MEDICINE

# Dread Blood Disease Treated With Radioactive Phosphorus

## Abnormal Red Blood Cells Produced by Polycythemia, Disease of Bone Marrow, Killed by Charged Atoms

A PRODUCT of the atom-smashing cyclotron, radioactive phosphorus, is announced as a treatment for a serious blood disease by Dr. John Lawrence, brother of the cyclotron inventor Ernest O. Lawrence, who is director of biological and medical research of the Radiation Laboratory at the University of California.

Polycythemia, a deadly disease of the hemoglobin-producing bone marrow, causes an abnormal multiplication of red corpuscles in the blood and is usually treated by drugs, bleeding, radium and X-rays. This new form of treatment, although not generally used, seems to offer advantages over the older methods.

Elements made radioactive in the cyclotron emit rays similar to those of natural radium or X-rays, but as they travel in the system as natural phosphorus, these charged phosphorus atoms are carried directly to the bone-marrow where red corpuscles are normally produced. Harmless to normal body tissues in the small amounts needed, the charged phosphorus atoms enter and destroy the abnormal cells. If orange juice is taken at the same time it speeds phosphorus absorption and aids retention so that even smaller doses are needed.

So effective were the phosphorus radiations in their action on the widespread abnormal red blood cells that the blood count of patients was reduced from 7,000,000 to the normal 4,500,000.

One reason for the destructive action of radio-phosphorus in abnormal cells while normal cells are unharmed is the fact that polycythemia-multiplied cells are new cells, and radioactive research shows that all new cells, normal or abnormal, use large supplies of phosphorus in their growth. When the phosphorus taken up by these rapidly multiplying cells is radioactive, they are destroyed by the atomic "explosions" that are continuous in the substance.

*AS ROMANS DID*

***With rising costs of heating, owners of small houses may be interested in this modern adaptation of an ancient method of warming a house developed by a plant physiologist who studied heat transfer.***

Radioactive elements produced in the cyclotron are being used in the treatment of several other types of abnormal growth.

Dr. L. A. Erf, research associate now in the United States Army Medical Corps, assisted Dr. Lawrence in the polycythemia research.

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ENGINEERING

## Warm Floor Makes Whole House Warm

WITH the prospect of steep rises in the cost of coal and oil, a modern adaptation of an ancient way to warm a small house efficiently and economically will be welcome to many.

The ancient Romans made comfortable many of their baths and villas by means of hot air ducts under the floors. More recently some schools and churches in England and France have been fixed up for cold weather in a smiliar manner. The idea has been slow of acceptance in the United States.

Prof. Raymond H. Wallace, of Connecticut State College, has tried out the principle in a log cabin built from pines destroyed by the New England hurricane of three years ago, and finds it works. Prof. Wallace is not a heating engineer. He is a plant physiologist. His interest in the problem arose from a technical study of heat transfers which determine leaf temperatures. Also, he does not think radiators help interior decoration.

The cottage was complete except for partition and floors when the experiment was decided upon. The ground floor was graded as for a lawn. Upon this roofing felt was laid. About 700 feet of ordinary three-quarter inch black iron pipe and about 100 three-quarter inch malleable iron L's were assemb'ed to form grids in the floor. Six inches of concrete were then poured over the pipes.

Upstairs was placed another grid — first roofing felt, next one-half inch of cement, then the pipes, and lastly, three inches of concrete. The two sets of grids were hooked up with a circulation pump on a hot water boiler in a lean-to solarium. An automatic oil burner supplies the heat.

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Many ornamental and *shade trees* die each summer because home owners go vacationing and leave them without water when they need it.