

This 2,400-year-old bark shield took a beating in an Iron Age fight

Enlarge / This is what the shield looked like after being excavated and conserved.

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When they found the shield, University of York archaeologists Michael Bamforth and his colleagues thought it must have been ceremonial, because surely bark couldn't hold up against heavy iron-tipped spears and iron axes. After all, every other Iron Age shield archaeologists have found in Europe so far has been made of wood or metal. But it turned out that the tough, springy bark would have been perfectly capable of repelling arrows. Its lightness may even have made an Iron Age warrior more agile on the battlefield.

Welcome to the Iron Age; we've got swords and spears

By around 400 BCE, even small villages across Britain surrounded themselves with ditches, embankments, and palisades. At farmsteads scattered between villages, people grew wheat and barley or herded sheep and cattle. Local or regional chiefs ruled these farming tribes. No written sources tell us how often fighting broke out or whether the bearer of

this shield would've seen more action in cattle raids or in pitched combat, but the palisaded settlements hardly suggest a peaceful, bucolic landscape.

"It is debatable how much fighting there would have been between these groups," Bamforth told Ars. "However, the Iron Age is a time of increasing personal wealth and power, and one imagines that violence may have erupted over access to resources, trade, and all the other things that groups of people fight about today."

Most of that Iron Age fighting would have been done with iron swords or axes, or iron-tipped spears on long, heavy wooden shafts. You'd be crazy to hide behind flimsy tree bark if you were going up against all that, right? Most of the shields archaeologists have unearthed at other Iron Age sites across Europe are made from heavy, solid wood or metal.

It must have a "Stark Industries" logo somewhere

Archaeologists working at the Everard Meadows site, south of Leicester in the UK, found the bark shield buried in the mud of a livestock pond. Made of willow or alder bark (microscopic analysis couldn't narrow the species down any further), it had the same elongated shape, slightly narrowed at the waist, as wood and metal shields from the same period.

Radiocarbon dating suggests that sometime between 395 and 255 BCE, the shield's maker peeled a strip of bark several feet wide right off the trunk of a willow or alder tree. They then folded it in half, with the inside of the bark facing out (freshly peeled bark is surprisingly flexible stuff). Small, flat strips of wood inserted between the layers helped strengthen the shield, as did a strip of hazel-wood trim around the edges. The result was about 10mm (0.39 inches) thick, 67cm (26.38 inches) tall, and 37cm (14.6 inches) wide.

2,400 years later, we can only guess at the meaning of the checkerboard pattern etched into the surface of the bark, painted red with pigment from the iron-rich mineral hematite.

- The mud layers where the shield was found were once an ancient livestock watering pond.
- This is what the shield looked like after being excavated and conserved.
- This replica suggests what the shield would have looked like in its prime.
- Traces of red pigment still cling to the surface of the shield.
- An iron spear tip probably punched this hole in the shield 2,400 years ago.

“Finding this shield has taught us a huge amount about Iron Age technology that we didn’t know before,” Bamforth told Ars. “The shield is a hugely complex composite artifact that uses a series of different elements in conjunction with one another to produce a light-weight but effective shield. This item represents one of the most complex artifacts excavated from the time.”

Bark shields aren’t totally unprecedented. Julius Caesar, writing a few centuries later, described Gallic warriors on the European mainland using bark shields covered with animal hides. And people in Australia, Borneo, and the Philippines have also used bark shields at various times. Because bark doesn’t often last very long when it’s buried, however, it’s almost entirely absent from the European archaeological record, so modern archaeologists can’t be sure how common bark shields might have once have been.

When it doubt, hit it with a sword

Bamforth and his colleagues decided that there was only one way to truly understand how well the shield would have held up

in combat: they built their own and shot it with arrows. "As the bark of the shield dried and bent into its final shape, we realized how strong it would be. The bark, which had been soft and easy to cut when 'green' (wet still from being part of a tree) rapidly stiffened up," explained Bamforth. "We shot some arrows from a wooden bow and were surprised to see them bouncing off."

University of Leicester archaeologists Rachel Crellin and Matt Beamish are in the process of testing heavier weapons, like iron-tipped spears and iron swords, against the design. The original shield seems to have sustained quite a few blows in its day. According to Crellin, a spear point seems to have punched a jagged elliptical hole in the shield, and several groups of parallel cuts seem to mark where edged weapons struck the shield and bounced off.

"It's entirely possible that this artifact was chucked in the hole because it was broken and no longer needed—think ancient fly-tipping," suggested Bamforth (fly-tipping is a common UK term for illegal garbage dumping). But in the aftermath of battle, Iron Age people across Britain and northern Europe often ritually broke captured weapons and shields and then placed them in lakes or bogs. Crellin's experiments may shed some light on whether the shield got smashed up in battle or in a ritual, but until then, archaeologists can't rule out either possibility.

If the shield did see use in battle, however, its light weight may have been an advantage. The archaeologists' replica weighed just 0.6kg (1.3 pounds), around a quarter of a wood shield's weight. That could have offered the shield's bearer greater speed, endurance, and agility on the battlefield. And if the shield was also sturdy enough to stand up reasonably well against spears and swords—even if not quite as well as a heavier shield—the trade-off might have been worth it.

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