Kentucky Oil History: the Approaching 200th Anniversary of the Beatty Well*

Brandon C. Nuttall[1]

Search and Discovery Article #30534 (2017)**
Posted December 26, 2017

*Adapted from oral presentation given at AAPG Eastern Section 46th Annual Meeting, Morgantown, West Virginia, September 24-27, 2017

[1]Kentucky Geological Survey, University of Kentucky, Lexington, KY, United States (bnuttall@uky.edu)

Abstract

Kentucky's petroleum industry began with exploration and development of brines and salt. The importance of these resources is reflected both in the abundance of Kentucky place names such as Oil Springs and Salt River and in the resources' continued protection. This usually forgotten history tells the tale of emerging resources and technology development before 1859 when Col. Drake drilled his well in Pennsylvania, often recognized as the birth of the modern oil industry. In 1806, the Ruffner brothers invented surface casing, tubing, and packers in their quest for salt water near Charleston, W.Va., and demonstrated that brines could be produced by drilling. In 1807, John Francis discovered salt water on Richard Slavey's homestead at the confluence of Bear Creek with the South Fork of the Cumberland River, McCreary County, Kentucky. In 1811, Francis and Slavey petitioned the Commonwealth and received a grant of 1,000 acres on the condition that they produce 1,000 bushels of salt, which they accomplished before 1818. Around this time, Martin Beatty was operating an iron furnace at Cumberland Gap and very likely heard of the successes of Slavey and Francis. He crossed the gap into Kentucky and acquired 1,000 acres from Francis to establish his own salt works. He contracted with Marcus Huling and Andrew Zimmerman to sink a well near the mouth of what is now Oil Well Branch along the South Fork. Sometime before Dec. 4, 1818, at a depth of about 170 feet, the well began flowing up to 100 barrels of oil per day, becoming the "Father of American Flowing Wells". The oil having ruined the salt water, Beatty abandoned the well, established a salt works downstream, and pursued a career in politics. Huling and Zimmerman, however, contracted with Beatty to construct wooden barrels and with local fishermen to take petroleum downriver by boat. After two disastrous attempts, a longer overland route was found and the oil was sold to local merchants, who in turn sold it to the manufacturers of medicinal preparations. In an 1820 letter, Huling indicated he had sent about 2,000 gallons of the oil to Europe, but had not yet made any money. Many tales are told of this well: rivers on fire, a fugitive murderer, and ruined

goose feathers. The U.S. Forest Service finally plugged the well October 18, 2011. By virtue of sales and international speculation, the
Beatty well is thus not only one of the earliest oil producers, but one of the first commercial oil wells in North America.

References Cited

Billingsley, J.E., 1949, Early development of drilling practices in Kanawha County, West Virginia: in W.T. Ziebold (ed.), Appalachian Geological Society 1949 Bulletin, v. 1: Charleston, West Virginia, Appalachian Geological Society, p. 1-7.

Brantly, J.E., 1961, Percussion-drilling system: in D.V. Carter (ed.), History of petroleum engineering: Dallas, Texas, American Petroleum Institute, p. 133-269.

Evans, L., 1755, A General Map of the Middle British Colonies in America: scale ≈ 1:2,250,000. (https://lccn.loc.gov/gm71005449)

Giddens, P.H., 1938, The birth of the oil industry: New York, The Macmillan Company, 216 p.

Jillson, W.R., 1952, The first oil well in Kentucky; notes on the history, geology, production and present status of the Beatty oil well, drilled in Wayne, now McCreary County, Kentucky, in the year 1818: Frankfort, Ky., Roberts Print. Co., 51 p.

Lloyd, J.T., 1862, Lloyd's official map of the State of Kentucky: scale ≈ 1:506,880 (https://lccn.loc.gov/99447352)

Lucas, F., 1817, A new and elegant general atlas containing maps of each of the United States: Baltimore, scale ≈ 1:296,000 (https://lccn.loc.gov/84675228)

McLaurin, J.J., 1896, Sketches in crude oil, some accidents and incidents of the petroleum development in all parts of the globe: Harrisburg, Pennsylvania, John James McLaurin, 406 p. (reprinted 1999)

Murphy, R.E., and R. Miller, 1928, Reconnaissance map of the structural and areal geology of McCreary County, Kentucky: Kentucky Geological Survey, Series 6, scale 1:63,360.

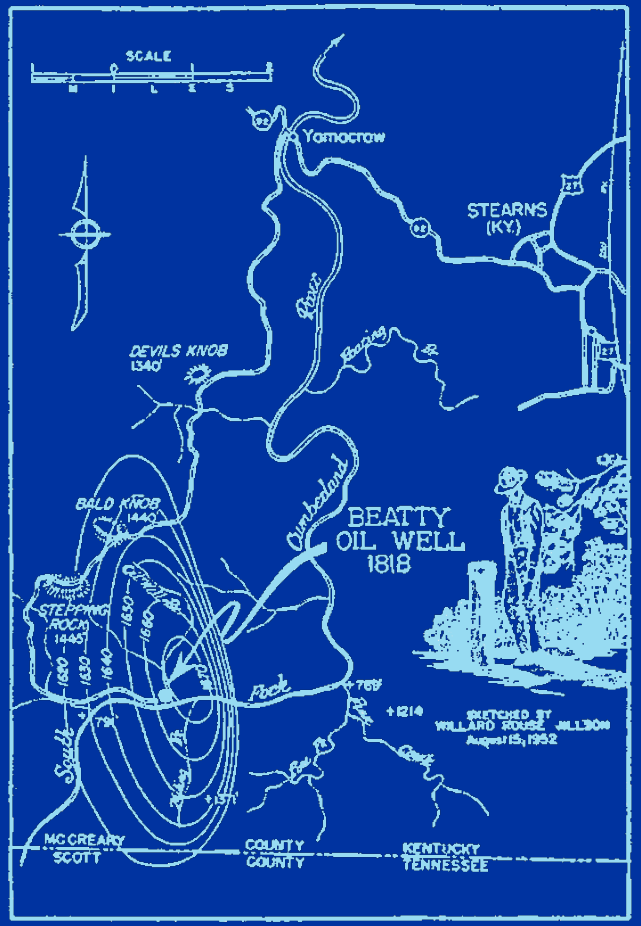
Nuttall, B.C., 2014, Of Kentucky, salt, and oil: a history of early petroleum finds along the Cumberland River: Oil-Industry History, v. 15/1, p. 67-80.

