

ing of maps, papers and messages in a blackout. Fluorescent-dyed paper sounds the death-knell for counterfeiting, and fluorescent inks are the modern answer to the problem of marking laundry invisibly.

Phosphorescent materials that glow in the dark are insurance against barked

shins and frayed tempers for nocturnal navigation of bedroom and bathroom, Dr. Stutz stated.

Vitreous enamels treated with phosphorescent pigments, and activated by daylight, maintain an afterglow which assures visibility.

Science News Letter, May 13, 1944

PHYSIOLOGY

Frog Hearts Transplanted

Soviet scientist tells how he replaces the heart of a frog with that from another frog. Some of his animals live normally for 100 days afterwards.

► THE FEAT of replacing an animal's heart by the heart of another animal through a transplantation operation has been accomplished by Prof. N. P. Sinitsin, of the Gorky Medical Institute in Moscow.

The animals whose hearts were transplanted were all frogs. Some have lived four months, apparently in good health. Electrocardiograms show no difference in the muscle action of the transplanted hearts from that of frog hearts that have not been transplanted.

Frogs were chosen for the experiments because the heart of cold-blooded animals fits the conditions Prof. Sinitsin believes extremely important for solving the problems of successful transplantations of animal organs. Prof. Sinitsin, in a report written for the Soviet Scientists' Anti-Fascist Committee, describes his experiments as follows:

"Despite its great antiquity, the problem of transplantation of organs is still far from being solved. Of all the work done on this problem, that most deserving of attention was in cases in which the scientist dealt with tissues that are fed by liquids that wash over them. In other words the method of feeding approximates that of embryonic tissue.

"This is a factor which I consider to be of extreme importance in solving the problem of transplantation. The heart of cold-blooded animals is at the embryonic stage of development so far as its histological structure and feeding system are concerned. I based my experiments on these conceptions.

"I developed a method for rapidly sewing up blood vessels and my first series of experiments enabled me to place a second heart beside the animal's own heart. Observation showed that the transplanted heart worked well and that frogs with two hearts lived 30 days and sometimes more.

"A second series of experiments enabled me to cut out the heart of the animal and place the transplanted heart into the blood vessel system. In the first experiment this was done only temporarily but later the frog's heart was completely replaced by the transplanted heart.

"The transplanted heart functioned normally under the new conditions. Some of my animals lived over 100 days and did not show any differences in behavior from normal frogs. In the spring both males and females which had been operated on went through a normal nuptial period which ended with spawning.

"The third series of experiments carried out in the autumn and winter of 1943-1944 was the transplantation of the heart by a new method through the frog's mouth, the frog's own heart being removed at the same time and the transplanted heart immediately included in the blood vessel system.

"The operations were carried out under aseptic conditions with a minimum loss of blood and the smallest possible surgical injury of the tissue of the mouth so that it did not require stitching.

"Frogs operated in this third series do not behave in any way differently from unoperated frogs. Some have already lived 130 days. Electrocardiograms of the transplanted hearts coincide exactly with those of the unoperated hearts. Observations are being continued."

Science News Letter, May 13, 1944

Nine federal *detinning* plants in the United States are now salvaging metal from tin cans.

An acid or caustic soda treatment of southern *pine* increases turpentine and rosin output.



Neglected Beauties

► WHEN the first settlers in the Colonies found time enough to lay out flower gardens and develop tree-and-shrub settings for their houses, they brought over old familiar favorites already known in western Europe: roses and peonies, irises and tulips, pansies and pinks. Some of these were native to Europe, others had been brought in from Asia—in some instances as early as the Crusades or even the Roman Empire. At any rate, they had become thoroughly a part of the European scene, and European gardeners had made, and continued to make, many changes in color and size and other appeals to the eye.

After independence was achieved, and American ships began to ply in the China trade, we made quite a number of direct importations from eastern Asia, especially into the mild-climated Southeast—such things as camellias, chrysanthemums and (surprisingly enough) the Cherokee rose.

Some native flowers and shrubs have found their proper places in American gardens: rhododendron, azalea, flowering dogwood, gaillardia, several species of phlox, to name only a random few. But the ones we cultivate are a mere corporal's guard compared with the hosts of fine flowers we still neglect.

One of the pities of the situation, too, is the fact that many of these neglected native species are particularly well adapted for growing in the shade—that perennial problem of the home-grounds gardener. Think of the fine flowers you have seen growing in the woods, but seldom or never in the average suburban flower garden or shrubbery: trillium,

bellwort, dogtooth violet, anemone, lady's-slipper, a score or more of delicate little wild orchids. The list might be extended indefinitely—and all of them plants that tolerate or even demand at least partial shade.

This is not meant to be an exhortation to every home-grounds flower grower to hasten into the nearest woodland with trowel and basket, to uproot and transplant. That way murder lies. Most transplanted wildflowers soon sicken and die, unless the job has been done by an experienced hand. However, there are at least a few persons in the country who have been sufficiently interested in promoting our native species to go into the wildflower-reproducing business on at least a small scale. They are deserving of all flower-growers' patronage.

