

# Saline Waters Necessary To Form Crude In Shales

So extensive are the oil reserves in the United States that it is popularly believed by many that oil can be found nearly anywhere beneath the surface of the earth. The successful drilling for oil, however, is governed by four general geological conditions; the absence of any one of them making the venture unprofitable.

First, there must be in the region a source rock containing the necessary carbonaceous material from which the petroleum could be formed. The most common source rocks are the bituminous shales laid down by the sea. For some reason the shales formed by sedimentation in fresh water did not give rise to valuable accumulations of oil. This knowledge is of basic importance to the oil prospector, for it saves him from drilling in unfavorable rock formations.

But even if the rocks in the region are favorable to oil formation, there must be a reservoir rock where the oil can accumulate. Usually the reservoir rock is sandstone, which contains spaces between the particles ranging from 10 to 40 per cent of its volume. This porosity permits the oil to flow through the rock, which holds it like a sponge. Sometimes limestone and dolomite serve as reservoir rocks.

The third requisite for an accumulation of petroleum is a favorable structural arrangement of the layers of rocks. Unless nature folded the rocks with the proper twists and pockets, the oil could not be trapped. The simplest form of geological oil trap is the anticline, an arching of the rocks. At first it was believed that this form of trap was the only type in which oil could be accumulated, but now more than a dozen kinds of rock traps are recognized.

The fourth condition for the accumulation of oil in commercial quantities is a cover of impervious rock over the reservoir to keep the vapors and volatile materials confined. Petroleum in the ground has a temperature considerably higher than the temperature of the air at the earth's surface, and if the petroleum was not tightly confined, the lighter substances would distill off.

## NEWELL-CHANDLER BUY MANNING AND MARTIN EQUIPMENT

Newell-Chandler Drilling Co. has been incorporated at Cut Bank by M. M. Newell, Jr., president; J. E. "Shorty" Chandler, vice president and Paul A. Wolk, secretary-treasurer, to do rotary contracting in Montana. This firm has purchased the interests of Manning & Martin in Montana and has taken over the equipment. Recently they brought in a new National portable rotary outfit, the last word in rotary, which will greatly speed the drilling of Cut Bank wells, while heavier equipment will be used in Turner Valley where Newell and Chandler have a number of contracts.

### SUNSHINE EXPANDING

Expansion program is being undertaken by Sunshine Mining Co. of Idaho, including option on majority stock of Silver Syndicate, Inc. and property in Nevada, according to President R. M. Hardy, Yakima, Wash. Silver Syndicate property adjoins Sunshine property in Idaho and its acquisition will permit greater freedom in prospecting northern part of Sunshine holdings. Sunshine Exploration Ltd. has been organized in Nevada and has optioned Rio Grande Copper Co. holdings at Mountain City, Nevada, and is financing exploration work.

## OUR MAIL BAG

March 29, 1939

Mr. O. I. DeSchon  
The Montana Oil and Mining Journal  
Great Falls, Montana.

Dear Orie—  
I have just received the March 25 issue of the Journal, and note that this is the number one edition of the nineteenth volume of the Journal. I want to take this opportunity to extend my best wishes for the continued success of the Journal and to express the hope that it will continue to be as spicy, informative, and interesting in the future as it has been in the past. With kindest regards, I am

Very cordially yours,  
DOWELL INCORPORATED  
P. E. Fitzgerald,  
Research Geologist

PEF-md

## STEWART POOL IS TO BE REVIVER BY SPRING DRILLING

Some new development in the old Stewart pool of west central Kevin-Sunburst field is in prospect this spring, with the starting of two wells in section 30-35-2W. One of these wells, in NE 1/4 SW 1/4 Section 30 is being started by R. E. Smith on the Van Note farm.

Pfabe & Engleking are preparing to drill another well on their government permit, south of their main production. The new well is to be in NE 1/4 NE 1/4 Section 30.

In this pool is the famous Campbell-Stewart producer, one of the best of the early day wells, now known as the Kesun-Stewart. Early day wells on the Helmericks farm in Section 30 had oil but were subsequently abandoned, before the introduction of acidization. There is an area of a mile or more that has had no acidization although located in the midst of producing wells.

## FITZGERALD SPEAKS ON ACIDIZATION AT PITTSBURGH SESSION

P. E. Fitzgerald, engineer of Dowell, Inc., formerly of Shelby was one of the speakers on the program of the spring meeting of the American Petroleum Institute's division of production, eastern district, in Pittsburgh, Pa., on Wednesday. His topic was "Improvements to Chemical Treatment of Oil and Gas Wells." Another interesting topic on the program was "A Critical Survey of the Geochemical Methods of Prospecting for Oil and Gas" by Sylvain Pirson, of the Pennsylvania State College.