Orton, E., 1891, Report on the occurrence of petroleum, natural gas and asphalt rock in western Kentucky, based on examinations made in 1888 and 1889: Frankfort, Kentucky, Kentucky Geological Survey, Series 2, 233 p. (vol. E).

Proctor, J.P., 1882, Map of Kentucky from eclectic geographies: Kentucky Geological Survey, Van Antwerp, Bragg, and Co., scale 1:679,000.

Tuttle, J.W., ca 1890s, The Beatty Salt Well: in A.P. Johnson, 1939, A century of Wayne County, Kentucky: Standard Printing Co., Louisville. (http://genealogytrails.com/ken/wayne/chapter_4.html)

White, I.C., 1904, Petroleum and natural gas precise levels, v. One A: Morgantown, West Virginia, West Virginia Geological and Economic Survey, 28 p.



Jillson (1952)

Kentucky Oil History: The Approaching 200th Anniversary of the Beatty Well

Brandon C. Nuttall

Eastern Section AAPG, Morgantown, WV

27-Sep-2017

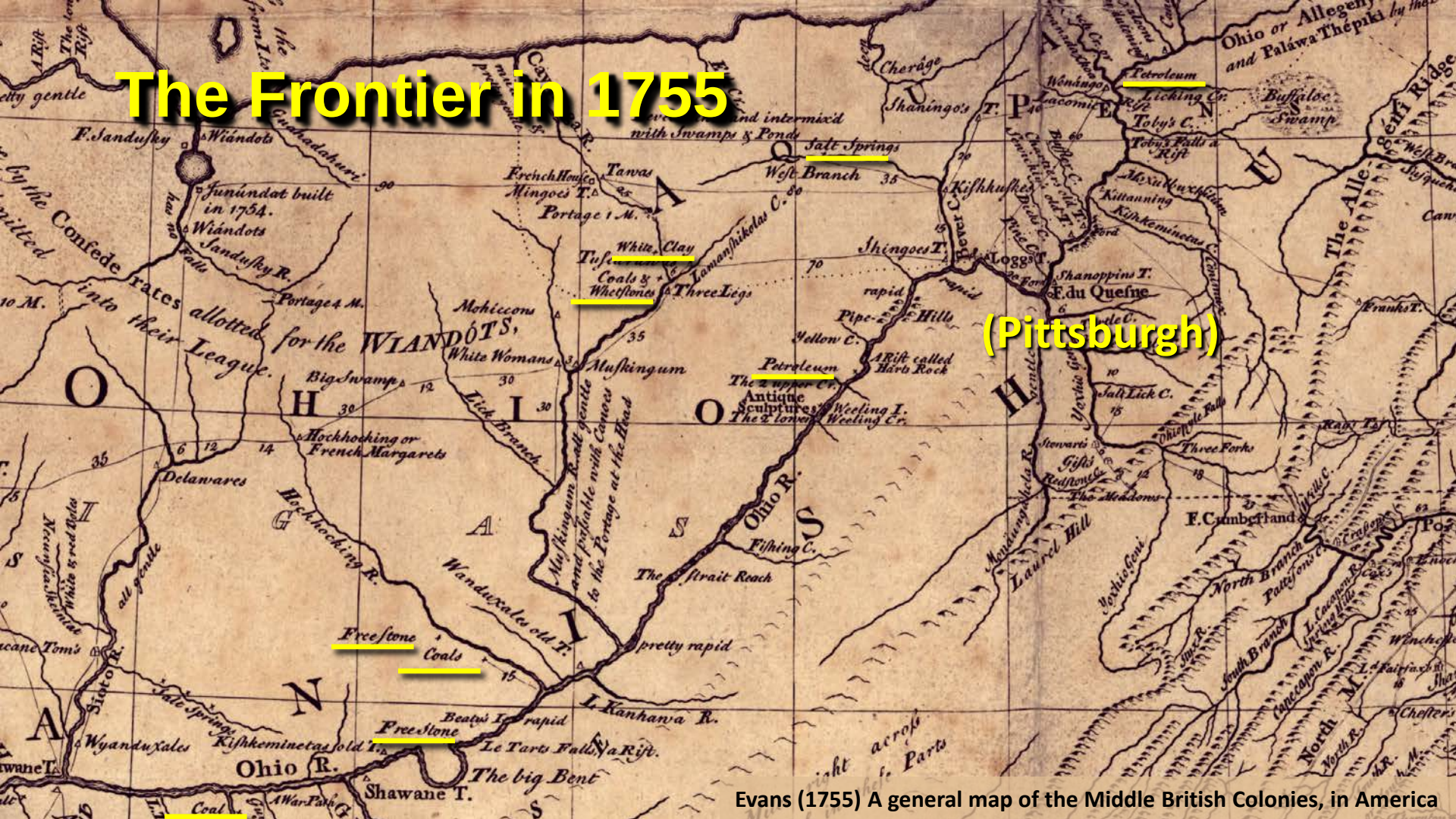
Relevance: Why Care?

