

cite, unlike most other fuels, under proper conditions can be made to burn to complete and perfect combustion within its own area without the necessity for secondary air or secondary combustion space."

Without the need for this secondary space the complete unit using the new method will probably not require over a two-by-three foot floor area and will not stand over two feet high.

The new furnace may be adapted to

hot-air and to steam-heating systems. With special adaptations the principle may be used in an upright gravity-fed cylinder with a hand ash-shaking device. No clinkers form in the new furnace because, despite the higher rate of burning, the small fire bed permits the water surrounding the tube to carry off the heat so rapidly that the actual temperature of the burning coal is lower than the point at which clinkers form in anthracite fire.

*Science News Letter, August 26, 1944*

wire pair entering his outpost to the new unit, and connects his telephone by a short length of wire to another unit plug. Incoming calls flash the lamp in the first unit plug, and this signals the operator, who then makes connection with his telephone set by putting the two plugs together.

*Science News Letter, August 26, 1944*

*Pyrethrum* grown in Peru and Ecuador is found to be of equal quality with the Japanese-grown insecticide plant.

#### ECONOMICS

## Plenty of Gasoline

In the immediate postwar period, gasoline will be plentiful. Unsettled conditions may restrict vacation travel.

► PASSENGER car owners may have nearly 700 gallons of gas apiece to drive on in 1945, if the war in Europe should be over by that time, and if estimates made by C. L. Burrill, petroleum economist of the Standard Oil Company of New Jersey, as reported to *Petroleum Technology*, are correct

In any event, Mr. Burrill states, gasoline will be plentiful in the immediate postwar period as military consumption declines. Gasoline consumption will be heavy because cars will be older, and probably use more gasoline per mile of travel. Also contributing to the heavy consumption of gasoline will be the large amount of automotive travel by families returning to their homes from war production centers.

Vacation travel, Mr. Burrill points out, may be restricted during the time that war workers are shifting to civilian industry and soldiers are being demobilized. This, and the fact that many cars will be in poor repair, may tend to hold gasoline consumption down to a normal level, and prevent it from skyrocketing.

In addition to the crude oil produced in the United States, the total supply of petroleum products available to meet postwar requirements includes a substantial amount of natural gasoline as well as imports of fuel oil and heavy crude oil.

It is generally believed, Mr. Burrill states, that one important effect of the substantial construction of catalytic cracking plants during the war will be to increase the yields of light products at the expense of the yield of residual fuel oil, thereby making it possible to produce

the light product requirements with less crude oil than would be necessary with the older thermal cracking process.

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#### PHYSICS

## Lightweight Telephone Switching Unit Developed

► A WORKABLE telephone switching unit weighing only a few ounces and so compact that the operator can carry the parts in his pocket or in a pouch of his cartridge belt, has been put into service by the Army. The unit is designed for use where it is not practical or possible to carry regulation switchboards, such as in the field while under fire.

Basis for the new communications system is a transparent plastic plug with fasteners for line connections, a neon lamp that responds to ringing signals, in place of a bell, and two combination jacks and plugs for tandem connections.

The operator can make not only individual connections but conference connections by calling the desired parties individually and connecting the adapter plugs in tandem. When a conversation has been concluded, the parties flash the operator, who then disconnects the plugs.

The new unit was developed by the Signal Corps in response to the need for substituting a visual signal for a bell signal. A bell can be heard for considerable distances by enemy snipers. The greater use of the new light unit for substitute emergency switchboards was a by-product.

In use, the operator attaches the field

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