

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. 2 - No. 1 - Winter 2016

The Field That Lived Again

The Bradford Oil Field has multiple claims to fame but one of the most significant is that of being the birthplace of secondary recovery.

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Memorials

See a list of current gifts to the museum. A coupon is available to send your own "In Honor of" or "In Memory of" gifts.

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The museum sign which was erected in 1971 was given a face lift
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April 2 marks the season opening

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Fall "Wrap Up" Fun

Cindy and Dale Smith and their grandchildren enjoy the Fall Wrap Up.

The smell of fresh popped popcorn filled the air as the 2015 season at Penn Brad Oil Museum was brought to a close.

Visitors to Penn Brad Oil Museum were greeted with a very different sight at the museum entrance. Bushels of apples, a wooden cider press and Cindy and Dale Smith, "Wrap Up Day" organizers, were making homemade apple cider. The very tasty product was served with or without special flavoring. The Smiths were joined by their son Nate from Worth W. Smith Hardware Store who

seems to be continuing the family tradition of making homemade cider.

The admission free event marked the end of normal museum visitor tours. The winter months will be used for making improvements to the museum including a new theater where future visitors will view the orientation movie.

Local oil producers Bill Cline, Fred Fesenmyer and Tom Miller recalled stories from past days in the Bradford Oilfield and many people looked through the museum's collection of old photographs and memorabilia.

Fall themed decorations were provided by Joyce Cline of Cline Oil Company and Isabelle Champlin and Matt Kropf made popcorn that was enjoyed by everyone.

The free-will offering for the "Wrap Up Day" provided the museum with \$612.00.

Everyone who attended had a great time and we are all looking forward to a new season opening on April 2., 2016.

PENN BRAD OIL MUSEUM

email: pennbradmuseum@icloud.com

website: <http://pennbradoilmuseum.org>

facebook: [penn brad oil museum](https://www.facebook.com/pennbradoilmuseum)

901 South Avenue • Bradford, PA 16701

Phone: 814-362-1955

**Open annually from
April 1 to November 1:**

Monday to Friday
9:00 AM to 4:00 PM

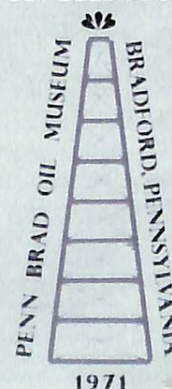
Saturday
9:00 AM to 2:00 PM

Admission Cost:

Adults - \$5.00

Seniors. - \$4.50

Children - Free



The Field That Lived Again

Tom Miller

The Bradford Oil Field has multiple claims to fame but one of the most significant is that of being the birthplace of secondary recovery. Along with the oil locked in the Bradford Third formation there was a large amount of associated natural gas. This gas was the source of energy that forced the oil into the well bore. A similar phenomenon is observed when a bottle of soda or beer is uncapped after being shaken. Since the oil industry was in its infancy it was not completely understood at that time how important it is to conserve the gas. Before the advent of the automobile the major market for crude oil was as a feedstock to manufacture kerosene for lighting but the market for natural gas had not been developed. Because of this a tremendous amount of gas was wasted as it was considered a useless by-product, except for use as boiler fuel or maybe local heating and lighting. This led to a very early decline of production from the field and many left the Bradford Field for greener pastures in other newly discovered oil fields. By 1914 the field was pretty much dead.

Eventually it was discovered by accident that if the surface casing was pulled from a well or it developed a leak, a nearby well or wells would increase in oil production. This was a result of the pressure from the hydrostatic head of the water standing in the well with the leaking or removed casing causing the water to invade the formation and displace the oil in it, essentially pushing the oil to the nearby well or wells. Although this effect was noticed around 1880, it wasn't until 1907 that it was manifested in the total annual production of the field.

Although there were some clandestine operations beginning around 1900, the practice of intentionally introducing water into the formation was actually

illegal in Pennsylvania because in other fields with different geological properties it could actually ruin the adjacent wells due to the water channeling directly to the affected wells. However, in 1921 the Pennsylvania legislature passed a special act allowing the practice in the Bradford formation. A similar measure had been passed in New York State in 1919. Approximately 14% of the Bradford Oil Pool lies in New York State.

The early gravity waterfloods were haphazardly done using some old wells and some new ones. The methodology was improved somewhat but was revolutionized with the first successful "five-spot" pressure flood at the head of Oil Valley in Otto Township conducted by John A. Messer and Arthur E. Yahn. This method of secondary recovery involved drilling new wells in a pattern such that each producing well would be in the middle of a square with a water injection well in each corner. The injection wells were completed with injection tubing from the surface to the formation that was sealed by a device called a "packer" and several feet of cement at the top of the formation. This allowed water to be injected from the surface utilizing high-pressure pumps to supplement the hydrostatic pressure on the formation. It also enabled the injection rates to be metered and controlled and the water to be filtered and treated for optimal results.