SEND A CONTRIBUTION TO THE SUNBURST BADGER

## Propose Federal Funds To Build Forest Roads To Mines

A bill of importance to the mining industry of Montana has been introduced in the United States senate by Senator B. K. Wheeler of Montana in the form of amendments to the agricultural appropriations bill. Senator Wheeler proposed appropriating \$1,500,000 for construction of roads for development of mineralized areas within the national forests and appropriating an additional \$30,000 for forest research work at the Northern Rocky Mountain forest and range experiment station at Missoula.

## SIDELIGHTS OF INDUSTRY

### Increasing the Supply—

Give the petroleum refiner due credit for prolonging and expanding America's oil reserves. While the geologists and the producers are finding and producing more and more crude underground, the refiner gradually is improving refining processes to the extent that less and less crude is being needed to meet the growing demand for refined products.

Within comparatively a few years, for instance, the refiner has doubled the quantity of motor fuel obtained from a barrel of crude oil. It is claimed for recently perfected refining methods that this quantity shortly will be increased by about 50 per cent!

In addition, the new refined products are capable of yielding more power and useful work. By thus playing both ends against the middle, the petroleum industry seems to be making life difficult to those who cry scares of oil scarcity!

### Sharing the Market—

Anybody who wants to find a

market in which sales are widely distributed should take a look at the gasoline business.

Researchers, looking through their statistical microscope recently, discovered that in 1937 tax-paid gasoline consumption totalled 21,000,000,000 gallons. The biggest company in the business enjoyed 8.2 per cent of the market! The 10 biggest marketers, averaged about 5.7 per cent each!

### Conservation—

The petroleum industry conserves its resources by making them work over time. Natural gas, which provides pressure for raising crude oil from the well without pumping, is used many times by a process of recycling. The gas is captured each time it comes to the surface and is forced back to draw additional crude oil to the surface. In some recent wells the gas pressure is maintained automatically at the most efficient level by a system of underground valves.

## WANT SOMEONE WHO CAN MAKE GOOD MINE PAY

The Journal was this week called upon by the owners of a mine near Jaxdine which is completely equipped, has good ore and lacks only management and working capital. Its owners, are not mining men, wish to turn over controlling interest to a competent mine operator who is financed to carry on the operation.

The mine has 800 feet of tunnel and drifts which have blocked out about 20,000 tons of ore which assays \$11.70 per ton. There is another 30,000 tons in sight. The mine is fully equipped with a 320-foot Ingersoll-Rand compressor, two jack hammers, 1200 feet of rails, complete drill steel and shop equipment.

At the end of the dump is a 75-ton ore bin feeding directly into the mill. The mill has an 8x9 jaw crusher and a 25-ton Gibson rod mill, with amalgamator and table. The mill has never operated efficiently, getting only 40 per cent recovery. After spending all their money trying to make the property pay, the principal owners have decided to call in someone who can recover the gold from this ore.

The Journal will be glad to put inquirers in touch with the principals.

### NEW MINING FIRMS

HELENA—Articles of incorporation have been filed by the Western Gold Mines of Anaconda to carry on a general milling business. Directors are R. E. Thomas, J. R. Johnson and C. M. Smith of Anaconda. Capital stock is \$50,000. Articles of incorporation were also filed by the Southern Cross Mining & Milling Co. to carry on a general mining and milling business. Directors are R. E. Thomas, J. R. Johnson and Ray E. Tower, of Anaconda. Capital stock is listed at \$50,000.

SEND A CONTRIBUTION TO THE SUNBURST BADGER

## MINES BROKERAGE COMPANY

P. O. Box 775

Helena, Montana

GOLD PROPERTIES FOR SALE. Syndicate Management

## Closing Quotations on the STANDARD STOCK EXCHANGE SPOKANE by GIBSON ASSOCIATES, INC. Great Falls, Montana

Closing April 7, 1939

Clayton Silver	21	24 1/2
Dayrock	49	60
Golconda	4	5 1/2
Hecla Mining	7.50	8.25
Grandview	5	5 1/2
Independence	3 1/2	4 1/2
Jack Walte	22 1/2	25
Metaline	32 1/2	35
North Butte	38	42
Mont. Consolidated	6	7
Sherman Lead	22	27
Standard Silver Lead	15	20
Tamarack	24 1/2	27
Bunker Hill	12.60	13.50

### CURBS

Callahan	1.00	1.50
Pend Oriole	1.50	1.55
Premier Gold	1.95	2.10
Sidney	2 1/2	3 1/2

### OVER THE COUNTER

Wash Water Power	99.00	100.00
Mont Power Pfd	99.00	101.00

### METALS

Lead, New York	.0485	
Zinc, New York	.0489	
Copper, Foreign	.1019	
Copper, Domestic	10.75	11 1/4

### REDEMPTION OF TAX TITLES

HELENA, April 5—Attorney General H. J. Freebourn ruled today the owner of property sold for taxes may redeem it by paying the original tax without penalty and interest if the tax deed proceedings were started before approval of SB 12 of the 1939 legislature.

He also ruled that where the proceedings were started and tax deed taken subsequent to enactment of the law, the owner may likewise repurchase the land by paying the original tax, without penalty and interest.