- 14,000+ known orphan wells
- Water quality issues
  - Waste water (brines)
  - Dissolved methane
- TENORM
- Pre-law wells

Star Drilling Machine ca. 1920s now preserved at the Gladie Visitor Center, Red River Gorge Geological Area

Before Drake

The Frontier in 1755

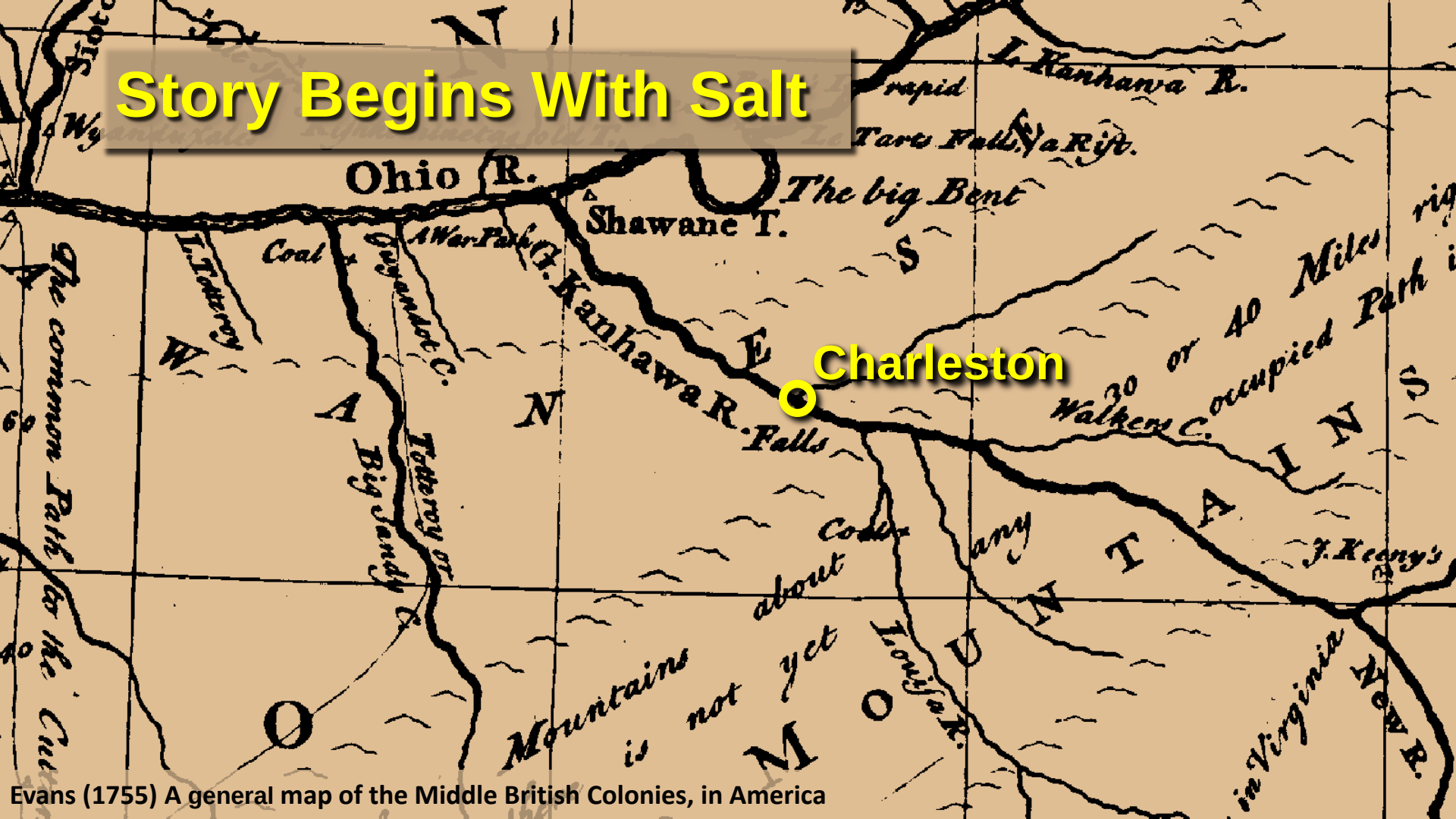


Evans (1755) A general map of the Middle British Colonies, in America

Brine and an Important Pass

Evans (1755) A general map of the Middle British Colonies, in America

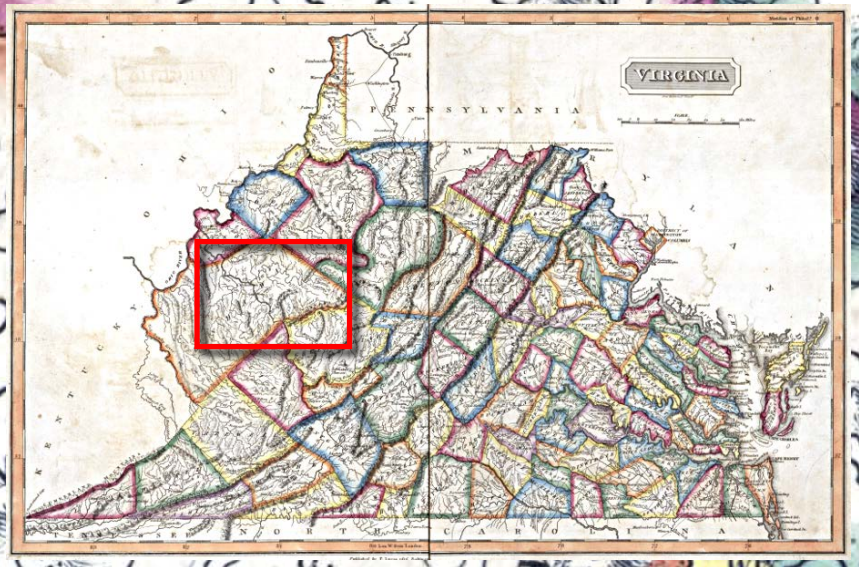
Story Begins With Salt



Evans (1755) A general map of the Middle British Colonies, in America

Looking for Salt Springs

Vaughn Creek, Cumberland Co., Kentucky

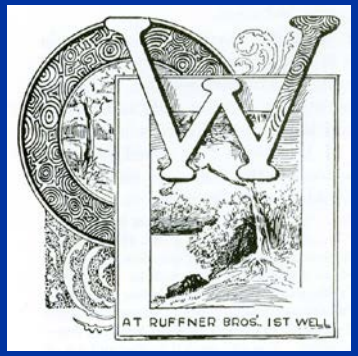


BURNING SPRINGS

Here in 1773 the Van Bibbers and others found gas bubbling through waters of a spring, which, much to their surprise, ignited. Two years later, this tract of land was patented by George Washington and General Andrew Lewis.

