

ical warfare service. In applying for his patent (No. 2,270,245), Col. Barker specifies that his invention may be used by the United States government without payment of royalty.

The furnace heats the charcoal to a temperature of about 1,000 degrees Centigrade, at the same time keeping it stirred, while a mixture of carbon dioxide and steam, with a small amount of oxygen, is passed through the mass. This renders the charcoal highly adsorbent to poison gases and other impurities.

Activated charcoal for gas masks is a development dating since World War I. At that time, natural charcoals prepared from coconut shells, prune pits and other hard-to-obtain sources were the only adsorbents suitable for gas-mask use. This special treatment of ordinary charcoal has made the manufacture of gas masks simpler and less expensive.

Science News Letter, January 31, 1942

American *golden-eye ducks* can remain under water as long as 55 seconds.



WAR FASHION

Eskimos and United States soldiers on Far Northern duty have no monopoly on the snug invention of the parka—hood and coat in one. Here is how it looks, as streamlined and designed for America's farm women. The new cold-weather outfit, creation of Miss Clarice Scott, of the U. S. Bureau of Home Economics, resulted from a visit by Miss Scott to the Quartermaster Corps' sample clothing room in Washington in the company of a Science Service representative.

ENGINEERING

Super-Power Test Laboratory Guards Our Electric Plants

Short Circuit Such As Might Be Produced by Saboteur Rendered Harmless in Demonstration For Officers

See Front Cover

ELECTRICAL knockout blows of 2,000,000 kilowatts, equal to twice the power generated at any instant at Niagara Falls, were delivered, and rendered harmless by improved protective devices, at the first public demonstration of Westinghouse's new super-power testing laboratory, most powerful of its kind in the world.

In demonstrations before Army and Navy Officers, these knockout blows duplicated the effects of a short circuit such as could be caused by a bar of steel thrown across the electric circuits in a power station by a saboteur, the severance of a power line so that it would fall to the ground, explosives planted on the ground, or an aerial bomb.

The torrent of power suddenly released produced flaming arcs 20 feet in length, exploded old-time safety fuses with detonations as loud as shellfire, and shattered six-inch timbers into kindling.

But a new 12-foot-tall improved oil circuit-breaker snuffed out the arc in a twentieth of a second and by-passed the current into a chamber where it was choked off with magnetic plates. Applied to a power line, the circuit-breaker cuts out a short-circuited section, allowing the remainder of the system to function normally.

In another demonstration, a compressed-air circuit-breaker blew out a 1,500,000-kilowatt arc in a hundredth of a second.

In a room-sized refrigerator, where temperatures 20 degrees below zero can be maintained, an outdoor power switch, encrusted with frost and dangling with icicles, was tested. At 120,000 volts the current flashed over the four-foot-high porcelain insulators with a blinding light and a thundering crash.

Experiments like this indicate how much insulation a winter-proof switch must have.

The photograph on the cover of this week's SCIENCE NEWS LETTER shows still another demonstration in which 1,500,000 kilowatts were sent through three copper cables sandwiched lengthwise between six-inch timbers and the whole bound together by stout ropes. The ropes were snapped and the timbers blown apart and shattered into kindling wood by the magnetic forces of the discharge.

The power for the 2,000,000 kilowatt flash was built up gradually by two 500-ton generators and then released suddenly in a maximum time of five seconds. This power, which is equivalent to 2,680,000 horsepower, if it could be delivered continuously, would light enough fluorescent lamps to girdle the earth twice at the equator. The sudden release of this energy caused the generators to recoil like guns. Special spring mountings took up the shock to prevent injury to the foundations.

Science News Letter, January 31, 1942

PHYSIOLOGY

Scientists Still Uncertain Whether Vitamins Darken Hair

MEDICAL scientists and nutritionists are still uncertain whether vitamins will darken gray hair, and if so, which vitamin is the true anti-gray hair remedy, it appears from a summary of the situation in the *Journal of the American Medical Association* (Jan. 24).

Para-aminobenzoic acid darkened gray hair in adults in all cases reported by Dr. B. F. Sieve, of Boston. Similar results previously obtained in laboratory animals furnished the basis for these clinical trials.

"Confirmatory reports (of the clinical

work) by qualified investigators have not yet appeared," states the Journal.

Most investigators have been unable to verify the observation of a relation between para-aminobenzoic acid and graying of hair in animals, continues the editorial comment.

Lack of a different vitamin, pantothenic acid, causes graying in animals which can be cured by doses of this vitamin but not of para-aminobenzoic acid, according to reports from two different groups of scientists.

