

# Were skeletons from Waterloo and U.S. soldiers dug up for fertilizer?

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Retropolis

## Were bones of 1800s battlefield dead dug up for fertilizer and sugar?



5 min

An archaeological excavation of a human skeleton at Mont-Saint-Jean, Belgium, part of the site of the Battle of Waterloo. (Vincent Rocher/AwaP)

By Dave Kindy

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correction

An earlier version of this article implied that Robin Schäfer said around 130,000 French and Allied soldiers died in battles around Waterloo. In fact, he was referring to a battle in Frankfurt, Germany. In addition, the article overstated Schäfer and Bernard Wilkin's contention that bones were stolen for use as fertilizer. While their book does list fertilizer as a use for the bones, they believe bones were more often used for sugar production. This version has been corrected.

Through swirling smoke from cannon and musket fire, Marshal Michel Ney squinted at the center of the English line at Waterloo. It was June 18, 1815, and the French commander could see British regiments leaving the field.

Ney ordered some 12,000 heavy cavalry troops to charge the Duke of Wellington's position in hopes of routing his army. But Napoleon's second-in-command had misread the situation. As French cuirassiers crested a hill, they were met with fire from British regiments. Thousands of French mounted soldiers died in the charge, along with hundreds of English troops. After the battle, most were buried where they fell or in mass pits.

Today, archaeologists surveying Waterloo ask an important question: Where are all those bodies?

Since 2012, only two skeletons have been found at the famous battlefield in Belgium. An estimated 20,000 soldiers died that day, but very few graves have been discovered during active archaeological searches in the past two decades.

A new book posits a disturbing theory about what happened to all the skeletons: They were dug up and used as raw materials in factories.



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Historians [Bernard Wilkin](#) of Belgium and [Robin Schäfer](#) of Germany contend the bones of the dead at Waterloo — and those of many other battles across Europe, Africa and even the United States — may have been ground up to produce fertilizer for agriculture and to filter sugar. It's a practice that can best be described as industrial-scale grave robbing.

[“Bones of Contention: The Industrial Exploitation of Human Bones in the Modern Age”](#) examines the removal of hundreds of thousands of skeletons from battlefields and graveyards, largely in the 19th century. That practice is believed to have continued into the 20th century, when bones of the dead from World War I — including those of Americans — may have been exhumed for industrial use.

“We know for a fact that there was illegal digging in France after that war,” Wilkin said in an interview. “It’s very probable that American bones went to factories, too.”

For decades, there have been rumors that the bones of soldiers killed at Waterloo were dug up for use in industrial processes. A few years ago, Wilkin and Schäfer began investigating the claim, poring over newspaper archives, manuscripts and letters in museums. They discovered numerous references to the practice — even reports of legislation by governments to restrict the shipment of human bones to factories and mills.

“The evidence was overwhelming,” Schäfer said in an interview. “We were finding it reported in local sources, even with the police.” He added, “It was not something that was really discussed even then because it was illegal and frowned upon.”

Schäfer also cited missing skeletons from other battlefields of the era, such as one in Frankfurt, Germany. “When you factor in all the casualties and sick soldiers who died in hospitals, there were maybe 130,000 French and Allied soldiers who died there,” he said. “Archaeologists found a large number of empty pits but didn’t know why they had been emptied.”

Bones were valuable because they could be ground up for industrial and agricultural uses, including as bone meal for farmers’ fields. It wasn’t just human bones: An estimated 500,000 to 1 million horses died at Waterloo and in other battles of the Napoleonic Wars, and their remains were plundered, too.

In the 1830s, the production of sugar from beets became economically viable. The process involved the use of spodium — bones that have been converted to charcoal through incomplete combustion — to filter sugar from the beets. As the demand for sugar soared, the available supply of animal bones plummeted.

As a result, the excavation of battlefields seems to have accelerated. Wilkin and Schäfer wrote that they “discovered a trend in the exploitation of human skeletal remains that went far beyond the Napoleonic Wars. There were cases of exhumed skeletons of mediaeval plague victims and deceased parishioners in Britain, soldiers from the American Civil War and victims of the First World War.”

“Waterloo was just the tip of the iceberg,” Wilkin said. “The scale of this must have been enormous.”

So who was taking all these human skeletons? Wilkin and Schäfer believe it was mostly poor people just trying to survive. They were likely encouraged to do so by industrialists who turned a blind eye to the source of their supplies.

“There was gold in the ground,” Wilkin says. “All they had to do was dig not even a meter.”

The book includes a letter penned anonymously by “a living soldier” from an 1822 issue of the Times of London:

It is estimated that more than a million of bushels of human and inhuman bones were imported last year, from the continent of Europe, into the port of Hull. The neighborhood of Leipsic, Austerlitz, Waterloo, and of all the places where, during the late bloody war, the principal battles were fought, have been swept alike of the bones of the hero and of the horse which he rode.

Another article discovered in an 1879 Prague newspaper stated: “With honey, you don’t risk having your great-grandfather’s atoms dissolved in your coffee one fine morning, which is possible with sugar.”

The practice also seems to have been adopted in the United States. During the Civil War, many of the estimated 700,000 soldiers who died were buried in mass graves. An 1867 article in the Delaware State Journal includes an eyewitness account:

The first sight that greeted my eyes at Manassas Junction was a forcible reminder of the war. Two huge piles of bones — horse bones, cattle bones, and, sad to say human bones intermingling — lay whitening right in front of the hotel. They are picked up off the battlefield by the owner of the soil, and carried here for shipment by the cars, to be ground into fertilizers at some mill at Baltimore.

More research is needed to determine how widespread this practice was in the United States, according to Wilkin and Schäfer.

The use of bones in industrial production ebbed in the 20th century, when modern chemical alternatives were introduced.

The two historians plan to continue researching the exploitation of human bones, especially in relation to Waterloo. Wilkin has a personal connection to the battle that ended Napoleon's reign as emperor of France.

"By extraordinary coincidence, my own ancestors were farmers on the battlefield of Waterloo," he said. "Perhaps they robbed graves."

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