Lucas (1817)

The Ruffner Brothers: 1806 to 1808



McLaurin (1896, p. 27)

- 1785 – Joseph Ruffner secures land
- 1796 – Elisha Brooks erected a salt furnace
  - 24 kettles
  - Uses hollow logs, “gums,” as casing
- 1806 – Sons Joseph & David
  - Source of brine
  - Secure a more reliable supply
- Developed
  - Spring pole rig
  - Rock bit
  - Tubing and packer

Brantly (1961), Billingsley (1949), McLaurin (1896), Orton (1891), White (1904), and others

South Fork of Cumberland River

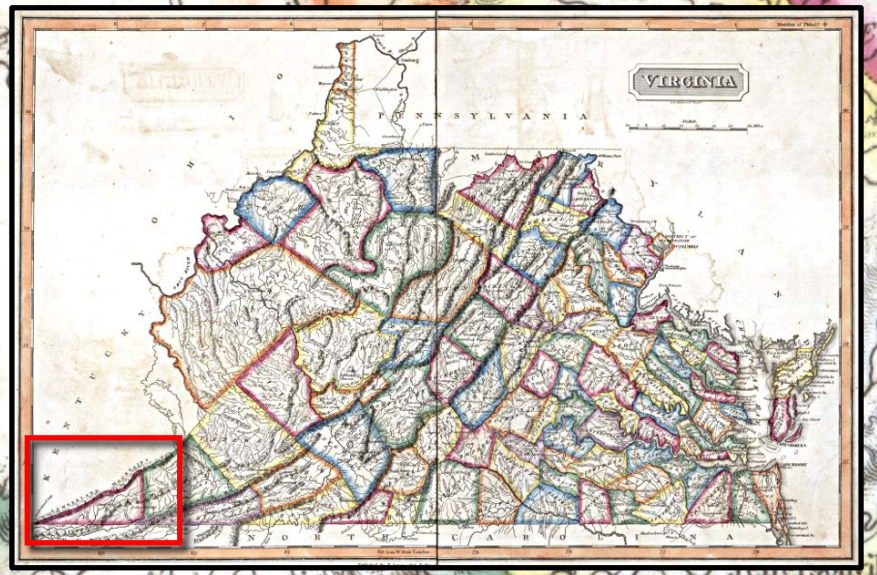
- 1807 – John Francis reports saltwater where Richard Slavey lives
- 1811 – Petition State and receive grant of 1,000 acres provided they produce 1,000 bushels of salt

Bear Creek

USGS Barthell (1934), 1:125,000

Martin Beatty

- Born 1784
- Family interests in iron and salt
- Moved west to the Cumberland Gap



Lucas (1817)

The Gaps

View southwest from Pinnacle

- 1813 – Beatty builds iron furnace operated by Newlee

USGS Cumberland Gap (1886), 1:125,000

1817 – Martin Beatty Invests in Salt

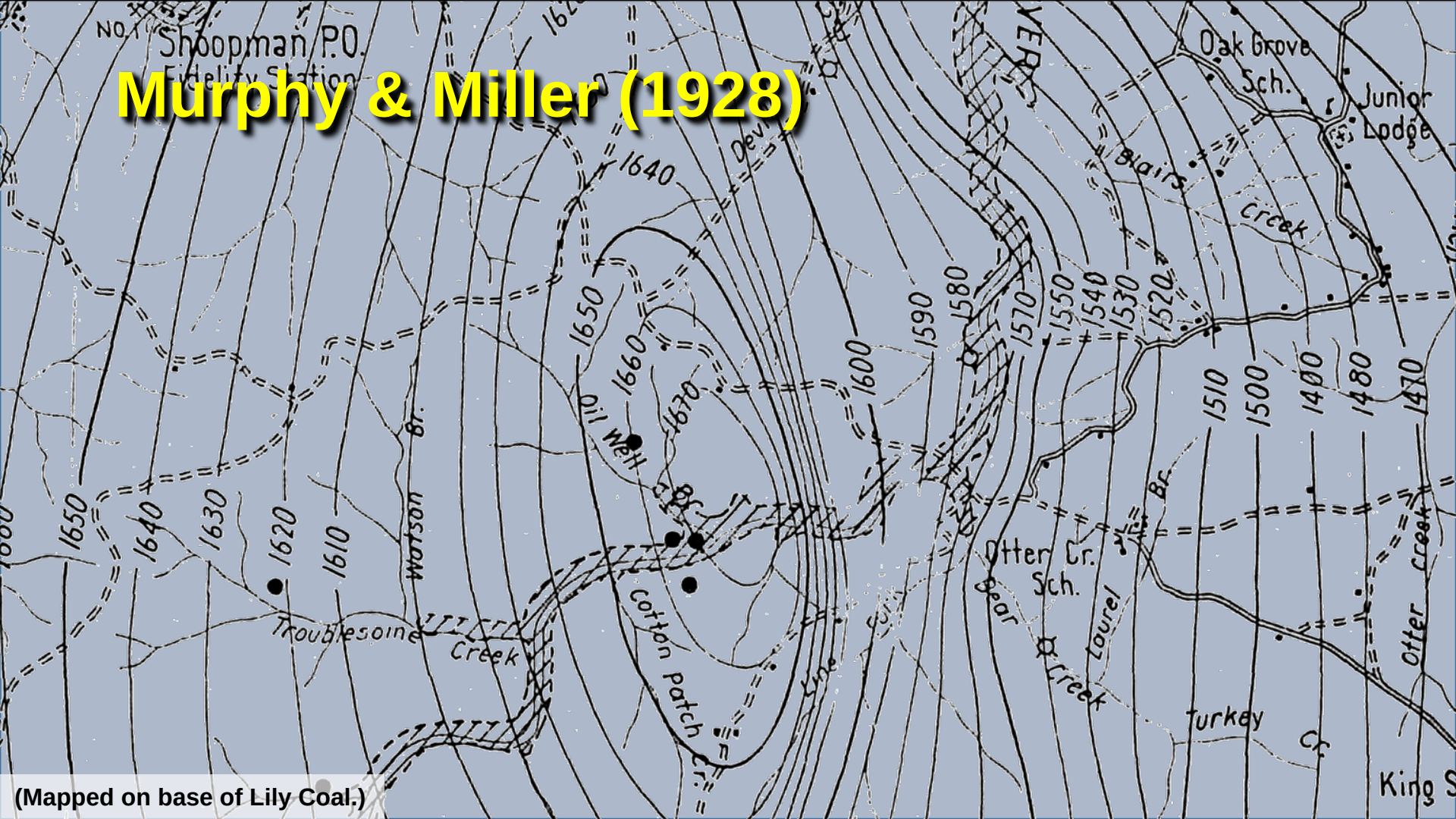
- Purchased an interest in 1,000 acres from John Francis

