

CHEMISTRY

Soybean Rubber Produced

Norepol, synthesized from soya, corn and other vegetable oils by Department of Agriculture chemists, now going into commercial production.

► NOREPOL, the rubber-like material synthesized from soybean, corn and other vegetable oils by U. S. Department of Agriculture chemists at the Northern Regional Laboratory in Peoria, Ill., is now going into commercial production. Two companies are making it under trade names of their own, while others are producing it under the coined name given it by the Department.

Norepol is a combination-word formed from the first syllables of NOrthern REgional POLymer. Technically it is a polymer of lineoleic acid, one of the fatty-acid fractions of many vegetable oils. A polymer is a compound with big molecules, formed by welding together smaller molecules of other compounds. As a rule, polymers are "thicker," more solid, and harder or more elastic than the substances from which they are made.

Norepol, although rubber-like in its properties, is not a full substitute for rubber. It will stretch to only twice its normal length, instead of six times as in real rubber. Its tensile strength is only 500 pounds per square inch, as compared with 3,000 pounds or more. Nevertheless, it has good resistance to abrasion and aging and is impervious to water and alcohol, so that it can replace rubber in such uses as shoe heels, fruit jar rings, gaskets and tubing. Demand for norepol is estimated at 12,000 tons or more for the current year.

Since only the fatty acid from the oils is used in its manufacture, the other half of the oil compound, glycerin, is released as a co-product for the manufacture of explosives and other technical purposes.

Natural rubber from two other sources fostered by the Department of Agriculture is beginning to come in. More than 18,000 pounds of kok-saghyz roots have been harvested from the first experimental plantings, made possible by large shipments of seeds of this rubber dandelion rushed to this country from the beleaguered Soviet Union last spring, even while the Nazi armies were storming to new conquests.

This harvest represents only a small fraction of the plants grown in many plantings over a large part of the coun-

try, to test the adaptability of the plants to American soils and climatic conditions. The greater part of the first year's crop has been left in the ground, to test the plants' over-wintering abilities in this country. In the meantime, labor-saving machinery has been worked out to harvest the first American-grown crop of seed.

It is emphasized that all the work thus far is experimental. No appreciable amount of dandelion rubber will be harvested in the immediate future, nor will any seed be available to farmers who may be thinking of growing the plant themselves.

The native American rubber shrub, guayule, is making a small beginning, on lands taken over from the Intercontinental Rubber Company by the Department of Agriculture. A mill operated by the U. S. Forest Service at Salinas, Calif., will turn out 600 tons of guayule rubber this winter, using older shrubs that were already growing before Pearl Harbor.

Plantations being established this winter are expected to yield about 21,000 tons from the harvest starting late in 1944. Further extensions will put the figure up to a maximum of about 80,000 tons. Although this is not much more than a tenth of the annual rubber requirement in this country, it will help.

Science News Letter, February 6, 1943

PSYCHIATRY

Youngest Drafted Men Are Most Healthy Mentally

► EIGHTEEN- AND NINETEEN-YEAR-OLD men called up by the draft are a more healthy group, mentally, than are older men, it is revealed in a report by Dr. Ernest E. Hadley, psychiatrist who serves on the Army Induction Board near Washington, D. C. (*Psychiatry*, November).

The rate of rejection for mental disability is only 48.78 per thousand for the 18-19 age group. The average for all ages is 329.6 per thousand. And the highest rate, for the 44-45 year group, is 635.13. These figures are based on a study of 2500 men who appeared consecutively

before the psychiatrists on Army induction boards.

Most common reason for rejection on psychiatric grounds is for the mental disease schizophrenia and related conditions, including a state recognized as preceding the frank occurrence of this mental illness. The average rate is 116 per thousand.

Greatest number of rejections for this reason is in the 44-45 year group, of whom 206.34 per thousand are judged unfit for military service. Next comes the 34-35 year group with 165.04 per thousand. Next is the 28-29 group with 154.16 per thousand. Men between 36 and 40 have a rate slightly below average, as do also men 24-25. The 22-23 group and the 40-41 group have a somewhat lower rate—89.70 and 85.71.

In the 18-19 group only 24.39 per thousand must be rejected for this cause. In the 20-21 group, the rate is 64.28 per thousand.

Next to the schizophrenic group, the neurotic disorders are to blame for the highest psychiatric rejection rates. But in this group, too, rejections are low among the youngest men. The rate for the 18-19 group is only 24.39 per thousand and for the 20-21 group only 75.00 per thousand, as compared with the average of 106 per thousand.

There is no type of mental disability for which the rejection rate is higher among the youngest men.

Science News Letter, February 6, 1943

NUTRITION

Dutch Using Tulip Bulbs As Coffee Substitute

► COFFEE may be scarce and hard to come by in this country; but you haven't started digging up your flower-beds yet to fill the percolator. That's what the Dutch are doing—grinding up roasted tulip bulbs to make a coffee substitute, the Netherlands Information Bureau states. The hard-pressed Hollanders are also mixing powdered bulbs with their flour, to stretch their bread supply.

There is a Nazi "Verbot" against the "abnormal use" of tulip bulbs and crocus corms, because of their export value. But their unwilling subjects in the Netherlands pay no more attention to that than they do to a lot of other orders.

Prices of real coffee in the Dutch black market are simply fantastic, according to underground information sources. One small package, of a little over four pounds, recently sold at the rate of \$31 a pound.

Science News Letter, February 6, 1943