



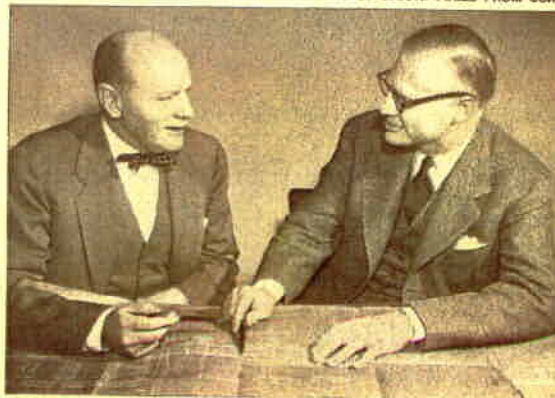
SWEEPING HIS ARM TOWARD THE BLEAK TOWN OF LIBRARY, PA., JOSEPH PURSGLOVE INDICATES WHERE PLANT WILL TEST MAKING OF LIQUID FUELS FROM COAL.

## GASOLINE FROM COAL

Pittsburgh company plans to try it on a grand scale

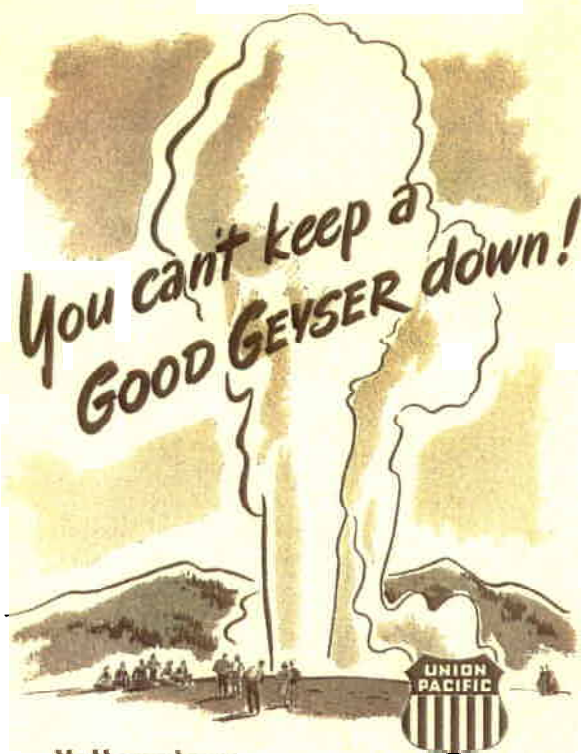
Last week the U.S. got an exciting look at one blueprint of its industrial brave new world. Instead of mining coal to be burned in lumps, the Pittsburgh Consolidation Coal Co. proposes to make it into gas and liquid fuels. Says Consolidation: a pilot plant will be finished with the help of the Standard Oil Co. of New Jersey before the end of this year. If it proves successful, Consolidation will build a full-scale plant near Pittsburgh to turn out 400 million cubic feet of gas or 14,000 barrels of high-test gasoline a day.

Consolidation's ambitious plan, first revealed in a series of articles in *Fortune*, may well forecast a major revolution in the U.S. fuel industry. If a large part of U.S. coal production is turned to the making of gas and liquid fuels in the places where coal is dug out of the ground, the dirty and expensive handling of coal will be substantially cut down. More important, the synthesis of gasoline, diesel fuel and lubricating oils from coal will liberate the U.S. from its life-and-death dependence on its petroleum reserves.



ORGANIZERS OF PROJECT are George Love (left), president of Pittsburgh Consolidation Coal Co., and Joseph Pursglove Jr., vice president in charge of research.





**Yellowstone** National Park again presents its star attraction, Old Faithful Geyser. Every 60 to 80 minutes, its steaming column soars skyward:

With its many geysers . . . its multitude of other fascinating spectacles . . . Yellowstone is one of America's greatest vacation regions. And you can add to the enjoyment of your trip by including nearby Grand Teton National Park, famous for rugged mountainous beauty.

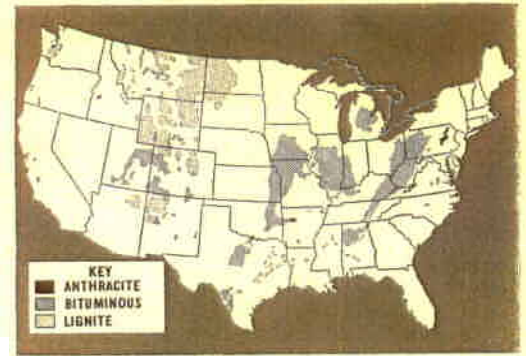
Union Pacific takes you direct to the West Yellowstone entrance . . . nearest to Old Faithful. And on your way there, you can stop over at Denver and Salt Lake City. Yellowstone-Grand Teton also can be visited as a side-trip enroute to or from the Pacific Northwest.

