

CHEMISTRY

Rubber Reconversion Easy

► IF all-out mobilization comes, the United States will be on a much bouncier footing than it was 10 years ago. The nation will switch with hardly a pause from trees in Malaya to refineries in Texas for one vital war need—rubber.

Tires from chemicals were the magic made real in the '40's.

When the Japs overran the Malayan Peninsula, Singapore and the Dutch East Indies in the first weeks after Pearl Harbor, a genuine rubber scare resulted in the United States. Then the wheels of peace and war depended almost completely on natural rubber.

There was a rash of proposals and cure-all ideas. A decade earlier, Thomas Edison had made headlines with his method for obtaining rubber from giant goldenrod.

The guayule plant similarly would give rubber, up to 20% of its own weight. By March of 1942 the government began planting thousands of seedlings of this scrawny, shriveled-up bush. By 1946 it hoped to have a respectable return of rubber from its guayule plantations.

But the country could not wait for guayule, or goldenrod, or rabbit brush, or the Russian dandelion called "kok-saghyz" which kept the Red war machine rolling. Desperately the U.S. began building synthetic rubber plants, utilizing the chemists' knowledge of how to make passable rubber from oil and coal.

Butadiene and styrene were the principal ingredients. Butadiene from petroleum or alcohol, styrene from coal. From these, big molecules could be built of little molecules, and the result was rubber.

In 1941 the U.S. had previously made only some 8,000 tons of synthetic rubber. By 1945, a million tons a year could be turned out by the mixing plants. It was called GR-S—Government Rubber-Styrene. It was known also as Buna-S.

Other synthetics were developed for special jobs: Buna N for bullet-proof gas tanks, neoprene, thiokol and butyl. By the end

of the war, these were nearly as good for countless jobs as natural rubber.

Then, in 1946 and 1947, came cold rubber. It was made of the same materials as Buna-S. Mixed at 41 degrees Fahrenheit with new bonding agents, however, it had greater toughness and resiliency. It made the U.S. forever independent of the Hevea tree, source of natural latex in lands far away. Cold rubber tires are better.

By the end of last year, 150,000 tons of cold rubber alone could be made annually by government-operated plants. In June, three more synthetic plants from World War II were put back into operation. Their addition gave the U.S. 18 such plants in use, with nine others in standby.

If once again the rubber plantations of Asia are cut off, Uncle Sam will be able to turn quickly to the chemists' magic of making rubber tires by mixing liquids in giant tanks.

Science News Letter, August 12, 1950

MEDICINE

Sliced-Off Finger Stuck Back, Changes Fingerprints

► PART of a finger sliced off and stuck back on 37 years ago has now healed up so that the finger is normal. But the fingerprint still shows the evidence of the healing of the graft.

This new evidence of how hard it is for criminals to fake their fingerprints was reported in the scientific journal NATURE (July 15) by Dr. Cyril John Polson of the department of forensic medicine, School of Medicine, in Leeds, Eng.

The finger slicing occurred not to a criminal, however, but to a young woman whose identity is hidden behind the initials, "A. D. S." A. D. S. also did the grafting and is quite proud of her work, especially since her physician at the time did not believe it would heal.

She lost the slice off her finger in a fruit slicing machine, quickly recovered the piece from the blade of the machine and replaced it on her finger. She had the presence of mind to "match the finger grain" on her finger. Then she bound the piece in place with a bandage wet with Friar's Balsam, a household remedy of a generation ago. For some weeks she left the bandage in place and kept it moist with the tincture.

Although a fingerprint taken recently shows that she succeeded in matching perfectly the pattern of her fingerprint, a faint mark reveals where the graft healed. Dr. Polson reports that "it is unlikely that even skilled surgery would leave less trace than this."

Only previous record of a successful graft

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of the skin of a finger, according to Dr. Polson, was reported more than 50 years ago by Sir Francis Galton. This case also was one of self-surgery. But Galton's subject, a young man, in his haste to slap the slice from his thumb back in place, put it back at right angles to its original position. His finger ridges were therefore shifted around in subsequent fingerprints.

Science News Letter, August 12, 1950

METEOROLOGY

From Inside or Out, New Atlas Describes Clouds

▶ WHAT a cloud looks like from an airplane—from above, from inside and from just below—will become a much more important part of weather forecasters' data when the new International Cloud Atlas is completed in 1952. It will contain an extensive section describing different types of clouds as they look to observers in planes.

The expansion of a very small section on plane observations in the last atlas, published in 1932, was approved at a recent meeting in Paris of the Committee for Study of Clouds and Hydrometeors of the International Meteorological Organization, Dr. Charles F. Brooks, director of the Blue Hill Observatory and American representative on the committee, told Science Service.

The International Cloud Atlas is one of the most important tools of the weather forecasting trade. It enables observers all over the world to agree on specific descriptions of clouds and it enables forecasters to know exactly what kinds of clouds the observers are reporting.

Observation of clouds from planes is becoming much more common throughout the world because it is much easier to determine the true altitude, the shape and the extent of the cloud from a plane than it is from the ground. Also the airborne observer can give the forecaster some idea as to whether the cloud is composed of liquid or ice particles.

Second major improvement, which was just about completed at the Paris meeting, was in the definitions of the 10 types into which meteorologists have divided clouds. The 13 members of the committee tightened up the definitions and described distinct limits between different types of clouds. Photographs to illustrate what they meant by their definitions were selected.

Science News Letter, August 12, 1950

AGRICULTURE

Preserve Fresh Grape Flavor for Concentrates

▶ A WAY of preserving the volatile flavor essences of grape juice has been developed by U. S. Department of Agriculture scientists. The extracts are said to give a new

grape juice concentrate the characteristic taste of freshly-squeezed grapes.

Grape juice thus promises to join the booming field of canned fruit-juice concentrates, most successful of which has been frozen concentrated orange juice. The new process for treating Concord grapes was devised at the government's Eastern Regional Research Laboratory in Philadelphia.

Science News Letter, August 12, 1950

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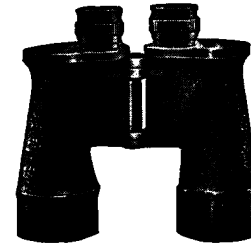
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