The success was phenomenal and initiated the rebirth of the Bradford Field. Within a short time, even in spite of the Great Depression, the field was booming with drilling and production operations going on 24/7. Waterflooding became a science and a great deal of research was conducted both in the field and in the laboratory. This was documented in "Producers Monthly" magazine published in Bradford, the complete archive of which is on file in the library of the Penn Brad Oil Museum. The knowledge learned in the Bradford

Field eventually became applicable to oil fields worldwide. Drilling continued until virtually every bit of the more or less 90,000 acres of the Bradford Field proper where the formation was conducive to waterflooding had been developed. Flooding operations continued up into the 1980's or 1990's. Although there are a handful of waterfloods still in operation most were ended due to government regulations, low oil prices and declining production.

All told, there was more oil produced in the second crop of the Bradford Field than in the primary production era, thanks to waterflooding. The Bradford Oil Field was eventually expanded with areas of the formation that were not previously prolific being opened up to production utilizing modern hydraulic fracturing techniques but it was the waterflood that made the Bradford Oil Field go down in history as "The Field That Lived Again". It all began in Bradford.

Memorial & Honoring Gifts

In Memory Of:

Carl H. Lindahl

Given By:

Fireside Pumps

Susan Perry

Willard & Joyce Cline

Mary & Scott Gibbs

Mary Mills

Susan Perry

Louis J. Schenfeld

Travis & Darlene Baugh

James H. Kinley New York State Oil Producers Association, Inc.

In Honor Of:

Willard "Bill" Cline

Given By:

Bill & Brenda Cline

Chuck & April

Diane Zega Marold

Robert Jarrett

Andrew & Pauline Miller

Thomas & Patricia Miller

Penn York Oil & Gas Affiliates of Desk & Derrick Club

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.



Clip and Mail Coupon to Address Above

(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

New (Old) Sign



Jason Okerlund, (left) Inventory Manager, Steve Pratt, (center) Penn Brad Oil Museum Board Member and Environmental and Safety Manager and Norm Geist, (right) Production Superintendent, at U.S. Energy Development Corporation.

The museum sign, which was erected in 1971, was given a face lift and much needed repair. Decayed wood was replaced with filler and a new paint job added color to the aging sign. What was once referred to as a "yellow boot" is now more recognizable as a Standard Rig.

As it says on the sign, the museum is sponsored by the local oil producers and the Desk and Derrick Club of Bradford.

Events Calendar

2016

April 1 -

Museum re-opens for Summer visitors

April 2 - 2:00 PM

Art Auction/Reception Preview

April 2 - 4:00 PM

Art Auction/Reception

April 26 - 1:45 PM

Tour - Eden, NY

June 4 - 6:00 PM

Yellow Dog Award Dinner

June 16 - 1:00 PM

STEPS Meeting

July 9 - 3:40 PM

Bus Tour Destinations +

Aug 13 - 11:00 AM

Derrick Day Festival

Oct 20 - 11:30 AM

Tour - Kay Parker Tours

Board Of Directors

Penn Brad Oil Museum Board Members

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

Thomas Miller, President
Fred Fesenmyer, Vice President
Beverly Roberts, Secretary
Joyce Cline, Treasurer

Gayle Bauer Isabelle Champlin
Harvey Golubock Matt Kropf
Dan Palmer William Pantuso
Stanley Pecora Susan Perry
Paul Phillips Stephen Pratt
Jordon Roeder Sherri Shulze
Dale Smith

Recognize this photo?



Jim Briner, museum founder on cover of American Oil & Gas Reporter

Small Business Saturday



Small Business Saturday had as many tours of the museum as we had customers in the store. After a nice November day at the museum, everyone went home happy.



At a test run of the half-breed engine for the rod line power, from left to right in the photo are Paul Phillips, Pete Fuller and Tom Ross. Tom Miller is behind the camera.

This is the half-breed engine that will be in the rod-line power display that will be part of the new 2016 season. It was restored by Tom Ross and Pete Fuller. The new display is under the direction of Penn Brad Oil Museum Board Members Tom Miller and Paul Phillips.

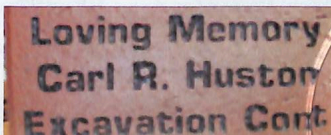
International Visitors



Visitors from Lithuania were at the museum. They had a great time.

Remembrance...

Museum Memorial Walkway Brick



At Christmas time a brick was installed into the museum walkway for Carl R. Huston. The brick was given by Susan Perry, to friend and longtime museum curator Sherri Schulze in memory of her father.

Memorial bricks are available in the museum store.

Season Opening

April 2 marks the season opening at Penn Brad Oil Museum. Many new exhibits will be available for the 2016 season. A theater will greet visitors with a new venue to view the welcome movie. Also a rod line power will bring back memories of past days in the Bradford Field. The museum store will be stocked with souvenir items for purchase. We hope to see you at our April 2nd opening.

You are cordially invited to the Season Opening
of
Penn Brad Oil Museum

Art Auction and Wine/Cheese Reception

Saturday, April 2, 2016



With Artwork Featuring:
Local Oil Region History
Landscapes
Personalities
and
Heritage Attractions

Preview: 2:00 to 4:00 PM
Silent Auction: 4:00 to 6:30 PM
Free Admission

More information and online gallery available at:
<http://pennbradoilmuseum.org/art-auction-gallery/>

We hope you will join us for an exciting event!

901 South Avenue • Bradford, PA 16701