

nation, to consume not more than 15 minutes, was worked out by the American Psychiatric Association, for use by the Army in eliminating psychiatric risks. This, apparently, has not yet been accepted.

*Science News Letter, November 23, 1940*

## Mental Disorders Common

**M**ENTAL and nervous disorders have been prominent among the disabilities that have occurred among the Canadian armed forces, Dr. C. M. Hincks, general director of Canada's National Committee for Mental Hygiene, reported.

Deaths have been few and the general health of the troops has been good, he said, but there have been more than 1,000 cases of mental and nervous disorders, of which 156 were major mental diseases.

Almost one-third, 30%, of the men recently invalidated home from Britain have been afflicted with these disabilities, and an additional one-fourth had duodenal ulcer, a condition frequently associated with emotional disturbances and tensions, Dr. Hincks declared.

Insufficient psychiatric and psychologic testing and care is given to Canadian troops, Dr. Hincks' report suggests, with the exception of one division of the Air Force.

Brain-wave studies have proved useful here, he reported, in detecting persons who have never had epileptic seizures but who have convulsions under conditions of low pressure, similar to high altitude flying. Relationships between shallow breathing and emotional instability are being investigated by the Division of Medical Aviation Research.

The war of nerves has made few inroads on the Canadian people as a whole, Dr. Hincks reported.

"We are remarkably free from feelings of anxiety, apprehension or defeatism.

"This has been due in part to the fostering of confidence and will to win on the part of the press, radio, screen and church, and, in part, to the circumstance that everybody is working in the common cause. This constitutes effective occupational therapy in diverting attention from the tragedies and uncertainties of the war itself, and in strengthening morale."

*Science News Letter, November 23, 1940*

## PHYSICS

# Radium Substitute May Show Defects in Airplane Parts

## Radiation from Yttrium Can Be Used To Photograph Through Two Inches of Iron; Has Long Life

**X**-RAY photographs of parts of airplanes and other machines important for defense, to reveal any hidden defects and now made with radium, may soon be made with an artificially produced radium substitute, radioactive yttrium, prepared in the laboratory by bombarding strontium with atomic bullets from a cyclotron.

Dr. Charles Pecher, Belgian physicist, now working in the William H. Crocker Radiation Laboratory of the University of California, announces the separation of this material. (*Physical Review*, Nov. 1.)

Dr. Pecher was interested in making the element strontium radioactive for biological investigations. This was done by bombarding strontium samples with 16-million-volt deuterons from the cyclotron. Some of the strontium atoms are converted into a form of another element,

yttrium, which also has properties like radium, and which lasts for about 100 days, much longer than most of the artificially radioactive substances. Already, he says, enough has been obtained to be equivalent to about 25 milligrams of radium.

Photographs made through two inches of iron show that the yttrium can be used industrially for photographs of the inside of machinery.

"Because of its long life and penetrating gamma-radiation," writes Dr. Pecher, "this radioactive yttrium is, among the artificial radioactive elements known at the present time, the most likely to be substituted for radium, but it must be considered at the present time merely as a by-product of the radio-strontium preparation as it is, as yet, appreciably more expensive than radium for a like dose of gamma-radiation."

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