Oilwell Branch

USGS Barthell (1934), 1:125,000

Kentucky (1882)

(Near the top of the Mississippian Paragon, pay would be in a “Pennington” sand.)



(Mapped on base of Lily Coal.)

McLaurin (1896, p. 30-35)

McLaurin at Beatty Well, 1877

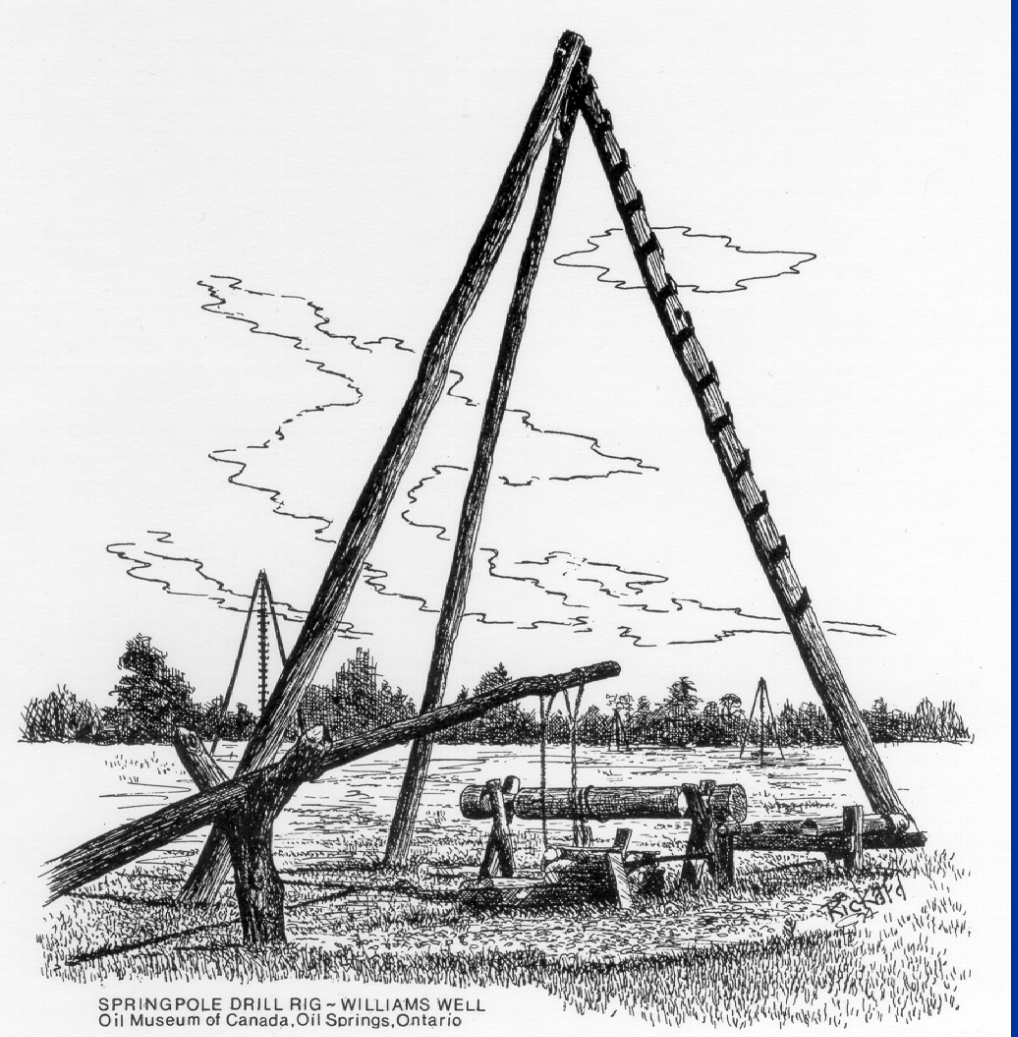
Guided to site by an unfortunate squatter who was hiding with his family in fear of murder charges stemming from a bar fight in Louisville.

