been studied several times and recommendations made for their correction. Eleven machines are no longer being used at all, and several others have been properly adjusted. In Minneapolis, there are now about thirty-eight shoe-fitting fluoroscopes in use. In spite of inspection and recommendations for correction, only about 39 per cent

are being maintained and operated satisfactorily in every respect.

There is one largely uncontrollable factor which is very significant in exposure of children to x-rays in shoe stores and that is the number of exposures. Usually, children want to get a second look at their feet in the fluoroscope and mothers and other members of the shopping party want to see, too. Then, if they decide to look further, the whole process may be repeated at another shoe store.

With the prospect that children now being born will have to live in a world in which unavoidable ionizing radiation will be much higher than their fathers had to face, we raise the question, why expose them at all to such needless radiation as that produced by shoe-fitting fluoroscopes?

The average woman would rather have beauty than brains, because she knows that the average man can see better than he can think.