Not all persons with gray hair are necessarily suffering from lack of vitamins, it is pointed out. If large amounts of para-aminobenzoic acid darken their gray hair, it might be due to excretion into the hair of some para-phenylenedi-

amine-like compound which acts like a dye, it is suggested.

The evidence is stronger for pantothenic acid being the anti-gray hair vitamin, if there is such a vitamin, than for para-aminobenzoic acid, in the opinion of the writer of the Journal's editorial.

Further knowledge of the effect of the latter chemical on the body should be gained, the editorial states, before relatively large amounts of it are given to patients over comparatively long periods of time. Further studies on laboratory animals of these substances present in yeast which might be related to the gray hair-diet problem are suggested before further experiments are undertaken on humans.

Science News Letter, January 31, 1942

it is in bloom every twig on the plant ends with a brush of beautiful, golden-rod-like flowers. Like guayule, rabbit brush is a member of the composite family, which includes goldenrods, dandelions, asters, sunflowers and the sinful, sneeze-causing ragweeds.

Science News Letter, January 31, 1942

MEDICINE

New Method of Using Sulfa Drug Cures Peritonitis

A NEW method of using a sulfa drug to save patients suffering from dangerous peritonitis is reported by Dr. Julius Gottesman and Dr. Harold Goldberg, of Sydenham Hospital, New York City (*Journal of American Medical Association*, Jan. 24).

The method consists of injecting the drug into the abdomen. Sulfa drugs have been put directly into the abdomen when it is opened at surgical operation or in war wounds, but this is believed to be the first time a sulfa drug has been injected into the abdomen when there was no wound.

The patient given this new type of treatment was a two and one-half-year-old Negro child suffering from acute appendicitis with generalized peritonitis. Because of the child's condition, the doctors did not believe removal of the appendix was advisable. On the tenth day of the child's illness, the abdomen was punctured with a long needle something like a hypodermic needle and about half a pint of pus was withdrawn. Sulfathiazole was then injected through this aspirating needle. A second injection was made two days later, and the child was also given injections of sulfathiazole into the veins as well as other treatment.

Two days after the second injection of sulfathiazole into the abdomen the child's temperature fell to normal and its general condition showed definite improvement. Within three weeks the child had recovered from the serious infection and was able to go home. Two months later another attack of acute appendicitis occurred and at that time the appendix was removed.

The method of injecting the sulfa drug directly into the abdomen could be of value not only in peritonitis from appendicitis, the New York doctors suggest, but also in peritonitis due to pneumonia germs, gonorrhoea, or streptococci.

Science News Letter, January 31, 1942

The world's largest *sponge* market is at Tarpon Springs, Florida.

RESOURCES

25,000 Tons of Wild Rubber Await Harvest in Wastelands

Rabbit Brush, Weed That Grows Thick on Alkali Flats Of the West, Hides Rich Supply in Stems and Roots

MORE than 25,000 tons of wild rubber are hidden in the stems and roots of rabbit brush, a weed that grows thick on alkali flats and other wastelands of the West, declares Prof. T. Harper Goodspeed, University of California botanist. He has called attention to this unutilized resource in messages to the federal government and to the governor of California.

Rabbit brush is a shrub, whose various species grow from knee-high to twice the height of a man. Its rubber occurs in the form of solid bits and shreds embedded in the tissues, as it does in its better known botanical relative, guayule. Hence, the same methods of harvesting and processing could be used that have been successful in extracting guayule rubber.

It is not claimed that rabbit-brush rubber could compete with the East Indian product under normal conditions. It is not quite so high in quality, and it costs more to prepare; Prof. Goodspeed estimates about 45 cents a pound. However, in the present emergency it might be worth while despite relatively high costs.

Estimates of the amount of rabbit-brush rubber that might be eventually

harvested range all the way from a low of 10,000 tons to an extreme high of 250,000 tons. Certainly the 16 major species of the shrub cover an immense area, from southern California to the northern Rockies. Some of them grow on alkali lands completely useless for any other purpose. Others have moved in as weeds on rangelands that have been seriously over-grazed.

Most practicable harvesting method, probably, would be to pull the plants up by the roots, using teams or tractors. This is because a considerable part of the rubber is embedded in the roots. The same uprooting process would serve to clear the range, permitting native grasses to grow again and thereby prepare the way for increasing another war resource, the meat and leather supply. Along with the rabbit brush, several other related rubber-containing weeds could be uprooted and processed, notably two genera known as *Acraderica* and *Aplopappus*.

The rubber of the rabbit brush is known as chrysil rubber, the name being derived from the plant's botanical title, *Chrysothamnus*. This comes from two Greek words, meaning "golden bush." The name is well bestowed, for when