Drilling the Well

Cribbed well ca. 1850s near Petrolia, Ontario, Canada

- Cribbed pit 9 ft. square
- 3” well punched to 170 ft.

Kentucky Geological Survey



The Springpole Rig

- Marcus Huling and Andrew Zimmerman
- “Surk” 16 year old slave

(Accounts do not relate information about a tripod derrick, but some arrangement to raise and lower tools must have been made.)

Kentucky Geological Survey

“Kicking” down the Well

The Petrolia Discovery Museum, Petrolia, Ontario, Canada

If they made 5 ft. in a day, they “knocked off” and went “a-fishing.”

Tuttle (1890s)

December 4, 1818

- *Argus of Western America* reported flowing oil
- Accounts of catching the river on fire likely conflated with Old American Well (1829)

Oilwell Branch

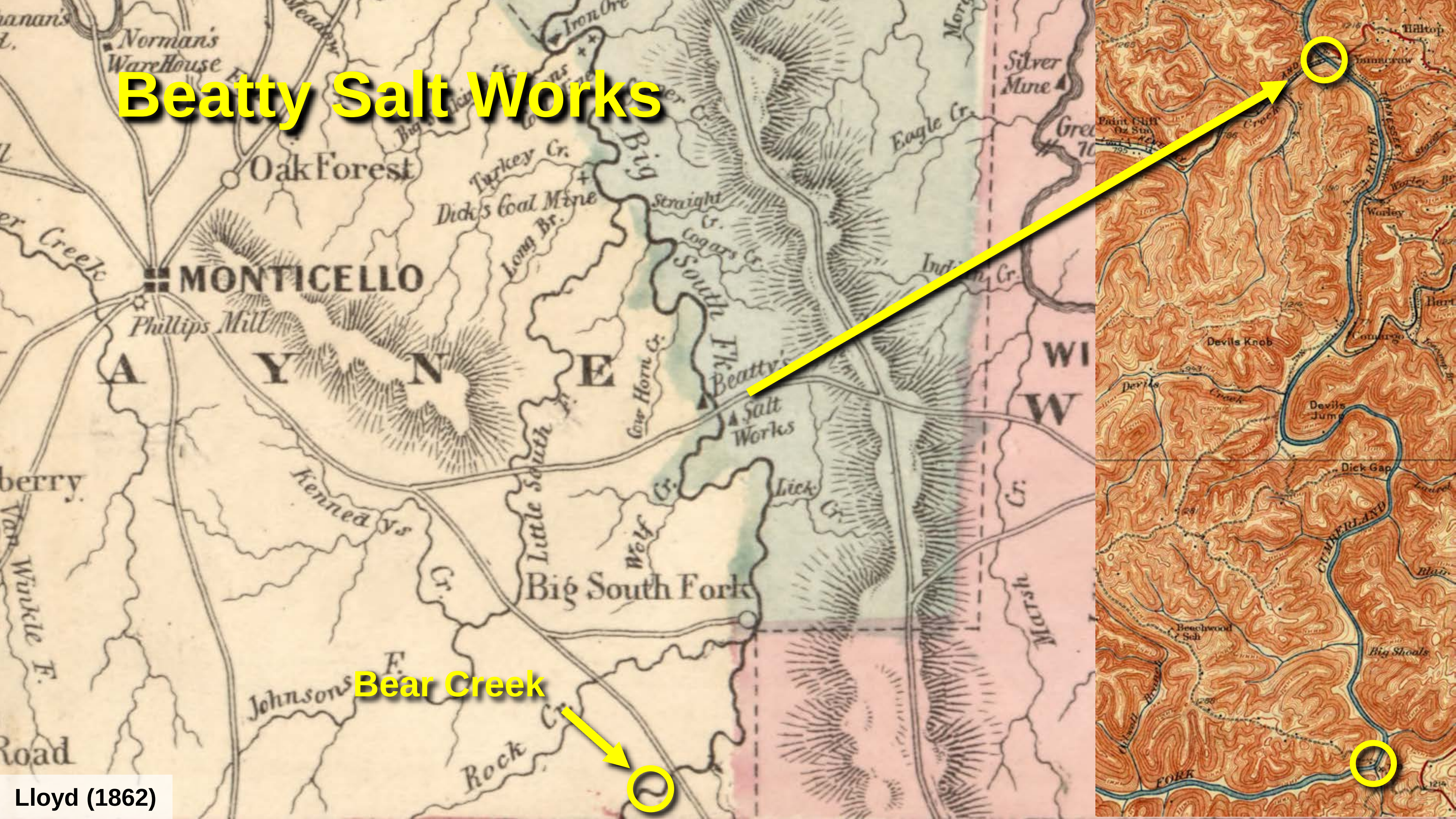
USGS Barthell (1934), 1:125,000