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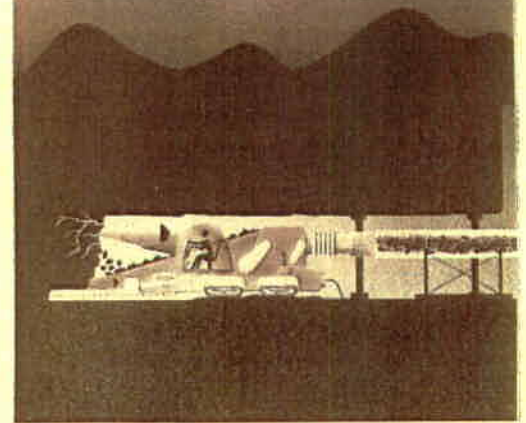
I am interested in a train trip to Yellowstone-Grand Teton National Parks. Please send further details

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U.S. COAL RESERVES are 3.2 trillion tons, enough to fill all present U.S. fuel needs for a comfortable 3,000 years. Subbituminous coal and lignite, now not economical to mine, can be used to make gas and liquid fuels.

MODEL PLANT WILL BE  
A CONTINUOUS PROCESS  
FROM MINE TO PRODUCT



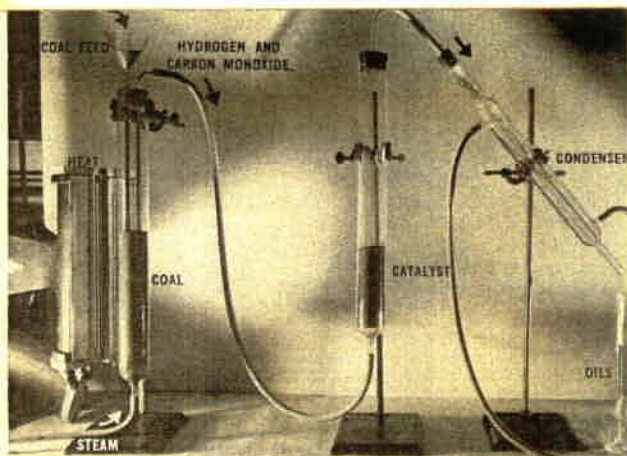
COAL MINE OF THE FUTURE, reprinted from FORTUNE, extracts coal from the ground and feeds it through four main stages of a continuous process to make city gas and liquid fuels. Pulverized before it enters the process, the



