

followed by a series of harmfully dry years, especially in regions with normally scanty moisture.

In the United States, local droughts may be expected practically every year, but they are seldom of nation-wide importance. Prior to 1934, three wide-

spread droughts are worthy of mention as seriously affecting production of staple farm crops in the United States. These droughts of national importance occurred in 1894, 1901, and 1930. The fourth, in 1934, broke all records.

*Science News Letter, July 11, 1936*

cloaked in the mystery of the northland, but they undoubtedly have been there for hundreds or thousands of years. No one has ever measured their depth, but Sergeant Morgan says a scientific expedition has been proposed to explore the bottom of the lakes for prehistoric fossils.

He also says he has plenty of concrete evidence that the Endicott Mountains, south of Barrow, are highly mineralized with copper and gold. He believes that development of his oil fuel, along with snowmobiles for transportation, will open the Arctic coast to mining pioneers.

The snowmobile is an ordinary auto rigged with skis forward and tractor treads aft.

*Science News Letter, July 11, 1936*

## CHEMISTRY

## Discover Way to Burn Novel Alaskan "Lump" Oil

**B**LACK gold and yellow gold—these may combine to make the bleak Arctic coast, America's last frontier, a modern Eldorado.

So, at any rate, believes Master Sergeant Stanley R. Morgan of the United States Army Signal Corps, who has announced the successful completion of experiments in "breaking down" heavy surface oil found in vast lakes under the shadow of the North Pole.

Sergeant Morgan, whose quick action in reporting the fatal crash of Wiley Post and Will Rogers last fall resulted in promotion and a long leave from his radio station at Point Barrow, is now in Seattle awaiting the breakup of the Arctic ice pack in July so that he and his family can go "home."

While in Seattle, he has been working on experiments with this strange northern oil. It is so heavy—virtually a solid—that pieces can be broken off and burned.

Fuel is the big problem of both natives and whites on the Arctic coast. The whites (only 25 on the entire coast-line of more than 1000 miles) burn imported coal at the rate of \$45 a ton. The Eskimos use whale oil, but the whales are rapidly diminishing. When the supply is gone, the natives will move or die out. There is no timber at all for hundreds of miles around.

As a result of Sergeant Morgan's experiments, the Bureau of Education of the Interior Department is contemplating the installation of a plant at Point Barrow to refine the Arctic oil, which, because of its seepage nature, is difficult to burn in its natural state.

### Refining Process Simple

"The process of refining this oil is necessarily simple," Sergeant Morgan says, "as the natives could not afford an expensive plant or process.

"The oil contains approximately 40 per cent residue and moisture, but I have found that it separates under com-

paratively low temperature (250 degrees Fahrenheit) through a boiling process. The oil is then drawn off, given an inexpensive acid treatment, allowed to settle 36 hours, and is ready for use."

The residue, carbon resin and silt, also is usable—in the form of briquets.

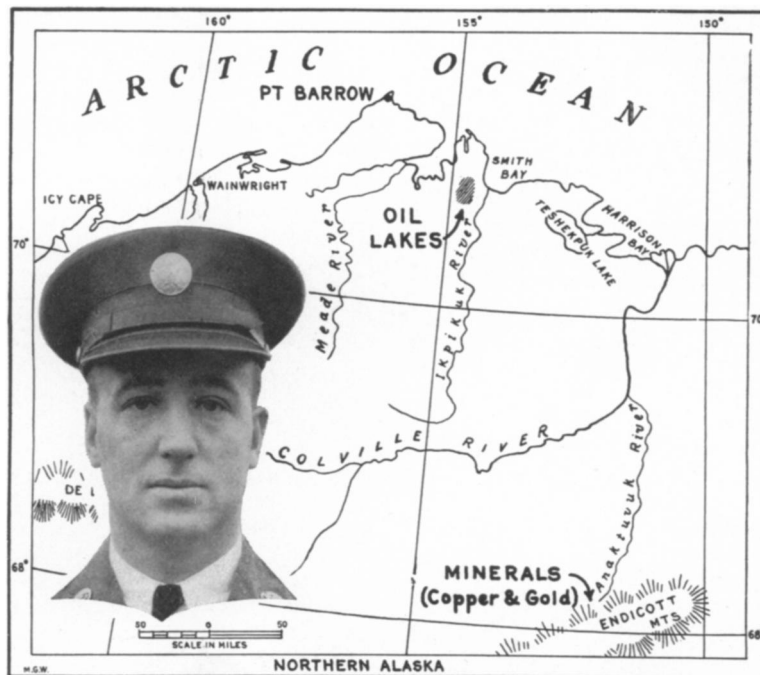
A stove actually burns the oil in Sergeant Morgan's laboratory. The burner, of a gravity feed natural draft type, is so simple that the Eskimos will manufacture their own.

The oil supply is "unlimited," lying in lakes about 50 miles southeast of Point Barrow. One lake is five miles in diameter, and there are at least two other smaller ones. Their origin is

## ASTRONOMY

## Stars Are Factories For Making Radiated Energy

**T**HE INSIDE of a star is a factory which makes complex elements out of the simplest element of all, namely, hydrogen. This is the point of view presented to the meeting of the American Physical Society in Seattle by Dr. R. M. Langer of the California Institute of Technology. (Turn to next page)



WHERE LUMP OIL IS FOUND

Far north in Alaska and within 50 miles of Point Barrow are the strange seepage oil lakes from which native Eskimos and the few white settlers obtain the heavy "lump" oil which offers a potential source of fuel in the Arctic. The insert shows Master Sergeant Stanley Morgan, who has developed a simple stove for burning the "lump" oil.