

from these oil-rich sands. Last year the first successful commercial extraction plant began operations to obtain lubricating oil and gasoline from the tar sands.

The oil sands along the Athabasca River are considered by oil authorities to be one of the largest oil reservoirs in the world. According to Canadian government geological estimates, the oil sands contain at least one hundred billion barrels of oil. But it will be a big job to get it out.

Because of transportation difficulties and because no suitable extraction system had been devised, the oil sands remained unworked. These oil-saturated sands range in thickness from a few feet to 225 feet, and in oil content up to 25% by weight. They cover an area estimated at from 10,000 to 50,000 square miles. A large part of the area is overlain with shale and sandstone up to a maximum depth of 1,800 feet, and underground methods of mining are not considered workable. The oil will not flow into wells fast enough to be pumped commercially. But erosion on the Athabasca River and its tributaries has left benches that can be mined by open pit methods.

The bituminous sands have produced a high quality of asphalt which has been used for paving fairly extensively in the past, and it is expected to be used for this purpose also on the Canada-Alaska Highway now being built.

They stretch for miles on each side of the river, covering roughly an area 115 miles north and south, and 55 miles east and west. The sands lie about 600 miles north of the international boundary in an area which can be developed the year-round.

The extracting plant which went into operation last year on a small scale took 11 years of research by American engineers to develop. The sands go through a separation process, then to a refinery where the crude oil is turned into gasoline, diesel fuels, fuel oils, asphalt and coke. It is thought that synthetic rubber may also be developed from these bituminous sands after they pass through the separation process.

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An estimated 80,000 machining operations go into the making of one airplane.

One thousand gallons of industrial alcohol per day are being produced from potatoes in Ireland.

## PHARMACY

## Ointment Base Improved

**New ointments can be washed off with water. Mixture combines readily with common medicines, withstands severe changes of climate. Base has many advantages.**

➤ OINTMENT BASES that can be whisked from clothes or skin with plain water have recently been developed by pharmacists. Greasy, messy ointments and salves may soon be out of your medicine cabinet.

Many formulas for the new type of ointment have been proposed, few have been very successful. The most promising to date is announced in the practical edition of the *Journal of the American Pharmaceutical Association*.

The new ointment base was developed by Dr. Emerson C. Beeler at the laboratories of the American Pharmaceutical Association. Smooth and "washable," the base consists of cetyl alcohol, white wax, propylene glycol, sodium lauryl sulfate, and water.

The alcohol used is a giant molecule, compared to your rubbing alcohol. This makes it a white, wax-like solid. In combination with the "wetting" agent, sodium lauryl sulfate, it causes medicinal agents to penetrate the skin better. It is also greaseless.

Because the medicine is transferred through the skin more readily than when old-type vaseline or wool-fat bases are used, Dr. Beeler points out that medicines can in some cases be used in lower concentration than formerly, thus conserving supplies.

It also permits the heat of an inflamed area to escape more readily; discharged fluids are not sealed in as is often the case with greasy salves.

But the cetyl alcohol and "wetting agent" would be useless without the colorless, odorless chemical — propylene glycol. This is widely used to make the creams and salves in your medicine cabinet soft and spread smoothly. It is also a good solvent for carrying such medicines as vitamin D and the sulfa drugs.

Mixed properly by the pharmacist, these ingredients can be used to carry many valuable medicines used for a variety of conditions, especially skin diseases.

Many bases of the "washable" type formerly tried, were of limited value because the medicines which they carried were chemically altered by the base.

The new base has already been used to carry many of the commonly used substances, Dr. Beeler reports, and no difficulties have been encountered.

"It is apparently compatible with every medicinal substance with which it has been tested . . ." he reports.

Neither is this easily prepared base affected by severe changes in climate, such as might be encountered in military medicine.

"It has been alternately placed in the freezing unit of the refrigerator and in an atmosphere at 50 degrees Centigrade temperature (122 degrees Fahrenheit) at a 24-hour interval for a period of two weeks," Dr. Beeler declares, "without affecting the general properties."

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