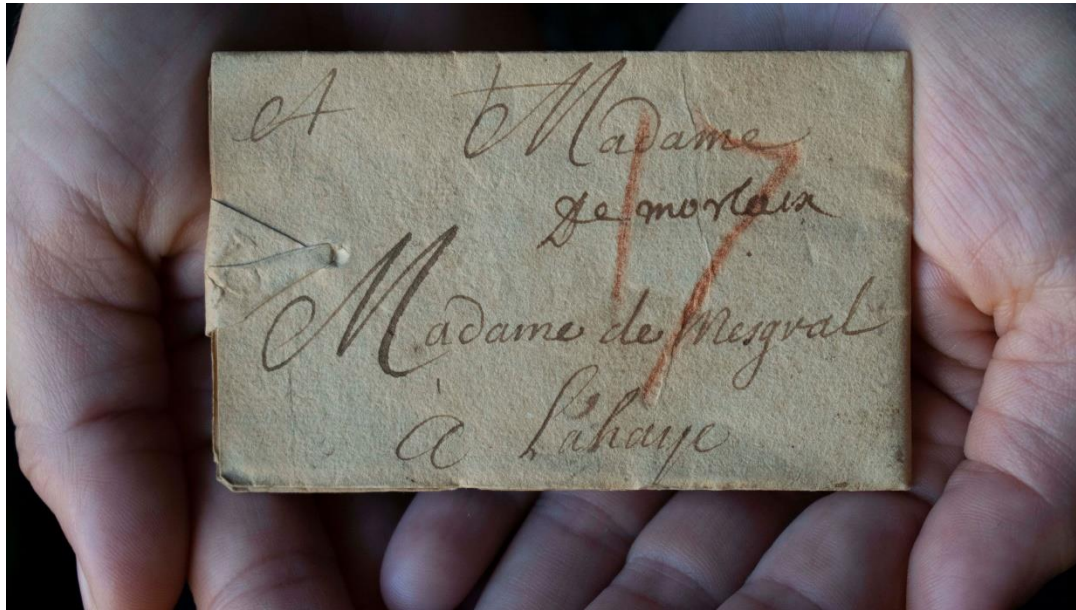**Rare 'locked' letter sealed 300 years ago is finally opened virtually**

Updated 2nd March 2021

Credit: Courtesy of the Unlocking History Research Group archive

Written by By [Katie Hunt](#), CNN

Three hundred years ago, before envelopes, passwords and security codes, writers often struggled to keep thoughts, cares and dreams expressed in their letters private.

One popular way was to use a technique called letter locking -- intricately folding a flat sheet of paper to become its own envelope. This security strategy presented a challenge when 577 locked letters delivered to The Hague in the Netherlands between 1689 and 1706 were found in a trunk of undelivered mail.

The letters had never reached their final recipients, and conservationists didn't want to open and damage them. Instead, a team has found a way to read one of the letters without breaking its seal or unfolding it in any way. Using a highly sensitive X-ray scanner and computer algorithms, researchers virtually unfolded the unopened letter.

This is a computer-generated unfolding sequence of a sealed letter from 17th-century Europe. Virtual unfolding was used to read the letter's contents without physically opening it. Credit: Courtesy of the Unlocking History Research Group archive

"This algorithm takes us right into the heart of a locked letter," the research team said in a statement.

"Sometimes the past resists scrutiny. We could simply have cut these letters open, but instead we took the time to study them for their hidden, secret, and inaccessible qualities. We've learned that letters can be a lot more revealing when they are left unopened."

The technique revealed the contents of a letter dated July 31, 1697. It contains a request from Jacques Sennacques to his cousin Pierre Le Pers, a French merchant in The Hague, for a certified copy of a death notice of Daniel Le Pers.

Written in French, the letter was translated into English as part of the study. There is some missing text that the researchers said was likely due to wormholes in the paper.

Dear sir & cousin,

It has been a few weeks since I wrote to you in order to ask you to have drawn up for me a legalized excerpt of the death of sieur Daniel Le Pers, which took place in The Hague in the month of December 1695, without hearing from you. This is f...g I am writing to you a second time in order to remind you of the pains that I took on your behalf. It is important to me to have this extract you will do me a great pleasure to procure it for me to send me at the same time news of your health of all the family.

