



ODOR ELIMINATOR

New product of the research laboratory is this portable machine that takes odors out of the polluted air of a room. Using the principle of the ordinary gas mask, highly activated charcoal snatches out vapors, smoke and fumes—repurifies the atmosphere.

CHEMISTRY

Substitutes Help Chemists Dodge War-Scarce Items

Among Imported Items That Are Hard to Get Are Montan Wax and Ozokerite, Beeswax and All Vegetable Gums

By EDWARD ROSENDAHL
Chemist, Glyco Products Co.

ALTHOUGH the chemical industry of the United States has made tremendous strides in the last twenty years, we still depend on other countries for a number of basic products. In times of peace this dependence does not loom very large in the minds of manufacturers, but when, as at present, other countries are engaged in less peaceful pursuits and shipments are meeting with all kinds of delays, the question of replacing these products by materials produced in the United States from American raw materials, immediately becomes of utmost importance.

Among the major items imported from abroad we find that certain waxes have become scarce and very high in

price. Thus, Montan Wax and Ozokerite, both of which come from Germany and neighboring countries, are, to all intents and purposes, unobtainable in this country today.

Montan Wax is used in considerable quantities in polishing preparations, paints, varnishes, roofing compositions, shoe creams, phonograph records, insulating compounds and paper sizing.

Ozokerite goes into the making of certain kinds of cosmetics, pharmaceutical ointments, wax crayons, waxed paper, textile sizings and in lithography.

Beeswax, a considerable amount of which comes from Africa, Chile and Brazil, is another wax becoming more and more expensive. Beeswax, of course, has tremendous applications in the manufacture of all types of polishes, all kinds of cosmetic preparations, chewing gum,

many food products, adhesive preparations and is used in the sizing and finishing of textiles.

A glance at the current market quotations for chemical raw materials will show the words "No Prices" or "Nominal" after most waxes other than those produced in this country. Carnauba Wax (obtained from Brazil) has doubled in price in the last two months, and most of the grades are off the market. This wax is used mostly in the polish industries as well as in the making of recording disk waxes, dental waxes for impressions, cosmetics, electrical insulation and in textiles.

Vegetable gums of all types come chiefly from the Near and Far East. Transfer of boats for war purposes means delayed shipments. The same applies to shellac, which comes mostly from India.

World War Lessons

Learning lessons from the last war American chemists have been developing numerous synthetic products to replace, at least in many of their physical properties, natural materials imported from abroad. In some cases, notably in the resins and plastics field, the synthetics have proved so superior that they have replaced permanently the formerly-used natural materials.

When glycerine was almost unobtainable at almost any price a few years ago, glycerine substitutes helped cure the headaches of many a manufacturer. So good was the "cure" that after glycerine returned to normal the substitutes in many cases were retained.

Glycerine furnishes an excellent example of the fact that a substitute does not have, and need not have in many instances, the exact chemical and physical properties of a natural material.

The maker of printing press rollers uses glycerine, but he has no interest in the sweetness or color of the glycerine.

LANGUAGES

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He can use a glycerine substitute that looks poor, if it has suitable properties otherwise. In contrast, a cosmetic manufacturer wants a glycerine substitute that is light in color, has "body" and is hydroscopic. Taste, in this field, matters little.

The point is that each problem of find-

ing a substitute needs to be tackled individually. If the various substitutes in all fields, which have been created by American ingenuity and offered to American manufacturers, are tried with an open mind and with a desire to make them work, they will more than repay the time invested in them.

Science News Letter, February 10, 1940



Vanishing Herd

BISON are being killed by the thousand at Buffalo National Park near Wainwright, Alta., in the greatest slaughter of these shaggy plains animals since the days of Buffalo Bill. The range must be cleared of all animals before spring, by order of the Canadian government at Ottawa. It is needed for other purposes, though official silence is preserved on what these purposes are. Rumor says the area is to be used as a great aviation training area, for the education of thousands of flying fighters for duty overseas.

Before the hunters began the slaughter, there were more than 3,000 bison on the range, besides 1,500 elk, 500 deer, 125 moose and 35 imported yak from Tibet. The elk are being given to Indians on reservations as they are killed, the bison carcasses will be butchered and the meat and hides sold on the market.

Wiping out of the Wainwright herd will not, of course, mean the end of bison in Canada. The largest herd of these animals in the world, some 30,000 head, are kept on a tremendous range of 17,000 square miles of wooded country, in northern Alberta and southern Mackenzie provinces.

A considerable surplus of animals from the Wainwright herd were sent to the great range some time ago, and smaller surpluses have also been distributed to other ranges and parks in Canada. Canadian conservation officials state that the range at Wainwright has deteriorated through over-grazing, so that it would be inadvisable to keep so many animals there regardless of other possible uses for the land.

The Wainwright herd had its beginnings a generation ago, when the Ca-

PSYCHOLOGY

Rats Aid the Study of Underlying Causes of War

IN THESE WAR DAYS when bombings and poison gases and torpedoes monopolize newspaper front pages, the pitifully small expenditures in research on war prevention receive scant notice.

But at Yale's Institute of Human Relations, rats as laboratory animals are contributing to a possible eventual world peace by revealing the underlying basis of animal aggression.

These rats were taught by Dr. Neal Miller and his assistant, Miss Maritta Davis, to spar with each other in a manner natural to rats. The training was by a simple trial-and-error method—the discomfort of a mild electric shock was applied but abruptly turned off whenever one rat would cuff the other. In such a way a bad child might learn to bite or scratch to get what he wants.

When the training of the rats was completed, the turning on of the electric current was a signal for instant blows.

Next step in the research was to remove one of the sparring partners and replace it with a little celluloid doll. Now the electric current was a signal for pitching into the "innocent bystander".

This is what Freud would call "displacement." It is the same mechanism that permits hunger-ravaged, freedom-starved peoples to vent their pent-up

wrath upon some scapegoat or to blame all their troubles on "international bankers," or "encircling enemies."

But it is also what the psychologist would call "transfer of training" or "generalization." Thus is bridged the wide gap between the findings of Pavlov working with salivated dogs and Freud analyzing the bizarre dreams of neurotics.

Freud's theory goes farther, however. Not only can displacement occur between one object and another superficially like it, but it can occur between one drive and another. Thus, men drinking to excess may not be driven by thirst but by fear or sex desire. People have been known to worry themselves fat, overeating in an attempt to escape from fear, Dr. Miller recalls.

His rats confirmed this theory. Trained with the assistance of Jacob Goldstein to run down an alley to drink, they would run faster when hungry than when fed. And if hungry they would run to drink even though they had been satiated on water.

Science News Letter, February 10, 1940

Nearly half a million birds were banded last year in the U. S. Biological Survey's efforts to study migration habits of North America's birds.

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