Beatty Salt Works

- Established salt works across from mouth of Bear Creek

Bear Creek

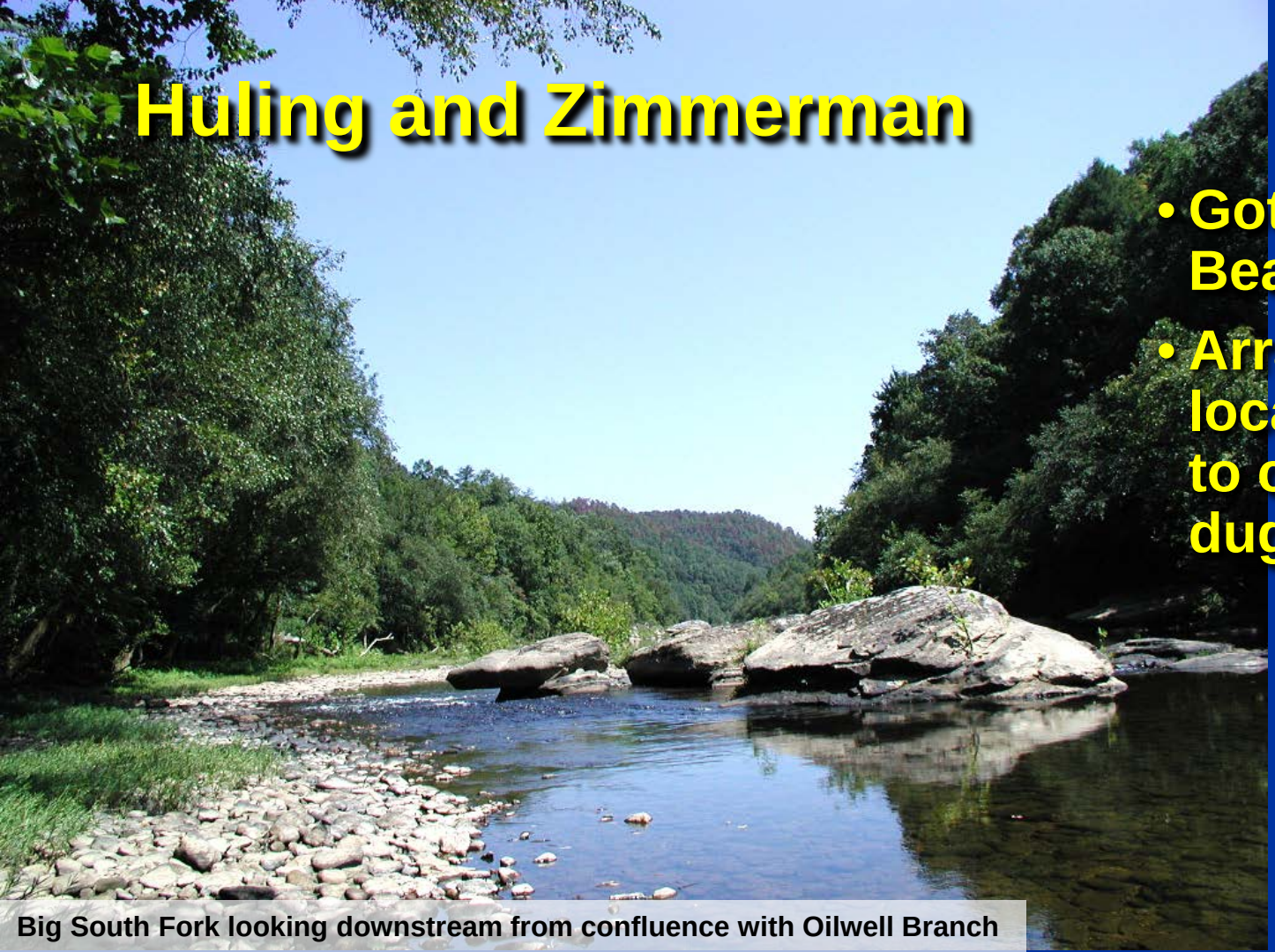
USGS Barthell (1934), 1:125,000


Beatty Salt Works
Bear Creek
MONTICELLO
Oak Forest
Norman's Ware House
Phillips Mill
Dick's Coal Mine
Turkey Cr.
Long Br.
Big South Fk.
Beatty's Salt Works
Straight Cr.
Cogars Cr.
Little South Fk.
Cow Horn Cr.
Wolf Cr.
Lick Cr.
Eagle Cr.
Indian Cr.
Silver Mine
Iron Ore
Big South Fork
Kennedy's Cr.
Johnsons F.
Rock Cr.
Van Winkle F.
Road
Marsh Cr.
W A Y N E
Devils Knob
Devils Jump
Devils Creek
Dick Gap
Beechwood Sch.
Big Shoals
Worley
Hilltop
CUMBERLAND RIVER
FORK
Paint Cliff

Lloyd (1862)

Huling and Zimmerman

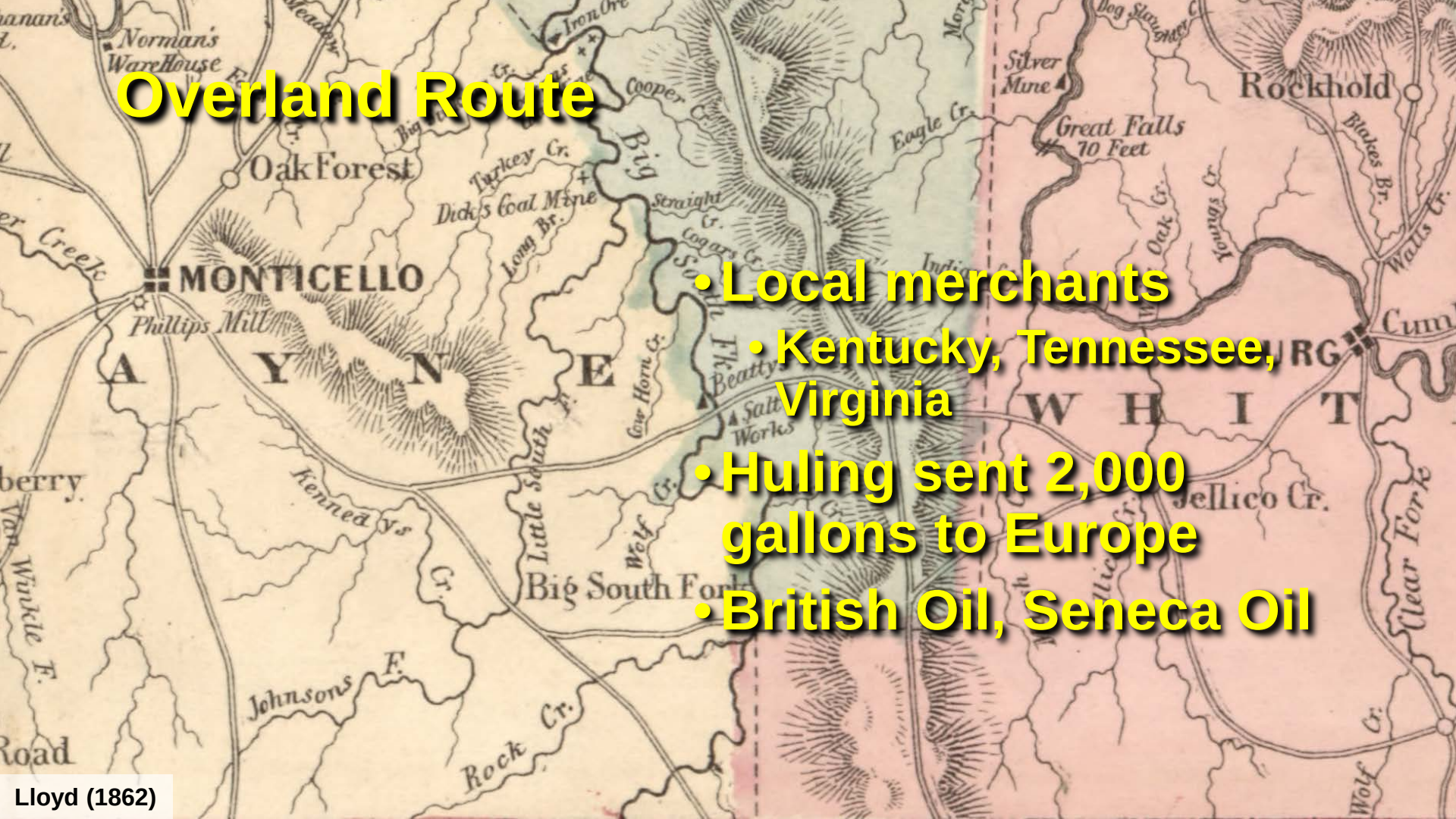
- Got barrels from Beatty
- Arranged with local fishermen to construct a dugout boat



