PUBLIC HEALTH

Fluoroscopes Too Strong

Many persons receiving fluoroscopic examinations are being exposed to as much as six times the needed radiation dose. This is an unnecessary danger, an expert reports.

MORE THAN ONE-HALF of the fluoroscopes now used in doctors' offices are exsposing patients to more radiation than is necessary.

A survey of 80 fluoroscopes of all types in the Philadelphia area revealed that more than half of them were emitting six times the maximum radiation considered necessary, Dr. Richard N. Chamberlain of the University of Pennsylvania School of Medicine said at the American Medical Association meeting in Atlantic City. There is no reason to believe that these statistics do not apply to the entire country, he said.

Therefore, approximately one-half of these machines would not be considered acceptable unless safety modifications could be added, he explained.

Radiation from fluoroscopes and X-ray machines can be reduced by adding filters that provide a barrier and catch some harmful rays before they penetrate the patient. Or, doctors can learn how to reduce the area of the patient's body that is exposed to the rays.

Many times, only a small area need be X-rayed; other areas receive radiation even though the doctor is only interested in a specific portion of his patient's body, he implied.

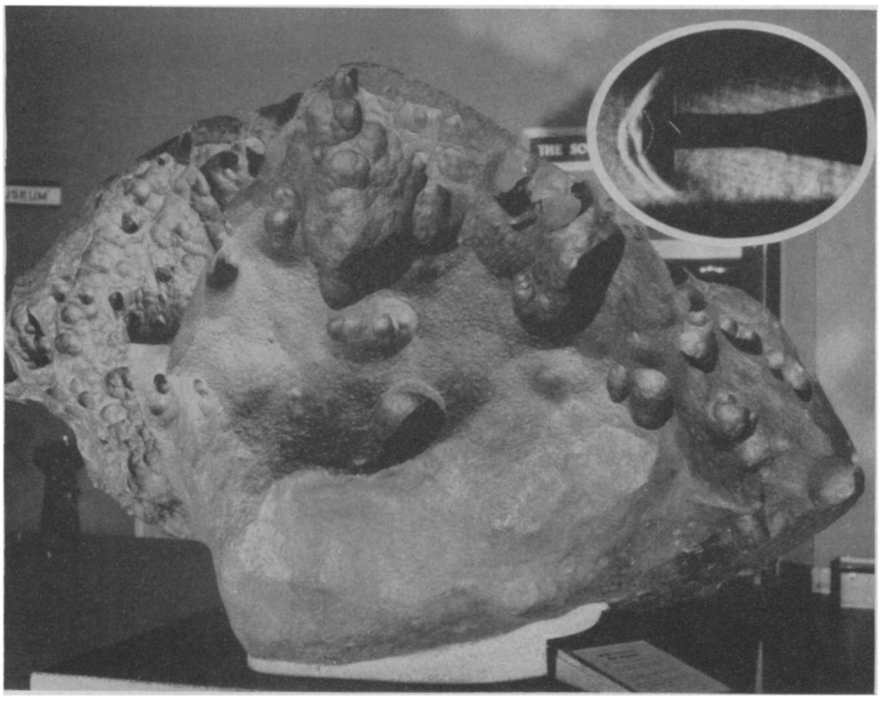
In addition, faster films now available can be used in a limited number of cases. Thus, the operating time for the machine can be kept to a minimum.

An exhibit by the U. S. Public Health Service at the meeting explained to doctors the various steps that members of the medical profession can take to reduce this hazard.

Just because a machine is old does not mean that it is dangerous, said Dr. Clifford E. Nelson, radiologist in the division of radiology of the USPHS. Many general practitioners have taken steps to improve their machines. However, the newest machines cut to a minimum the amount of radiation patients receive.

There are only between 5,000 and 6,000 qualified radiologists in the U. S. today. On the other hand there are more than 200,000 practicing physicians. More than one-fourth of these physicians operate their own X-ray or fluoroscopic machines, Dr. Nelson said.

If all of the radiation work were turned over to the few radiologists now on hand, these people could not possibly do all of the work. Therefore, it is important that the practicing physician be carefully schooled to operate properly his machines at a maximum level of efficiency, the radiologist emphasized.



METEOR HOLES—Violent whirlpools of hot gas that form within tiny pits and imperfections in the surfaces of meteorites could have gouged out the deep, smooth holes that long have puzzled scientists. Dr. Robert H. Johnson of General Electric Research Laboratory, Schenectady, N.Y., suggested that the whirlpools, which form during the meteorite's plunge through the earth's atmosphere, could also account for some of the meteors that fly apart before reaching the earth.

Advice to Avoid Fallout

FOOD CANS should be opened from the end that sat on the shelf.

This culinary advice to lessen the danger from radioactive fallout following a thermonuclear attack was presented to the Association meeting by an Army doctor. He said radioactive fallout material from a nuclear blast behaves like ordinary dust.

One danger of the fallout following bomb explosions, he said, is that this potentially lethal dust will be eaten.

Housewives preparing for possible nuclear attacks should provide water, food and shelter, Lt. Col. Ingalls H. Simmons of the Army Medical Service School, Fort Sam Houston, Texas, reported.

Safe emergency water supplies in the home can be stored in bottles in the refrigerator. Ice cubes can be melted in the event no water is available. The ordinary home water heater usually contains at least 25 gallons of water that can be drawn off from a tap at the bottom of the tank.

Safe emergency food supplies should consist of canned fruit, fruit juices, vegetables, meats, soup, canned or powdered milk, baby food, raisins, packaged cereals and dried foods.

Such supplies should be kept in the home at all times, Col. Simmons said. They can be rotated frequently to prevent deterioration.

Shelter should include not only buildings, but some sort of body covering such as blankets, clothes and sheets.