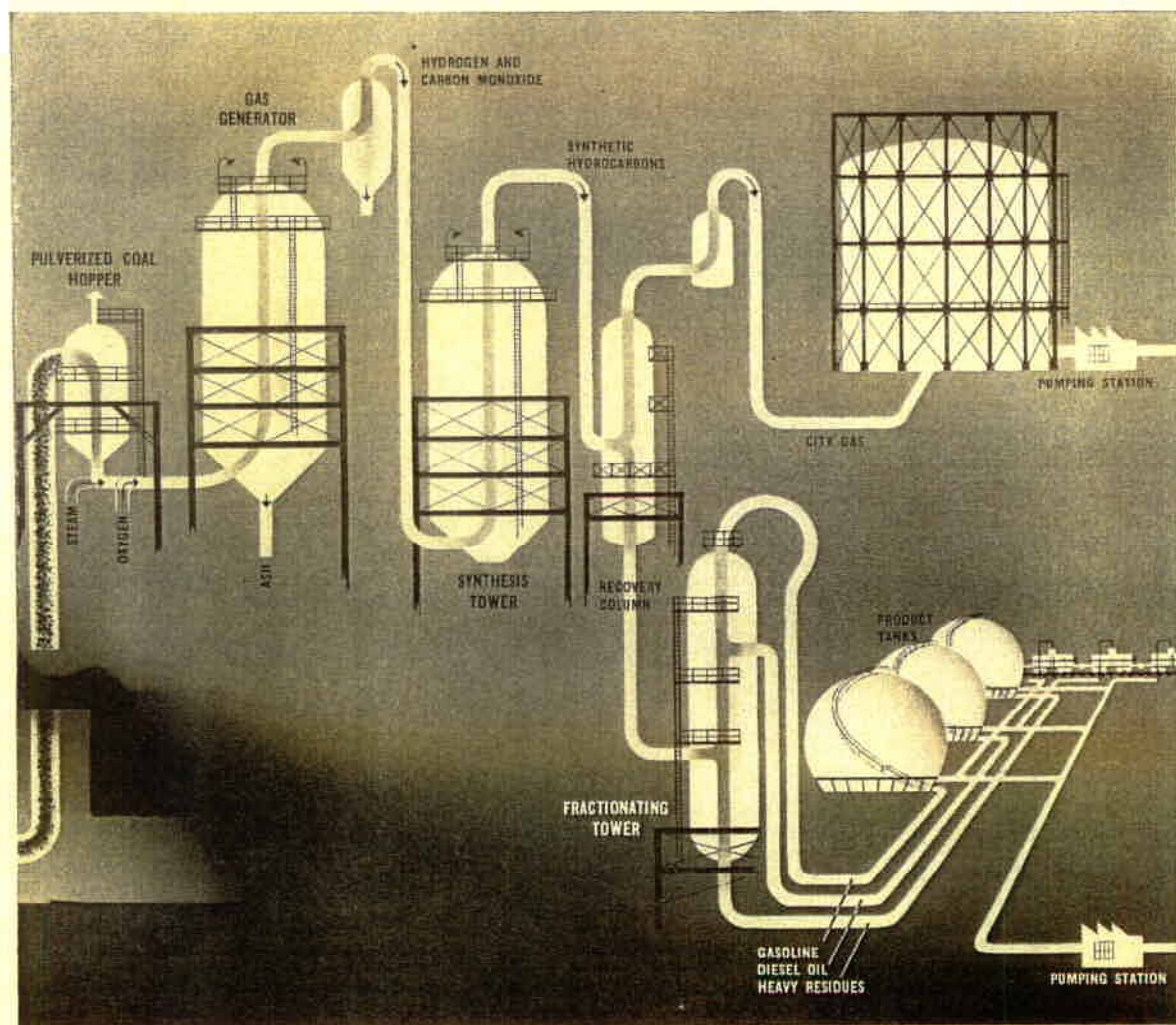
## PROJECT WILL CONVERT COAL INTO LIQUID FUELS RIGHT AT THE MINE

Consolidation's plan to make liquid fuels from coal begins with the fact that coal is a rich blend of various combinations of hydrogen and carbon atoms. If these hydrocarbon constituents of coal are taken apart, they may be reassembled into other hydrocarbons such as diesel fuel and gasoline. A simplified laboratory demonstration of how this is accomplished is shown at the right. How the process is adapted to a continuous industrial process is shown in the drawing below.

Using coal to make liquid fuels is a respectable old idea. The German chemical engineer Friedrich Bergius first developed such a process in 1910. Twenty years later Franz Fischer and Hans Tropsch worked out another method. Under the pressure of their wartime petroleum shortage, the Germans developed the Bergius and Fischer-Tropsch processes on a large scale. Now U.S. chemical engineers are improving the work of the Germans so coal can eventually compete with the much cheaper processes which refine gasoline from petroleum.



**LABORATORY MODEL** illustrates making of liquid fuel from coal. Coal is burned in tube at left, generating gas which is passed through catalyst in center. Without being changed, catalyst directs synthesis of gas into mixture which drips into vessel at right.



coal is burned in the presence of steam and oxygen to produce a mixture of hydrogen and carbon monoxide. This gas is then passed through a catalyst which synthesizes it into complex hydrocarbons. These are separated into their various fractions in the tower

at lower right. The machine in the mine at the lower left, which has not yet been designed, undercuts, drills, removes and pulverizes coal in one smooth operation. Consolidation's pilot plant will use coal mined by normal methods and pulverized aboveground.

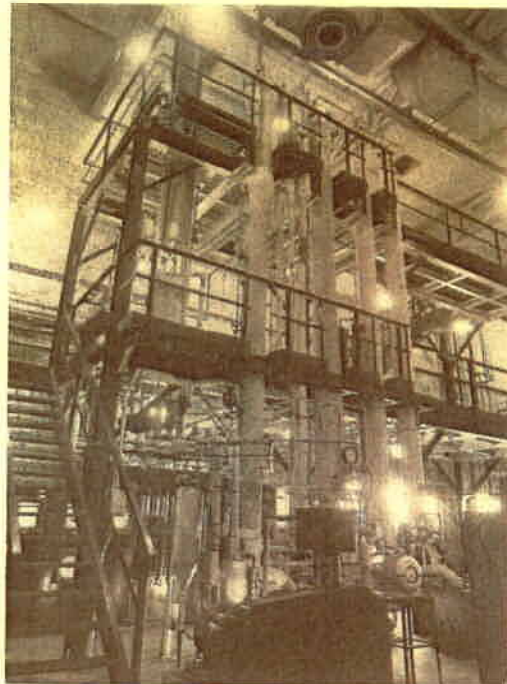


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**PILOT PLANT** at the Bayway, N.J. laboratory of the Standard Oil Co. is the forerunner of pilot plant Consolidation Coal will build this year. Towers above synthesize the gas produced by burning coal into a crude mixture of liquids.



**CRUDE MIXTURE** of oil, water and alcohol is tapped from the tank after it is produced in synthesis towers. Standard Oil already uses similar process to make liquid fuels from natural gas at a larger pilot plant located in Louisiana.

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