### POWER CO. DIVIDEND

BUTTE — Announcement was made by the Montana Power Co. that the regular quarterly dividend of \$1.50 a share on its outstanding preferred stock, \$6 series, has been declared, payable May 1, 1939, to stockholders of record at the close of business on April 11, 1939.

J. J. BRUNNER R. E. PEREY  
**BRUNNER & PEREY**  
ASSAYING, ORE TESTING,  
CONSULTING  
11 BROADWAY  
P. O. Box 764  
Phone 2718-W  
HELENA, MONTANA

### FIREPROOF

**Leggat Hotel**  
BUTTE, MONTANA  
Alex Leggat, Prop.  
Rates, \$1.50 up  
MINING ENGINEERS  
GEOLOGISTS  
MINING MEN WELCOME

## Western Iron Works

(Incorporated)

1400 East Second Street—Phone 2-3966  
BUTTE, MONTANA

We Carry Stocks of  
STEEL AND CAST IRON GRINDING BALLS  
Size 2-inch by 4-inch

AMERICAN STEEL SPLIT PULLEYS

COLD ROLLED SHAFTING

SHEET STEEL

STRUCTURAL STEEL SHAPES

## OPPORTUNITIES

Herein are listed some of the best bargains to be found today in Montana's Oil Fields and Mining Districts. In this column are found the items that escape the casual reader—Rates: 25c per line—6 Average Words to Line. Enclose cash with order, to insure publication in next issue.

## OIL

IS MY CHILD MUSICAL?  
The Baldwin Talent Test gives the Answer. A simple, scientific musical aptitude test for children developed by the Cincinnati Conservatory of Music.  
Write  
Great Falls Recording Studios  
for your copy. Great Falls, Montana 5-21-tr

"SWEETGRASS ARCH MAP"—Contour topography, all well locations. Fine map of its kind ever prepared. By E. B. Smirick, Supply Department, Montana Oil and Mining Journal

## MINING

WANTED to buy a 5-ton pilot mill. P. O. Box 746, Great Falls, Montana 4-8-a

## MISCELLANEOUS

CAPITAL SEEKERS—Put your project before 200 Key-men. Cost trifling. Details free. AMSTER, LEONARD,

Fox Theatre Building, Detroit, Michigan. 9-24-39

SWEETGRASS ARCH MAP  
Mimeographed copy showing U. S. G. S. contours. Townships 16 to 37N, Ranges 7W to 9E 50c. Supply Department, Montana Oil Journal. 5-26

Lease and Property Ownership Map of KEVIN-SUNBURST  
Corrected up to date. \$2.00. Montana Oil Journal, Box 1778, Great Falls, Mont.

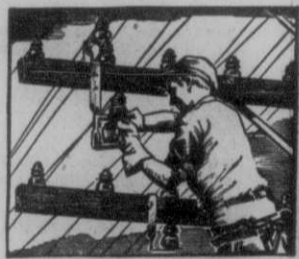
Geological reports copied or mimeographed—maps reproduced. Box 500, Montana Oil & Mining Journal, Great Falls, Montana

OPERATORS and geologists may avail themselves of the use of the Montana Oil and Mining Journal's geological library, which has the largest collection of reports on Montana oil and mining geology. Since many of these reports are out of print, copies will be furnished of reports, together with maps, on a moderate fee charge through the Supply Department, Montana Oil and Mining Journal, First National Bank Bldg., Great Falls, Montana

CABIN SITES—At Lower St. Mary's Lake, beautiful view, convenient to all parts of Glacier Park, 2 1/2 acres, \$275. Write 1073 Dayton Ave., St. Paul, Minn. 4-8-d

## Right or Wrong?

Here is a little test for you



1. The current used to transmit the voice by telephone is the most delicate current in common use.  
RIGHT  WRONG



2. Wire in use in the Bell System would go around the world more than 3000 times.  
RIGHT  WRONG

The answers are shown below and here is the answer for quick, satisfactory communication. When you want to reach someone in another town, for business or social purposes, telephone! It not only takes your voice to the person you want to reach but brings back an immediate spoken reply.

The operator will be glad to tell you any out-of-town-rates.

Answers . . .  
Don't look until you've guessed—  
1. RIGHT. It is so delicate that Dr. Bell once talked through the bodies of six college professors hooked up as part of the circuit.  
2. RIGHT. It would go around the world more than 3200 times.

The Mountain States Telephone & Telegraph Co.

# SAMPLING

"is the process of obtaining from a lot of ore a smaller quantity that contains, in unchanged percentages, all the constituents of the original lot"

—U. S. BUREAU OF MINES.

This is one of our regular jobs. During the past 25 years, our Washoe Sampler has sampled and purchased for cash millions of tons of gold, silver and copper ores and concentrates, at the rate of 1,500 tons a day.

# ANACONDA

Copper Mining Company

Butte, Montana