

THE MYSTERY OF HISTORY — JUNE 3, 2019

WHAT'S IT?



Fig. 1 (left): View showing layers. PHOTO: © 2018 Richard W. Black

Fig. 2 (above): Side view. PHOTO: © 2018 Richard W. Black



Fig. 3 (above): Close up view. PHOTO: © 2018 Richard W. Black

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WHAT'S IT?**ARTIFACT 19-02****SPECIFICATIONS:**

Four layers of six interlocking wood pieces (six in each layer, a total of 24 wood pieces in the wheel itself, this doesn't account for the two wood pieces that make up the circular clamp. Weight = 2.37kg (5.22lb.); Circumference of wheel = 62.2cm (24.5"); Circumference of inner circular clamp = 24.1cm (9.5"); Diameter of wheel = 30.5cm (12"); Diameter of inner circular clamp = 7.6cm (3"); 2-Square-head bolts, 13cm long (5.25").

CLUES:

This artifact was discovered in a barn that was built in the 1870's. There is a lot of history and a lot of mystery in this wheel. We are wheely looking forward to the thoughts rolling around in your head!

QUESTIONS:

This well used artifact employs the magic of simple machines. The wheel allows us to change the directional magnitude of force, or, in layman's language, it makes work easier. A slew of questions are rolling out:

- What work do you think this wooden wheel did?
- How were the individual pieces of the wheel cut?
 - What's the device in the center of the wheel?
 - Why are the wood pieces layered the way they are?
- What caused the different colors on the outside facing of the wheel?
- The biggest question of all is: Who invented the wheel?

ARTIFACT 19-02**ANSWER:**

This artifact is an elegantly engineered power transfer simple machine, a wheel. When examined up close, there are several clues that provide an approximate time frame that the wheel was used and how it transferred power.

Continued...

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The skill set needed to create the four-layered, 24 piece wooden wheel and the 2 piece clamping device that secured the wheel to a spindle, were present long before the primary power source. One of the more curious aspects of the wheel are the 24 interlocking curved pieces of hardwood that make it up—the elegant part of the artifact. To shape or curve wood, the wood worker cut and notched 24 linear/straight pieces of wood to the same length. The wood would then be “steamed” in a steam box to make it pliable (easier to bend) and put into a form that would hold it at the desired arc—calculated by a formula involving the radius and central angle of the wheel’s desired circumference. The form was usually a flat piece of wood in which nails were arranged to create an arc that was 1/6th of the circle (each of the 4 layers of the wooden wheel is made up of 6 pieces). Once the wood dried in it’s arc form, it hardened.. As all 24 pieces were made ready, the notched interlocking pieces were glued together one circle-slab at a time. The slabs were glued together in a joint-alternating pattern so the no 2 joints of the slabs ever lined up—this provided extra strength to the wheel. A spindle clamp was fixed inside the wheel and it was ready to perform its’ energy-transfer function.

The wheel was used to transfer power from a hit and miss engine via a belt strap. When you look at the wheel’s exterior surface, it appears to have been burned. The black burn-like color was caused by friction-heat when the strap ran across the for-whatever-reason slowed or stopped wheel. If the machinery the

wheel was transferring energy to malfunctioned—got jammed for example—the belt would keep spinning around the wheel and cause enough friction-heat to scorch the wood. Some of the machinery the wheel could have been used with included circular saws, pumps, conveyors, presses, etc.

So, the wheel transferred power from a one-stroke engine by using a strap. These first engines became available in the 1890s. The first power transfer wheels were made of wood, but as the process of making iron and steel improved, power transfer wheels made of metal replaced wooden wheels like our friend, the artifact seen in this document. This curious artifact detective would guess the this wheel was used between 1890-1920. What do you think?

Thanks for participating in our “What’s It?” guessing contest! Following are the answers we received to date.

AND THE BEST GUESS IS

Ron Wood Pulley for a belt drive machine—most likely a leather belt drive.

REALLY INTERESTING GUESSES

Carl Gouveia Piece of butter churner—holds the shaft of the churning stick in place OR from a grape press—holds the shaft of the press in place.

Perri Johnson I think it is a torture machine

Alan Van Eecke “Brake Drum” for wagon wheels.

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WHAT'S IT?**BACKGROUND**

“WHAT’S IT?” has been a feature of the BCM website since its inception in 2007. In 2017 Brockport Community Museum board member Archer “Buck” Noble, a Brockport Central School District teacher (now retired) developed “The Mystery of History” school project that encouraged fourth and fifth grade students to use observational and investigative techniques to help determine the type and use of different historic artifacts.

That project was introduced to the general public during a Brockport Community Museum outreach presence at the 2017 Brockport Sidewalk Sale. That success led to this collaboration between the Brockport Community Museum, Seymour Library and Brockport Central School District.

GET INVOLVED

- **Take your best guess** regarding the current artifact.
- **Do you have an artifact** you would like to know more about? Open your query to a larger audience.
- **Have a suggestion** about how we can improve this project?

If so...

Leave your contact information in “Ye old prediction box” near the exhibit display.

CREDITS*Museum project committee*

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