Sideline: Named for the fish-shaped bay it borders, Sturgeon Bay was settled in 1850 when the first house was built along the waterfront.

Blades Are His Trade

This blacksmith turned swordsmith is world respected in an ancient craft.

By Tina Gohr, Kewaunee, Wisconsin

"TO MAKE a weapon from dirt is a pretty powerful thing."

So says blacksmith Ric Furrer in the documentary *Secrets of the Viking Sword*, produced by National Geographic Television. The PBS program was first broadcast on NOVA in 2012; it has aired often since.

This Sturgeon Bay blacksmith is now so famous that he travels the world to speak about blade making. Students from as far away as Brazil and Australia come to his Wisconsin shop to learn.

Ric uses modern steel to make decorative gates and railings as well as precision stonecutter's tools. But he uses iron ore, coal and sand to smelt his own steel to make blades, and it was his blade-making reputation that led NOVA to call him at Door County Forgeworks.

They challenged Ric to re-create the Viking Ulfberht sword, the supreme weapon of its time. Only a few elite warriors carried this high-tech weapon into battle from 800 to 1000 AD.

Strong, light and flexible, the sword was made of steel far advanced from the soft iron of the medieval era. Only a few skeletal remnants of Ulfberht swords exist. How did the early swordsmiths get their hands on such superior steel? The secrets of this weapon's construction were lost for 1,000 years…could a modern blacksmith re-engineer it and unlock the mystery?

It wasn't easy. Even the Vikings' rivals didn't know how to make these swords.

Ric joined forces with scientists, chemists and historians from around the globe to uncover the metallurgical mysteries. Involved, too, was the world's largest steel company.

Some Work Lay Ahead

This was a process of reverse engineering for a modern-day blacksmith, and it was daunting. It required 350 hours to build the perfect sword from a pure steel ingot using a replicated ancient oven stoked to 3,000 degrees.

SHARP AT HIS CRAFT. That's Ric Furrer above with a Viking warrior sword called an Ulfberht. At right, he guides student Greg Stolpe of Duluth in placing a hot ingot on an anvil. It will be hammered into a blade.

Nearly 20 hours of pounding with a hammer was required just to convert the wad of pure steel into a blade. One mistake during this 6 to 8 weeks and Ric would have to start over.

"The blade was a coming together of various skills I'd cultivated over the years," Ric recalls. The recipe itself was simple. Iron ore is found in the ground. The trick is to add carbon from charcoal to the iron. But not all steel is created equal.

The steel within the Ulfberht blade is high-carbon or crucible steel made by melting iron at temperatures much higher than those used by early swordsmiths. High heat melts away slag (impurities) that makes steel brittle.

Ric's finished Ulfberht Sword weighs around 2 pounds, the same as a baseball bat. He turned down an offer of $20,000 for the piece, which is not for sale, but he does take orders for similar swords.

SPARKS FLY as Ric finishes a knife blade. Students Greg Stolpe (center) and David Wise of Indianapolis watch. At right, Ric stokes an oven that's melting iron ore, sand and charcoal in ceramic crucibles. It will reduce into a steel ingot to be forged into blades.

Ric's wife, Beth Lokken, helped research the Viking story; she's a librarian in Sturgeon Bay. With their two boys, Henry, 10, and Bjorn, 14, they live a quiet life amid the hay and bean fields of Door County. The couple met at UW-Madison in 1989, where Ric studied history with an eye to become a high school teacher.

It was Beth's father, Orrin Lokken, a gunsmith and blacksmith from Fitchburg, who taught his future son-in-law the hobby that became his profession. Orrin introduced Ric to Paul Marx of Madison, who immersed him in blade making.

From the Ground Up

Now Ric teaches others to create blades from ore, sand and charcoal. He's one of very few in the United States who offers steel-making classes from raw material to finished product.

One of his classes, "Wootz Crucible Steel", results in 8- to 12-inch blades. Student David Wise of Indianapolis designed a steak knife in his weeklong class.

"Here you make the steel, then the knife," David says. "In other classes, they hand you the steel first."

"People get to play with fire for a week here," Ric laughs. "We use fire as a tool. I teach people how to do it safely."

This year, Ric will travel to the Himalayan kingdom of Bhutan to help rekindle the ancient sword-making tradition there. It's being practiced by a lone swordsmith now. Ric is going at the request of the king—one more crowning achievement for Wisconsin's sharpest blade maker.

For information, check online at *doorcounty forgeworks.com* or call 920/824-5755.