Science News Letter, May 13, 1944

PUBLIC HEALTH

Opportunities for Nurses In Post-War World

► THE NEED for nurses continues to increase. To meet this need, 65,000 must be added to the enrollment of accredited nursing schools by July of this year, according to a statement from the U. S. Office of Education. Even allowing for the number who may be drawn from colleges it will take about one out of every nine girls graduating from high school this spring to make up the total needed.

Many high school girls are doubtless convinced that their services will be needed if they finish training before the war is over, but they may be wondering what the post-war future will hold for them in the way of work and a livelihood if they enter nursing training now. They and their parents may feel that the sudden and large increase in the numbers now entering training may make nursing an overcrowded profession after the war.

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"Partial answers, all of them reassuring, are to be found in the following considerations," says the statement from the Office of Education.

"The normally high rate of turn-over among nurses in peacetime, which has undoubtedly been materially checked during war, may logically be expected to reach a new high in the immediate post-war period. Many nurses who entered nursing, or who came out of retirement to patriotically serve the war effort, will drop out of nursing again as the period of emergency ends.

"Moreover, the conditions which have necessitated the wartime expansion of hospitals and public health facilities will tend to perpetuate the increased demand for nursing service beyond the war. The increase in group medical and hospital service will also tend to increase the opportunities for nursing."

In addition, such special fields as public health nursing and the various services in nursing education are expected to expand and call for more nurses than in the past.

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• Books Off the Press •

AIRPLANE ENGINE MECHANICS, Questions and Answers—Rolla Hubbard and Augustin Dilworth—*McGraw-Hill*, 260 p., illus., \$2.25.

AMERICAN PLANNING AND CIVIC ANNUAL—Harlean James, ed.—*Am. Planning & Civic Assoc.*, 195 p., illus., \$3. A record of recent civic advance in the fields of planning, parks, housing, neighborhood improvement and conservation of national resources.

ELEMENTS OF BIOLOGY: A Brief Course for College Students—Perry D. Strausbaugh and Bernal R. Weimer—*Wiley*, 461 p., illus., \$3.25.

FLORAL ANATOMY OF THE SANTALACEAE AND SOME RELATED FORMS—Frank H. Smith and Elizabeth C. Smith—*Oregon State College Press*, 93 p., illus., paper, 50c., Studies in Botany, No. 5.

THE GERMAN SOLDIER—Capt. Arthur Goodfriend—*Infantry Journal*, 97 p., illus., paper, 25c.

INDUSTRIAL OPHTHALMOLOGY—Hedwig S. Kuhn—*Mosby*, 294 p., illus., \$6.50.

INTRODUCTION TO MICROORGANISMS—Javerne Ruth Thompson—*W. B. Saunders*, 445 p., illus., \$2.75.

MATHEMATICS FOR EXTERIOR BALLISTICS—Gilbert Ames Bliss—*Wiley*, 128 p., illus., \$2.

MIDDLE AMERICA—Charles Morrow Wilson—*Norton*, 317 p., illus., \$3.50.

MISSION MONUMENTS OF NEW MEXICO—Edgar L. Hewett and Regina'd G. Fisher—*Univ. of New Mexico Press*, 269 p., illus., \$4.

ORGANIC REACTIONS, Vol. II—Roger Adams, ed.—*Wiley*, 461 p., \$4.50.

OUR AIR-AGE WORLD—Leonard O. Packard, Bruce Overton and Ben D. Wood—*Macmillan*, 838 p., illus., \$2.80. Parents as well as pupils will find great interest in this textbook on economic geography written from an ultra-modern viewpoint.

OUTWITTING OUR NERVES—Josephine A. Jackson and Helen M. Salisbury—*Garden City*, 420 p., \$1, 2nd ed. rev. and enl.

THE OXY-ACETYLENE HANDBOOK, A Manual on Oxy-Acetylene Welding and Cutting Procedures—*Linde Air Products Co.*, 587 p., illus., \$1.50.

PROTECT YOURSELF, The Secret of Unarmed Defense—Brooks Mendell—*Essential Books*, 96 p., illus., \$2.75.

PSYCHOLOGICAL MEDICINE—Desmond Curran and Eric Guttman—*Williams and Wilkins*, 188 p., illus., \$3.50. A short introduction to psychiatry with an appendix on war-time psychiatry.

ROCKETS: The Future of Travel Beyond the Stratosphere—Willy Ley—*Viking Press*, 287 p., illus., \$3.50.

TARAWA, The Toughest Battle in Marine Corps History—Staff Sgt. Dick Hannah—*Duell, Sloan & Pearce*, 126 p., illus., paper, \$1. A U. S. Camera book.

10,000 GARDEN QUESTIONS ANSWERED BY 15 EXPERTS—F. F. Rockwell, ed.—*Am. Garden Guild, Inc. and Doubleday, Doran*, 1467 p., illus., \$3.95.

UNITED ANIMALS TOWN—Alfred Baker Lewis—*Island Press*, 28 p., illus., paper, \$1.

WINGS AFTER WAR, The Prospects of Post-war Aviation—S. Paul Johnston—*Duell, Sloan and Pearce*, 129 p., illus., \$2.

Science News Letter, May 13, 1944

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