Big South Fork looking downstream from confluence with Oilwell Branch

Devils Jump

- Twice met disaster trying to ride floods through the narrows



- Local merchants
  - Kentucky, Tennessee, Virginia
- Huling sent 2,000 gallons to Europe
- British Oil, Seneca Oil

The Well Runs “Afowl”…

Several women of Wayne County, who made their living selling goose feathers, prevailed upon the Sheriff to subpoena Martin Beatty and Marcus Huling to appear and answer a suit for damages caused by the oiling of their geese each time the animals took to the water, thus ruining the feathers.

Jillson (1952)

Martin Beatty

- Kentucky Senate: 1824-28 and 1832
- Presidential elector
  - 1832 – Clay and Sergeant
  - 1836 – Harrison and Granger
- Member 23rd Congress: 1833-1835
- Kentucky House of Representatives: 1848
- Moved to Texas (farming)
- Died 1856, age 72

Permit N1790 Plugged 28-Nov-2011

Photo by Marvin Combs

Thank you!

Brandon C. Nuttall
bnuttall@uky.edu

Kentucky Geological Survey

Selected References

Billingsley, J.E., 1949, Early development of drilling practices in Kanawha County, West Virginia, *in* Ziebold, W.T., ed., Appalachian Geological Society 1949 Bulletin, v. 1: Charleston, West Virginia, Appalachian Geological Society, p. 1-7.

Brantly, J.E., 1961, Percussion-drilling system, *in* Carter, D.V., ed., History of petroleum engineering: Dallas, Texas, American Petroleum Institute, p. 133-269.

Evans, L., 1755, A General Map of the Middle British Colonies in America: scale ≈ 1:2,250,000. (https://lccn.loc.gov/gm71005449)

Giddens, P. H., 1938, The birth of the oil industry: New York, The Macmillan Company, 216 p.

Jillson, W.R., 1952, The first oil well in Kentucky; notes on the history, geology, production and present status of the Beatty oil well, drilled in Wayne, now McCreary County, Kentucky, in the year 1818: Frankfort, Ky., Roberts Print. Co., 51 p.

Lloyd, J.T., 1862, Lloyd's official map of the State of Kentucky: scale ≈ 1:506,880 (https://lccn.loc.gov/99447352)

Lucas, F., 1817, A new and elegant general atlas containing maps of each of the United States: Baltimore, scale ≈ 1:296,000 (https://lccn.loc.gov/84675228).

McLaurin, J.J., 1896, Sketches in crude oil, some accidents and incidents of the petroleum development in all parts of the globe: Harrisburg, Pennsylvania, John James McLaurin, 406 p. (reprinted 1999)

Murphy, R.E., and Miller, R., 1928, Reconnaissance map of the structural and areal geology of McCreary County, Kentucky: Kentucky Geological Survey, Series 6, scale 1:63,360.

Nuttall, B.C., 2014, Of Kentucky, salt, and oil: a history of early petroleum finds along the Cumberland River: Oil-Industry History, v. 15, no. 1, p. 67-80.

Orton, E., 1891, Report on the occurrence of petroleum, natural gas and asphalt rock in western Kentucky, based on examinations made in 1888 and 1889: Frankfort, Kentucky, Kentucky Geological Survey, Series 2, 233 p. (vol. E).

Proctor, J.P., 1882, Map of Kentucky from eclectic geographies: Kentucky Geological Survey, Van Antwerp, Bragg, and Co., scale 1:679,000.

Tuttle, J.W., ca 1890s, The Beatty Salt Well, *in* Johnson, A.P., 1939, A century of Wayne County, Kentucky: Standard Printing Co., Louisville. (http://genealogytrails.com/ken/wayne/chapter_4.html)

White, I.C., 1904, Petroleum and natural gas precise levels, v. One A: Morgantown, West Virginia, West Virginia Geological and Economic Survey, 28 p.