

Dr. Axel Steensberg, of the National Museum of Copenhagen, told the British Association for the Advancement of Science meeting in Edinburgh, that the pottery and pollen show that the change in climate was not earlier than about 1250 and not later than 1325 to 1350.

Villages in Danish Zeeland have been excavated in an attempt to discover what happened to the climate and why. Charred grain and wild seeds of various Middle Ages dates may throw light on the problem. About this time the Black Death devastated northern Europe.

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## PHYSICS

## Distance Best Protection

Shielding walls of lead or concrete are not necessary as defense against rays of radioactive materials used in industry.

► SHIELDING WALLS of lead or thick concrete are unnecessary and, in fact, undesirable for protecting foundry workers against stray rays from radioactive materials used for making radiographs of metal castings, a British metallurgist, J. S. Blair, told a group of scientists at the Isotope Techniques Conference in Oxford, England.

Shielding walls only cause dangerous back-scatter of the tissue-damaging rays, increasing the hazard to those working within the confines of the enclosure.

A simpler, safer and less costly procedure, said Mr. Blair, is to draw a 30-foot diameter circle, at the center of which the radioactive source is placed, and to instruct all

workmen to stay outside the circle when exposures are being made.

As the strength of the rays, following the inverse square law of all radiation, rapidly falls off with the square of the distance, beyond a 15-foot radius the amount of residual radiation from the commercial radioelements normally employed in industry is so small as to be no hazard.

The steel-penetrating gamma rays of the radioactive isotopes of cobalt, tantalum and iridium are being widely employed in England for detecting flaws in metal castings, whereas in the U. S. this job is still being done largely with X-rays, reported K. Fearnside of Isotope Development Ltd., Aldermanston, England.

Mr. Fearnside believes that the use of radioelements is a more practical proposition, as a small, easily maneuverable cylinder of metal, under an inch in each dimension, takes the place of the bulky and unwieldy X-ray machines.

This makes a great difference in the cost and time factors, especially when welds and repairs are to be radiographed in awkward situations on the job. Sometimes it may require three weeks to set up an X-ray machine to radiograph a particularly awkward installation, whereas the same job can be set up in a matter of minutes with a gamma ray source.

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## MEDICINE

## Pain in the Chest Not Always from Heart

► MANY PEOPLE think that chest pain is a sure sign of heart disease. But this is not necessarily true.

"Only a minority of individuals who seek medical advice for chest pain have heart disease," the American Heart Association declares in the first revised edition of its manual for physicians, "EXAMINATION OF THE HEART."

Of course the person who has a pain in his chest will be wise to consult his physician to find out what is causing the pain. A check with your doctor is wise in case of other symptoms which you may think have nothing to do with your heart disease. So-called indigestion, for example, may be a sign of stomach cancer or of heart disease.

The symptoms and signs of heart disease may be very much like those of disorders of other organs, the Heart Association points out. Trouble with blood circulation is often shown chiefly by disturbances in other organs than the heart. Examples are the lungs, kidneys, brain, stomach and intestinal tract, liver and feet and hands.

The heart and blood vessels, furthermore, may be involved secondarily by other diseases such as gland disorders, diet deficiencies, anemia, infection and cancer.

Because of all this, your doctor will not be satisfied just to "check your heart," as many a patient asks. The doctor will take a careful history and make a thorough physical examination to find whether your heart is all right or in trouble.

Many a person is unnecessarily worried by a sudden pounding or palpitation of the heart or a feeling that the heart has missed a beat. When a regular heart rhythm is momentarily interrupted by an early beat followed by a pause, a premature contraction, or beat, has occurred. Doctors call this an extrasystole. In most cases it is of no importance, but if you notice this often, see your doctor so he can make a careful examination to determine whether or not there is anything wrong with your heart.

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**NEW COMET**—A greatly enlarged view of the faint 1951 comet discovered on August 6 by Dr. Albert G. Wilson and Robert G. Harrington of the California Institute of Technology and Mt. Wilson and Palomar Observatories on a photographic plate made with the 48-inch Schmidt telescope at Palomar. It is only one ten-thousandth of the brightness necessary to be visible to the naked eye. The straight line below the comet is a star caught as the telescope tracked the comet.