

which milder methods had failed to disclose. The light from the burning diamond was analyzed by a powerful spectrograph, an instrument which sorts out the light of the burning diamond according to its various wave lengths, and tells what elements are present in the stone as impurities.

These impurities were found to be the cause of the various types of fluorescence. The blue-glowing diamond was

found to contain chromium and titanium as the principal impurities, the yellow-glowing gem contained aluminum, and the non-fluorescing stones were almost pure carbon.

The investigators were James M. Orr, spectroscopist, and Jack DeMent, chemist, both of Portland, Oregon, who report full details of the investigation in the current issue of *The Mineralogist*.

Science News Letter, March 14, 1942

PUBLIC HEALTH

Sugar Rationing Called a "Godsend" to National Health

Without Sugar, People Will Substitute Other Foods Containing Vitamins Lacking in Refined Sugar

MOST Americans have too sharp a sweet tooth, and a little sugar rationing will do them more good than harm, according to dentists and diet authorities.

Psychologists unofficially hint that millions of citizens who "have always intended to cut out sweets, some day," will now find the push from Uncle Sam most helpful.

M. L. Wilson, assistant director of nutrition, of the health and welfare defense program, declares:

"Sugar rationing certainly will harm

no one. People will meet the restriction on sugar by adding calories from other sources—sources which contain vitamins and minerals lacking in our refined sugar."

Dr. L. H. Newburgh, University of Michigan authority on diet, advises:

"Don't complain about sugar rationing; it will be good for you. As a matter of fact, it would be a Godsend if there were no sugar at all.

"For, if there weren't, we would be forced to eat more grains, meats, milk, green vegetables and other foods which

give us everything that sugar does plus much-needed B vitamins and minerals."

Dr. Newburgh points out that sugar's only importance to our diets is its fuel value, and this may be readily replaced by a host of other foods which provide more than mere fuel.

Milk is the best fuel substitute for sugar, he continues, since it also provides proteins, vitamins, salts and fats. One glass of milk, he says, is equal in fuel content to four teaspoonsful of sugar.

Whole cereals are a much more wholesome food than sugar, since they provide, in addition to fuel, vitamins of the important B group and 10% of protein. An ordinary portion of oatmeal, for example, is equal in fuel value to four teaspoonsful of sugar.

Dr. Russell Bunting and associates of the University of Michigan School of Dentistry state in a recent report that sugar is a very important causative factor in tooth decay.

"A remarkably low degree of (decay) was observed in children on a low-sugar diet deficient in calcium, phosphorus and vitamin D. Active caries (decay) was induced in children by increasing the sugar intake while they were receiving a diet that nutritionally was adequate." Low-sugar diets, they add, as a rule help keep children free of tooth decay.

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ENGINEERING

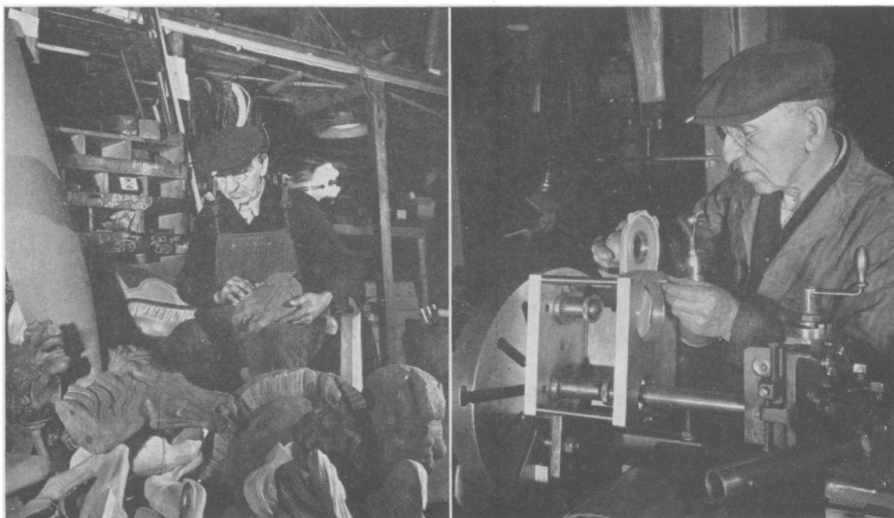
Merry-Go-Round Maker Converts Plant for War

WORKMEN who once made merry-go-rounds, chute-the-chutes and other thrill rides loved by every American from Coney Island to Los Angeles' Ocean Park, now are turning out implements of war, says the new War Production Board.

According to the WPB, one of the world's largest amusement park equipment makers has abandoned its peacetime business completely for war orders.

Craftsmen who for a quarter of a century carved wooden horses' heads for youngsters to clasp on the carousel, now are at work on a lathe. Artists who painted modernistic designs for "silverstream" rides, learned to make die castings.

