

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.

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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