

CHEMISTRY

## Serious Petroleum Shortage Predicted in Near Future

**G**ASOLINE prices are going up in a few years. And when they go up they will stay up.

When that happens, it will be only the symptom of a very serious underlying situation, which will carry with it real danger to the United States, from both the economic and the military sides. The American Chemical Society made public a warning to this effect on the eve of its national meeting at San Francisco.

Difficult industrial adjustments involving investments totaling billions, a radical shift in auto styles toward light, cheap cars, and new and onerous duties for the Navy in protecting trade routes to the foreign oil fields on which we shall have to depend when our own petroleum supply runs low, are among the unpleasant realities we shall have to face less than half a generation hence, the warning stated.

On the naval side, the report said:

"Increasing petroleum imports will result in greater dependence upon our navy and air force to prevent the serious dislocation of industry which would result if such imports were to be interrupted. The manufacture of substitutes, such as shale oil or oil made by the hydrogenation of coal, could not possibly be developed quickly enough to be of importance in a national emergency such as war, which would be settled one way or another long before any large part of our gasoline demand could be supplied from the auxiliary sources.

"The amount of our reserves is fairly accurately known and is believed to be ten to twelve billions of barrels," the report continued. "Although this would be equivalent to about twelve or fourteen years' supply, producing fields rapidly decline but continue to produce small amounts of oil by pumping for many years. Shortage will accordingly be experienced many years before exhaustion.

"The magnitude of the oil reserves in foreign fields is not known as accurately as is our own, but much of our petroleum requirement will, within a few years, come from South America and possibly Russia and Persia."

The authors of the report, Dr. Benjamin T. Brooks, consulting chemical engineer, and L. C. Snider, geologist of Henry L. Doherty and Company, do not place much reliance on the proposed use

of power alcohol to eke out the gasoline supply. They declared:

"Alcohol as a motor fuel is a question of politics and farm subsidies, not an economic question. The Federal Oil Conservation Board has clearly shown that alcohol is not an economic substitute for gasoline except at price levels for gasoline about five times the refinery cost of gasoline during the last five years. Advocates of alcohol and Diesel motor fuel seldom take into account the distribution and filling station cost and taxes on gasoline."

The era of scarcity and higher prices in petroleum products will come long before the total exhaustion of continental American oil fields, in the opinion of Dr. Brooks and Mr. Snider.

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## Fears of Petroleum Shortage Held Greatly Exaggerated

**F**EARS of an imminent gasoline shortage in the United States, with skyrocketing prices, are held exaggerated by Government economists, statisticians and petroleum specialists.

Commenting in response to Science Service inquiries, they said they could not agree with Dr. Benjamin T. Brooks, chemical engineer, and L. C. Snider, geologist, both of New York, who predicted before the American Chemical Society meeting in San Francisco that a serious petroleum shortage will arise some time between 1940 and 1943.

The prevailing opinion among persons conversant with the petroleum industry is that while America will undoubtedly be faced with a shortage of natural petroleum at some time, it will be a great deal further in the future than five years.

According to figures of the U. S. Geological Survey, the known petroleum reserves of the United States, excluding unproven areas and unknown potentials, are about  $13\frac{1}{4}$  billion barrels. Since the normal rate of consumption is roughly one billion barrels a year, this supply would last at least 13 years, if no new fields were discovered.

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## Butane, Propane Useful When Made Into Liquids

**B**UTANE, propane and other petroleum-gas names now unfamiliar may soon become parts of common speech and consciousness. They are now rather neglected by-products of petroleum refining, but when turned into liquids they can be put to a considerable range of uses, W. Z. Friend and T. W. Legatski of the Phillips Petroleum Company told colleagues at the meeting of the American Chemical Society.

These gases are so versatile, they said, that a single supply may first be used as a solvent, then as a refrigerant, and finally consumed as a fuel either for heating or in internal combustion engines.

They pointed out that the consumption of liquefied gases increased 71 per cent. during the year 1932-33, and 73 per cent. in the year 1933-34, and prophesy that under the stimulation of further applications their use will be increasingly common in the future.

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New oil fields are now being discovered, giving an addition of approximately 600,000,000 barrels each year. This, to be sure, is not enough to supply our demand without tapping our reserves, but it is enough to make our reserves last a great deal longer than 13 years.

Consumption may rise, of course. The Petroleum Administrative Board's estimates for the month of July and August reveal that it will probably reach an all-time peak for the history of the United States, with about 42,000,000 barrels consumed each month. Consumption is usually higher in the summer months, however, and there will be a dropping off with the approach of winter.

As for a rise in prices due to shortage of petroleum, and its predicted effect of less consumption of gasoline, and small, low-powered automobiles, government statisticians have not been able to discover any link between gasoline consumption and price, or between petroleum supply and price.

Prices in the gasoline field are strictly competitive prices, and not based directly on supply, demand or anything else. Furthermore, there appears to be no re-