Machines which shaped the tracks for roller-coasters, "whips," caterpillar rides, now bend hooks for airplane packing cases, while workers once used to building ferris-wheel towers, now build towers used by repairmen to reach the noses of giant bombers.



BEFORE

AFTER

The same skilled hands that carved the gay horses for merry-go-rounds are now applying their dexterity to making the implements of war. The conversion from peace to war is shown graphically in these official photographs of the Office for Emergency Management.

Says the head of the concern, name withheld by WPB:

"We realized that if we were to stay in business it would be necessary for our plant to convert to arms work for the Arsenal of Democracy."

Science News Letter, March 14, 1942

MEDICINE

Frozen Dried Blood Plasma Helps Bleeding Disease

FROZEN dried blood plasma, which is saving lives of soldiers wounded in the present war, offers new hope to patients with hemophilia, the hereditary disease in which the slightest cut or injury may cause dangerous or even fatal bleeding. This appears from a report by Dr. John B. Johnson, of the University of Rochester School of Medicine (*Journal, American Medical Association, March 7*).

Weekly injections into the veins of about four ounces (125 cubic centimeters) of plasma enabled a patient totally disabled by hemophilia to do light work. For the previous three years his activity had been greatly restricted because of recurrent bleeding.

Because of the limited supply of plasma Dr. Johnson has not attempted to give all his patients injections of it at regular intervals but he considers intensive treatment of incipient hemorrhages with plasma the most practical method of attempting to rehabilitate patients with hemophilia.

Transfusions of fresh whole blood have heretofore been considered the most effective treatment of hemophilia. Plasma, Dr. Johnson says, has the same ability as whole blood to shorten the clotting time of the blood, which in hemophilia is so prolonged that the patient is in danger of bleeding to death from small injuries. In addition, plasma has the following advantages: It is more readily available than whole blood, since it can be stored after suitable processing without losing its ability to reduce clotting time. It does not need to be typed or matched with the patient's blood.

"One of the most satisfying results of of the type of management under discussion has been the elimination of the fear of tooth extractions in patients with hemophilia," Dr. Johnson states. "The removal of two or more teeth on three occasions in two patients was managed by the use of plasma alone."

Science News Letter, March 14, 1942

MEDICINE

Virus Theory of Human Cancer Gains Support From Research

Discovery of Why Virus Is Not Found in Some Cancers In Rabbits May Explain Failure To Find It in Humans

THE theory that cancer is caused by a virus, or germ in popular language, gains support from research on a type of virus-caused cancers in rabbits reported by Duke University scientists. (*Science, Feb. 27*)

Failure to find a virus in human cancers has argued against a virus cause of human cancer. But in rabbits cancers develop from warty growths that are known to be caused by a virus yet it is often impossible to find the virus in the rabbit cancer. The reason for this, which perhaps applies to human cancers also, has just been discovered by the Duke scientists, Dr. Frederick Bernheim, Dr. Mary L. C. Bernheim, Dr. A. R. Taylor, Dr. Dorothy Beard, Dr. D. G. Sharp and Dr. J. W. Beard.

The virus which causes the warts that turn into cancer in rabbits is probably a protein chemical which is "degraded"

by enzyme action in the cancer cells. The virus chemical is probably degraded or destroyed, as fast as it is formed in the warty cancers of domestic rabbits, which would explain why the virus cannot be found in these cancers. In cottontail rabbits, in which the virus usually can be found in the cancer tissue, the virus chemical is probably formed more rapidly than it is destroyed.

The enzyme or other factor which destroys the virus chemical probably is acquired by the body cells in the course of their change into cancer cells.

"It is an obvious possibility," the Duke scientists point out, that such a mechanism may prevent a virus cause being discovered in other cancers, if it does exist. Whether it exists and is destroyed before it can be detected, or whether it does not exist cannot be stated as yet.

Science News Letter, March 14, 1942

PUBLIC HEALTH

War Rise in Tuberculosis Predicted for Hungry Nations

Death Rates From Tuberculosis Already Increasing In British Isles Because of Poorer Nutrition

ARISE in tuberculosis in countries where war has caused a food shortage was predicted by Dr. Esmond R. Long, director, The Henry Phipps Institute, Philadelphia, in an address to the New York Tuberculosis and Health Association.

Dr. Long pointed out that already a rise in tuberculosis death rates has been recorded in the British Isles, attributed by public health authorities to poorer nutrition. He said proper nutrition is an important constitutional factor in resistance to this disease.

"During the first world war there was a serious rise in tuberculosis in the warring countries. Careful analyses in later

years credited a major share of this to malnutrition, particularly to deficiency in protein consumption. Later studies have indicated the importance of vitamin A and vitamin C. These food substances are looked upon as protective. They may spell the difference between ability and inability to resist minor tuberculosis infections."

Science News Letter, March 14, 1942

Keep T.B. Patients in Bed

EVERY possible educational and persuasive means should be applied to keep tuberculosis patients from leaving sanatoria before their disease is arrested,