

touch-controlled, the food compartment is circular and the height-adjustable shelves rotate, and the ice-cube compartment has trays with cam-lifting devices for easier removal. If anything liquid is spilled, it doesn't make a mess on

the bottom, but runs into a gutter and is drained off. There is a capacious vegetable-storage bin. About the only thing it doesn't do is go out and do its own shopping.

Science News Letter, May 13, 1944

AGRICULTURE

German Food Situation

Due to change for the worse this year because of shortages of manpower, fertilizers and other factors, U. S. Department of Agriculture official states.

➤ THE GERMAN FOOD situation may change for the worse soon because of shortages in manpower, fertilizers and other production factors. Production in 1944 may be considerably below that of the preceding years, and the 1945 food supply will probably be drastically curtailed.

This is the opinion of Dr. J. H. Richter of the Office of Foreign Agricultural Relations, U. S. Department of Agriculture, expressed in the official publication, entitled *Foreign Agriculture*. Germany's production and consumption of food thus far in this war have been at a level far above those of 1914-18, he says.

"In contrast to the situation in 1914, Germany's food economy in 1939 was well prepared for war," he declared. "Following a period of sustained expansion, agricultural production had reached a high level. Over 85% of the nation's food supply was produced from domestic resources, the only substantial deficit being in fats and oils. From 1937 until the outbreak of war, stocks of grain, fats and sugar had been accumulated in considerable quantities."

In the years just prior to World War

I, German livestock was dependent upon the importation of feed to the extent of about 38% of the total output of livestock products. In 1939 the dependence on imported feeds was not more than 10% with the result that livestock production has been considerably less affected in the past four years than during the 1914-18 period.

An important factor in the high level of farm production was the relatively large supply, up to 1943, of commercial fertilizers other than phosphates. Especially important was the availability of nitrogen in quantities six or seven times as great as in the previous war.

"This excess, even after allowance has been made for the drastic reduction in phosphates, may still be estimated as accounting for an annual crop production of over 6,000,000 tons in terms of grain," Dr. Richter states.

In his opinion, Germany's own production has remained the backbone of its wartime food supply, despite the importation of substantial quantities requisitioned in other parts of continental Europe under German control.

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High Visibility Yellow was suggested for trucks, hoists, steps, edges, and railings; Safety Green for first aid rooms, stretchers and locations of medical equipment; and Traffic White, Gray or Black were offered for setting of traffic lanes, aisles, storage areas and corners.

For the benefit of the 4% of the population who are color-blind, Mr. Denning urged use of safety symbols in connection with safety colors—triangles or arrow with orange, cross with green, square with red, and disk with blue.

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Safer Future Promised

➤ A SHINING and safer future, with materials visible in the dark, was predicted by Dr. G. F. A. Stutz, of the New Jersey Zinc Company.

Fluorescent pigments visible in ultraviolet light and phosphorescent materials that glow in the dark, he said, serve many war uses and will illuminate the post-war road to safety.

Aviators in planes forced down at sea release fluorescent dye powders that tint a large area of water, making it visible to rescue planes, and dyed panels of silk are used by ground troops to signal planes.

Fluorescent pigments are being used in plastics, paper, paints, printing inks, and powders, and in coatings for instrument boards and panels of ships, planes, and control rooms where darkness is desirable but visibility must be maintained.

A fluorescent plastic envelope, activated by ultraviolet light, permits read-

SAFETY

Reducing Accidents

➤ A RAINBOW of industrial colors to protect war workers, with high spots picked out as Alert Orange, Precaution Blue, and High Visibility Yellow, is the home-front safety scheme advanced by Matt Denning, of E. I. du Pont de Nemours and Company, before the 15th Annual Convention of the Greater New York Safety Council.

In line with the Safety Council's foremost objective—"to reduce accidents in our homes, on our streets, in our industries and elsewhere"—new spring safety colors were exhibited that add

"three-dimensional seeing" to safety precautions, on the theory that the human eye quickly recognizes colors and the brain learns to associate colors with certain equipment.

Alert Orange, a "loud shouting color," was recommended for application to such industrial danger spots as electrical switch boxes, machinery guards, pulleys and gears. Fire protection equipment and locations were to be designated by a "noisy" red, while Precaution Blue was to identify equipment not to be used, moved or started.

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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.

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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."

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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 South-east—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,