The safest spot in the house is under the cellar stairs or in a corner of the cellar where there is at least three feet of dirt between humans and the intensely radioactive fallout, he said. People caught outdoors during an attack should "hit the ditch" or any other cover that throws a shadow on the body.

Science News Letter, June 20, 1959

ARCHAEOLOGY

Prehistoric Indian Tools Found in Texas

EIGHT SMALL stone engraving tools that may have been used by prehistoric Indians along the Rio Grande about 4,000 B.C. have been found in the Diablo Dam area near Del Rio, Texas. Known as burins, such tools had never before been found so far south in North America. Others have been found in Alaska, Oregon and Canada.

The burins were discovered by Dr. Jeremiah F. Epstein of the University of Texas, Austin.

Science News Letter, June 20, 1959

MEDICINE

Save Newborn Infants

An electronic stethoscope has been invented and tested which may reduce infant mortality by enabling the physician to study the unborn infant's heart beat.

A MEDICAL advance in the battle to reduce the number of stillborn babies has been made.

Lionel Fothergill, a British inventor, has devised an electronic stethoscope which enables a doctor to hear the heart of a baby as it is being born. In this way the doctor knows whether the baby is withstanding the strain of being born or needs artificial assistance.

If the heart begins to beat too slowly, too quickly, or out of rhythm, the doctor knows he must speed the birth by using instruments, drugs, or possibly Caesarean surgery. Doctors who have tested the invention believe that its routine use will save not only many babies but also many mothers.

After the first practical use of this electronic stethoscope at the Mothers' Hospital of the Salvation Army in Hackney, London, a high frequency recording of the entire birth of the baby was played back.

The rhythmic lub-dub of the unborn infant's heart was amplified to the intensity of the beat of a jungle tom-tom. When the heart faltered momentarily during a critical stage of the birth process it was immediately noticeable.

In spite of background noise of ward trolleys and a lawn mower outside, the detailed movements of the baby's heart valves were clearly audible.

On a chart recorded during the birth was shown the efforts made by the infant heart when it suddenly needed extra strength in its struggle for independent life outside of the mother.

With twins, the instrument plays a drumbeat duet. Even with triplets the doctor can detect if one of the babies is in difficulty.

Mr. Fothergill, a 45-year-old medical physicist, has simplified the electronic stethoscope so that it can be operated by a midwife. Two small contact microphones are strapped to the mother. The sounds of her child's faintly beating heart are amplified by a device called a soniscope which, after cutting out much superfluous noise, relays them to a loudspeaker.

A flashing light helps alert the midwife when something is going wrong. By making a tape-recording, a midwife can play back the entire past history of the birth if she has to call a doctor because of suspected complications.

The stethoscope is so sensitive that it can detect whether an unborn baby has a heart defect which will need repairing.

Science News Letter, June 20, 1959

NUTRITION

Mechanical Cow Eats Grass

A technique for increasing available protein is seen in the development of a mechanical cow that converts the protein in plants to a form usable by man.

A MECHANICAL "COW" has just started work at the British Agricultural Research Council's experimental station at Rothamsted, near London. Its function is to extract protein from leaves or grass or any suitable vegetation.

The man behind this "cow" is N. W. Pirie, a nutrition expert, who explains there are two reasons for its existence.

First, persons in many areas of the world do not get enough protein in their diet. Second, the general way of extracting protein from vegetation is to make an animal such as a cow eat it and then slaughter the cow for beef.

The cow is an extremely inefficient mechanism for converting the protein in grass into milk and beef protein. Its efficiency averages about five percent. Therefore 95% of the grass protein is lost.

Most malnutrition occurs in undeveloped countries, where protein is scarce. The stomachs may be satisfied, but with the wrong things, and all the signs of malnutrition, such as pot bellies, begin to arise. It is for these peoples that the mechanical "cow" is likely to be extremely important.

Grass or other vegetation is fed into the machine from a normal elevator. After being chopped, the grass enters a press and the juice is squeezed out of it. This juice, which contains the bulk of the protein and barely any cellulose, is then treated with steam to precipitate the protein.

When the protein is made solid by the precipitation, it requires only a filtering to separate the protein from the unwanted juice. With a few minutes the "cow" has produced solid, cake-like protein from vegetation and, what is more important, has collected at least 50% of the protein in the leaves. Moreover, both the juiceless chippings and also the waste juice from the filters are still good feeding stuff for animals.

The protein cake then goes to the Rowlett Research Institute, in Aberdeen, Scotland, where it is used in experimental feeding of pigs. Pigs have digestive systems similar to man's and are given protein instead of fish-meal.

On a small scale last year, the pigs did much better on this new diet. This year the experiment is at full scale and will show whether the mechanical "cow" is one answer to malnutrition and the world's demand for protein.

Science News Letter, June 20, 1959

ASTRONOMY

90 Million Meteors Enter Earth's Atmosphere Daily

NINETY MILLION meteors bright enough to be seen under good viewing conditions enter the earth's atmosphere each day.

Using photographic observations of "shooting stars," two scientists determined the rate at which the earth's atmosphere at a height some 270,000 feet above the earth's surface is being bombarded by meteoric particles. This is more than five times as high as jet planes now fly.

Meteors belonging to major meteor streams were not included in their photographic survey, which was made with Baker Super-Schmidt cameras operating in New Mexico. These results of Drs. Gerald S. Hawkins and Edward K. L. Upton of Harvard College Observatory, Cambridge, Mass., are now being circulated among astronomers around the world.

Science News Letter, June 20, 1959

ERECTOR-LAUNCHER—An Atlas ICBM is being raised into firing position by a new erector-launcher mechanism like those to be installed at Atlas missile complexes at Warren Air Force Base, Wyoming. The missiles will be stored in a horizontal position.