This 17th century trunk of undelivered letters was bequeathed to the Dutch postal museum in The Hague in 1926. A letter from this trunk was scanned by X-ray microtomography and virtually unfolded to reveal its contents for the first time in centuries. *Credit: Courtesy of the Unlocking History Research Group archive*

I also pray that God maintains you in His Sainted graces & covers you with the blessings necessary to your salvation. Nothing more for the time being, except that I pray you to believe that I am completely, sir and cousin, your most humble & very obedient servant,

Jacques Sennacques

The details may seem prosaic, but the researchers said the letter gives fascinating insight into the lives of ordinary people -- a snapshot of the early modern world as it went about its business.

The researchers said that Sennacques, a legal professional in Lille, required an official death certificate for his relation Daniel Le Pers, perhaps due to a question of inheritance. It's not known why Le Pers did not receive Sennacques' letter, but given the itinerancy of merchants, the study said it was likely that LePers had moved on.

The trunk of correspondence belonged to a [postmaster called Simon de Brienne](#) and his wife, postmistress Marie Germain. It was acquired by the Museum voor Communicatie in The Hague in 1926.

In addition to the unopened letters, it contains 2,571 opened letters and fragments that for one reason or another never reached their destination.

At that time, there was no such thing as a postage stamp and recipients, not senders, were responsible for the postal and delivery charges. If the recipient was deceased or rejected the letter, no fees could be collected and the letters weren't delivered.

A new way to mine historical documents

The X-ray scanners were originally designed to map the mineral content of teeth and have been used in dental research -- until now.

"We've been able to use our scanners to X-ray history," said study author David Mills, a researcher at Queen Mary University of London, in a statement.

"The scanning technology is similar to medical CT scanners, but using much more intense X-rays which allow us to see the minute traces of metal in the ink used to write these letters. The rest of the team were then able to take our scan images and turn them into letters they could open virtually and read for the first time in over 300 years."
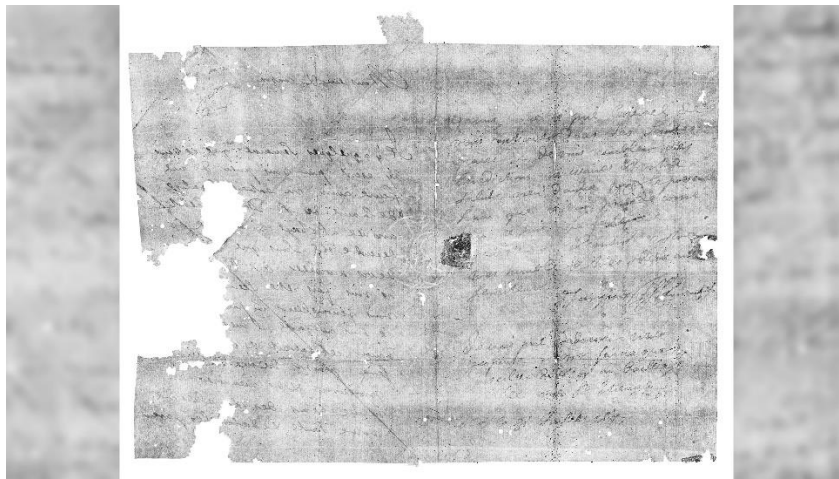
The letter contains a message from Jacques Sennacques dated July 31, 1697, to his cousin Pierre Le Pers, a French merchant. Also visible is a watermark in the center containing an image of a bird. *Credit: Courtesy of the Unlocking History Research Group archive*

The new technique has the potential to unlock new historical evidence from the Brienne trunk and other collections of unopened letters and documents, the study said.

One tantalizing application could be to virtually unfold sealed items and letters in the [Prize Papers](#) -- an archive of documents confiscated by the British from enemy ships between the 17th and 19th centuries.

"Using virtual unfolding to read an intimate story that has never seen the light of day -- and never even reached its recipient -- is truly extraordinary," the researchers said in the statement.

The research was published in the journal Nature Communications on Tuesday.

Top image: This rare unopened letter with a paper lock is from the Brienne Collection in The Hague, Netherlands. Virtual unfolding algorithms helped to determine the locking technique without tearing open the artifact.