

# ON THE LAZY BENCH

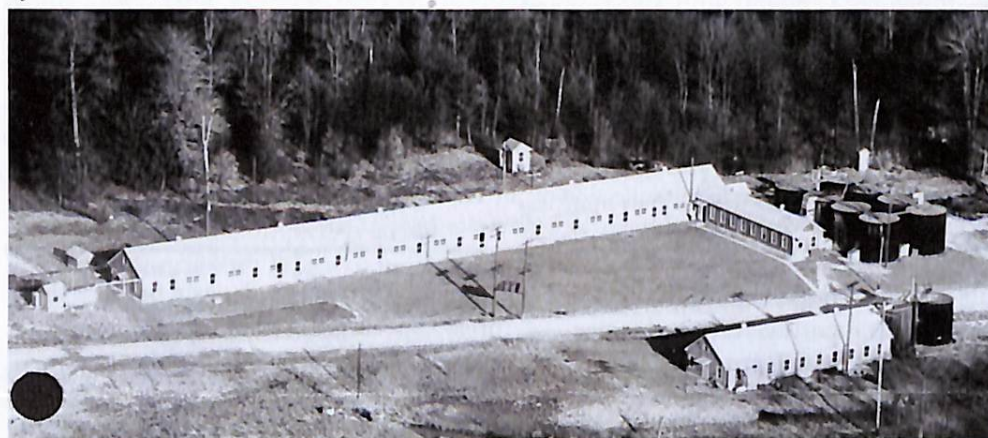
*Penn Brad Oil Museum strives to preserve the history of the Bradford Oil Field and the unique culture that developed along with it. It also honors the people and their families whose lives contributed to making Bradford the "Highgrade Oil Metropolis of the World."*

A Quarterly Newsletter

Vol. 4 - No. 1 - Winter 2018

## Under Pressure

by Tom Miller, Museum Board President



Culbertson Pressure Plant at Wolf Run

In a previous article I wrote about how the secondary oil recovery process by waterflooding originated here in the Bradford Oilfield. A subsequent piece related the history of the Reclamation Supply water supply system that was developed by Case Pomeroy Corp. to supply large quantities of high quality water to waterflood operations, including their own, throughout a major part of the Bradford Field. The water came from large wells in the Town of Allegany, NY. The purpose of this writing is to depict somewhat how this water was used once it arrived at its destination.

In order to supply injection wells, also called intake wells, in a pressure flood the water first had to be treated and pressurized at what was commonly referred to as a pressure plant. At the pressure plant the water would usually be treated to insure that impurities would not plug the fine pores in the oil-

producing formation and also to prevent corrosion of the piping system. Water would be held in settling tanks and treated with chlorine or some other agent to kill bacteria. Anaerobic bacteria exist that can thrive in the underground formation and plug the pores. The water would also be treated for pH adjustment if needed and wetting agents would be used to make the water more slippery and improve injectability. The water was then run through sand filters to filter out impurities.

After filtration the water was pressurized with high pressure pumps that would send it to the injection wells through a system of underground pressure pipelines. These were usually positive displacement plunger pumps of the triplex design, having three plungers operating on a crankshaft 120 degrees apart to minimize pulsation. There were some duplex, quintuplex and even some multiple stage centrifugal pumps.

Pressures ranged from a few hundred pounds per square inch (psi) to over a thousand psi, depending on the characteristics of the formation and preference of the operator.

Manufacturers of the pumps used in the field included National Transit, Worthington, Clark Bros., Aldrich, Gould, Oilwell Supply, Ajax and Wheatley.

The pumps in early plants were mostly driven by gas engines. Eventually, in addition to gas engines, many plants utilized electric motors, diesel engines or some combination thereof. Some were converted to electric or diesel when natural gas was in short supply. Local manufacturers made engines that could be readily converted from gas operation to diesel. (continued on page 3)

## PENN BRAD OIL MUSEUM

901 South Avenue • Bradford, PA 16701

E-mail: [pennbradmuseum@icloud.com](mailto:pennbradmuseum@icloud.com)

Web: [pennbradoilmuseum.org](http://pennbradoilmuseum.org)

Phone: 814-362-1955

Monday to Friday

9:00 AM to 4:00 PM

Saturday

9:00 AM to 2:00 PM

**Admission Cost:**

Adults - \$5.00

Seniors - \$4.50

Children - Free



## Board Of Directors

The Penn Brad Oil Museum Board of Directors is as follows:

Thomas Miller, President  
Fred Fesenmyer, Vice President  
Susan Gould, Secretary  
Joyce Cline, Treasurer

Jeff Bell  
Isabelle Champlin  
Meredith Fesenmyer  
Dean Fox  
Harvey Golubock  
Matt Kropf  
Chip McCracken

William Pantuso  
Stanley Pecora  
Steve Pratt  
Beverly Roberts  
Jordon Roeder  
Paul Phillips  
Sherri Schulze  
Dale Smith

Note: The board of directors are pleased to announce the addition of Chip McCracken and Jeff Bell to the board.

## Fireside Pumper's Breakfast - Welcomes You

Held the 2nd Wednesday of each month at Togi's Blue Room, the **Fireside Pumper's Breakfast** features interesting speakers on oil or community related

subjects and a large, delicious, breakfast buffet. The monthly event welcomes anyone wanting to learn more about the petroleum industry and the museum.

You will have to get up early because the breakfast starts at 7:30 AM and the cost is \$12.00, a portion of which goes to improving the museum.

## Memorial & Honoring Gifts

**In Memory Of:** **Given By:**

Ray G. Dart ..... American Refining Group  
Edgar Silsby (correction) ..... Shelly Benner

**In Honor Of:** **Given By:**

Bill & Joyce Cline ..... Susan Cline-White & Paul

## Memorial Bricks

**In Memory Of:** **Given By:**

I. L. "Louie" Geer ..... Willard & Joyce Cline  
Edmund D. Howard / Dale L. Howard ..Howard Drilling  
Joseph Null, Sr. ....Employees of UPB  
Office of the Registrar & Enrollment Services

## Remember or Honor a Loved One with a Gift to the Penn Brad Oil Museum

Memorials received after Oct. 15 will appear in the next newsletter.

Memorials are available by calling 814-368-6824, or by mail to: Penn Brad Oil Museum, P.O. Box 163, Bradford, PA 16701. A notice from the Museum will be sent to the recipient. Penn Brad Oil Museum is a 501 (c)(3) entity and all donations are tax deductible.

(PLEASE CHOOSE IN MEMORY OF OR IN HONOR OF) **MEMORIAL/HONORING GIFTS**

(PLEASE PRINT)

OR

IN MEMORY OF

IN HONOR OF

SEND CARD TO

FROM

STREET

STREET

CITY/STATE/ZIP

CITY/STATE/ZIP

Clip and Mail Coupon to Address Above

"The walking beam" walked" the drilling tools up and down the well hole. Praise will walk your way when you serve this cake made from red raspberry jam."

**Recipe: Jam Cake**

**From the Kitchen of: Derrick Delights**



|                   |                         |
|-------------------|-------------------------|
| 1 cup sugar       | 2 tsp baking powder     |
| 1/2 cup butter    | 1 tsp. allspice         |
| 2 egg yolks       | 1 tsp. cinnamon         |
| 2/3 cup sour milk | 1 tsp. cloves           |
| 1 tsp soda        | 2 egg whites            |
| 2 cups flour      | 1 cup red raspberry jam |

"Cream sugar and butter, add yolks of eggs and the milk to which has been added soda dissolved in a little hot water. Add flour, spices and baking powder, mixed together, and beat well. Add well-beaten whites of eggs, and the jam. Bake in three or four layers. Put soft icing on top and between the layers." (We suggest 25 minutes at 350° for three 9" cake pans.)

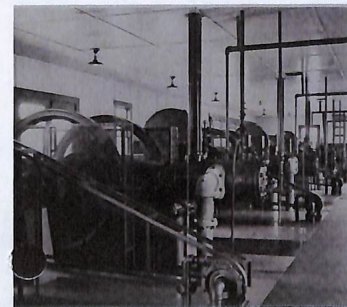
From *Derrick Delights: Old-Time Recipes From the Oil Boom Days*, prepared by Girl Scout Troop 93, Bradford, Pa., a booklet in the collection of the **Kinley Library** at the **Penn Brad Oil Museum**. Recipe edited and tested by Isabelle Champlin.



Eldred Water Supply Well for Dent Plant

Many operators had their own water supply. In the early plants air compressors were driven by the same prime movers that powered the pressure pumps. The compressed air was used to jet water from water wells on the property. Some water was produced utilizing the rod and tubing method as used in oil producing wells. Eventually most supply wells were operated by down-hole turbine pumps driven by electric motors at the surface or in later years by submersible pumps. A few were driven by engines through right angle gear drives.

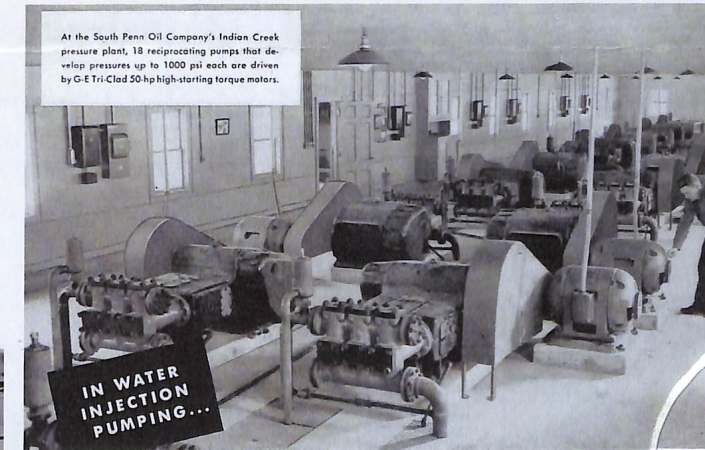
Small property may have had a very basic pressure plant with one supply well and a small pressure pump of ten horsepower or so. Larger properties would have plants with multiple supply wells and multiple larger pumps. Larger companies such as South Penn, Quaker State, Kendall, Minard Run and others would in many cases have central plants of up to around a thousand horsepower capacity with many pumps serving several properties over a large area with



Minard Run Pressure Plant with Bovaard & Seyfang Gas Engines

hundreds of injection wells. In these larger plants the filters and treatment facilities would be housed in a separate filter house.

Thanks to Museum Board Member Paul Phillips who was Pennzoil Production Foreman, we have a description of central pressure plants established by South Penn Oil Co. which became Pennzoil. The Culbertson plant at Wolf Run in the Bordell valley was under construction from late 1931 to 1933. Water was supplied from wells near the plant and four wells farther down in the valley via a cement pipeline. The plant contained twenty Clark Bros. model PC convertible engines driving Clark pumps. These were large single cylinder two-stroke engines that produced some beautiful music in the valley, especially when several units would fire in unison. In addition to pressure supplied in the locality of the plant, two six inch pressure lines carried water toward Cyclone. The plant ceased operations in 1985.



Rounds Pressure Plant

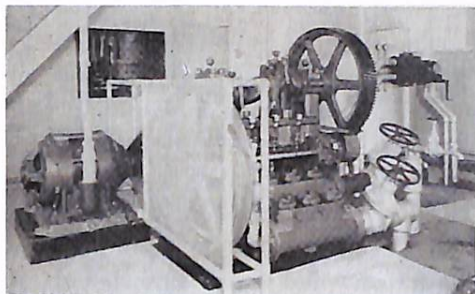
The Dent plant at Big Shanty was identical to the Culbertson. It was supplied in part by the Reclamation water line which proceeded from Gifford to the Dent. Supplemental water supply was from three wells in Lewis Run. The Johnson Plant on Harrisburg Run had multiple units powered by twin cylinder Cooper Bessemer engines.

Water supply was from wells near the plant with downhole turbines powered by multiple cylinder Waukesha gas engines through right angle gear drives. The Davis plant at Gifford had sixteen Oilwell Supply horizontal triplex pumps driven by 50 hp electric motors. It was supplied by the Reclamation Supply pipeline. The Rounds plant at Indian Creek had eighteen electrically powered pumps like the ones in the Davis plant for a total of 900 horsepower. It was supplied from water wells in the Eldred Flats. The plant serviced properties in the Eldred and Indian Creek area almost into Rock City and also into Kansas Branch and Duke Center. The plant was built in the late 1930's and operated until 1986. The initial startup was conducted by plant operators Albert Barnes and Victor Cummings. When the plant ceased operation in 1986 the same two men with their families present operated the controls to shut it down.

Declining production and aging piping, both downhole and in pipelines, helped lead to the close of operations but the final death knell was dealt by the instigation of arbitrary EPA underground injection control regulations. (continued on page 4)

(Continued from Page 3)

Most of the injection wells because of their construction, although sound, could not accommodate the new mechanical integrity testing requirements. This led to Pennzoil's decision to abandon all waterflooding in the Bradford Field.



Small Pressure Plant



Small Pressure Plant

## Events Calendar

2018

- Mar 14 - 7:30 AM Fireside Pumpers Breakfast  
at Togi's Blue Room
- Apr 11 - 7:30 AM Fireside Pumpers Breakfast  
at Togi's Blue Room
- Apr 14 - 11:00 AM - 2:00 PM Ice Cream Social
- Jun 9 - 6:00 PM Yellow Dog Award Dinner  
Pennhills Club
- Jul 14 - 11:00 AM to 5:00 PM  
Derrick Day Festival
- Sept (Date to be announced) Fall Sporting Clays

### Yellow Dog Award Dinner

Held June 9, 2018 at The Pennhills Club, this fundraising event for the **Penn Brad Oil Museum** gives the community an opportunity to recognize an exceptional individual that has given and continues to give to the support of the museum and the oil and gas industry in our community and beyond. More information will be coming soon about the event and the 2018 recipient.

## Ice Cream Social Opens the Museum for 2018

Penn Brad Oil Museum will open its doors for tours and regular business on Monday, April 2, 2018.

The **opening event**, held on Saturday, April 14 from 11AM to 2PM will be an **Old Fashioned Ice Cream Social**,

marking the beginning of a the new season.

Meet the museum manager and board members as we take a step back in time and hear about the history of the oil patch in Bradford and the surrounding area.

See the tools and equipment used back in the day and what it took to get that precious crude oil out of the ground.

There is no charge for the event, donations are always welcome.

