

Invisible Ink

George Washington received a letter from John Jay, written November 19, 1778,

This will be delivered by my Brother, who will communicate & explain to your Excellency a mode of Correspondence, which may be of use, provided proper agents can be obtained. I have experienced its Efficacy by a three Years Trial. We shall remain absolutely silent on the Subject. I have the Honor to be with the highest Esteem & Respect Your Excellencys most obedient Servant
John Jay

John Jay was a Founder, delegate from New York to the First and Second Continental Congress (and served as President of the assembly from December 10, 1778 to September 28, 1779), served as the second Secretary of Foreign Affairs until the office was changed to 'Secretary of State,' wrote several of the Federalist Papers, signer of the Treaty of Paris, Second Governor of New York and First Chief Justice of the United States.

James Jay, the brother of John Jay (referred to in John Jay's letter above), was a physician practicing in England at the time, created a chemical solution out of tannic acid to be used as an invisible ink, and supplied quantities of the stain to the colonists.

George Washington himself instructed his agents in the use of what was referred to as the 'sympathetic stain,' noting that the ink "will not only render ... communications less exposed to detection, but relieve the fears of such persons as may be entrusted in its conveyance."

Washington suggested that reports could be written in the invisible ink "on the blank leaves of a pamphlet ... a common pocket book, or on the blank leaves at each end of registers, almanacks, or any publication or book of small value."

James Jay studied and practiced medicine in Great Britain from the 1750s until the outbreak of the Revolutionary War. He developed his invisible ink in 1775 and used it throughout the war in correspondence with his brother. He never disclosed the recipe, and although he exported small quantities to America for use in the Culper spy ring, it always remained in short supply.

A correspondent would write a letter using the ink on white paper, and the recipient would apply a reagent in order to read it. George Washington used the code word "medicine" to refer to the 'sympathetic stain' in his future correspondence with James Jay.

Espionage was an important part of the American Revolution; George Washington sought spies and suggested various forms of communication, including the use of invisible ink in correspondence relating such - as noted in a letter from Washington to Elias Boudinot on May 3, 1779, that stated, in part,

It is a matter of great importance to have early & good intelligence of the enemys strength & motions—and as far as possible, designs. & to obtain them through different channels. Do you think it practicable to come at these by means of—? [an apparent name of person – some suggest it was Lewis Pintard]

I shall not press it upon him; but you must be sensible that to obtain intelligence from a man of observation near the head Quarters of an army from whence all orders flow & every thing originates must be a most desirable thing.

The person rendering such Service will entitle himself not only to thanks but reward, at a proper season.

If —— [again, the name of a person] is inclined to engage in a business of this kind, I shall leave it to you and him to fix upon such a mode of corrisponding as will convey intelligence in the most speedy—safe—& effectual manner—

To guard against possible evils, your corrispondence might be under fictitious names—by numbers (to represent men & things)—in characters—or other ways—as you shall agree.

It is in my power, I believe, to procure a liquid which nothing but a counter liquor (rubbed over the paper afterwards) can make legible—Fire which will bring lime juice, milk & other things of this kind to light, has no effect on it.

A letter upon trivial matters of business, written in common Ink, may be filled with important intelligence which cannot be discovered without the counter part, or liquid here mention'd.

I shall add no more on this subject—enough has been said for you to found a negotiation on—at least to hint the matter to the person mentioned, for tryal of his willingness to engage in a corrispondance of this kind. No person but you, he, & I—and such as he shall make choice of to convey the intelligence to you, will be privy to this matter.

Go: Washington (National Archives)



Acquiring intelligence about troop movements, supplies, and battle plans was General Washington's highest priority. Because such field reports could not be overtly communicated to him, placing his agents at great risk, Washington used an 18th-century form of invisible ink known as "sympathetic stain." (History Channel) (Mount Vernon)

Spying and Forms of Communicating

Ciphers and secret codes were used to ensure that the contents of a letter could not be understood if correspondence was captured. In ciphers, letters were used to represent and replace other letters to mask the true message of the missive.

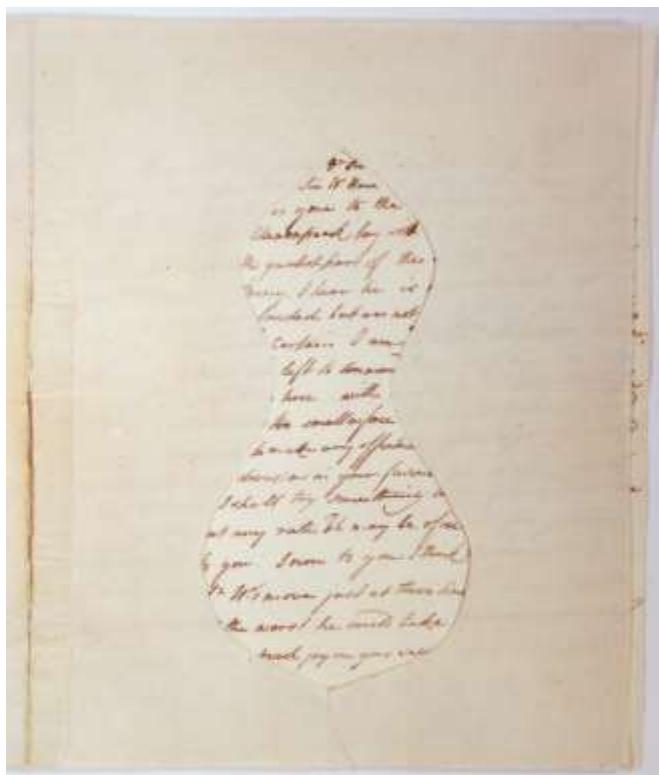
The letter's recipient utilized a key - which referenced corresponding pages and letters from a well-known book, such as Entick's Dictionary - to decode the document's true message. Some spy groups even created their own pocket guide to serve as a cipher's key.

Similarly, some letters were written in intricate secret codes where numbers and special characters replaced letters.

One form of secret writing used by both the British and American armies was invisible ink. During the Revolutionary War invisible ink usually consisted of a mixture of ferrous sulfate and water.

The secret writing was placed between the lines of an innocent letter and could be discerned by treating the letter with heat or a chemical substance. The recipient placed the paper over the flame of a candle or treated it with a chemical reagent, such as sodium carbonate, which would reveal the letter's hidden contents.

The true contents of letters were also hidden through the use of mask letters. These documents were intended to be viewed by a recipient who would place a shaped template over the full letter. The true message of the letter would then appear within the boundaries of the "mask." The letter and the "mask" were usually delivered by separate couriers to ensure that the trick would go undetected.



An Example of a masked letter with the mask over a full page of text – this is a British mask letter from Henry Clinton to John Burgoyne, August 10, 1777 (Mount Vernon and University of Michigan)

Through the mask, the secret message reads,

Sir. W. Howe / is gone to the / Chesapeak bay
with / the greatest part of the / army. I hear he
is / landed but am not / certain. I am / left to
command / here with / too small a force / to
make any effectual / diversion in your favour. /
I shall try something / at any rate. It may be of
use / to you. I own to you I think / Sr W's move
just at this time / the worst he could take. /
Much joy on your success.

British spies placed rolled up letters and small notes into a variety of holsters to hide potentially sensitive information. The hollowed out quills of large feathers that were used as writing utensils, for example, could hide a tightly rolled up letter.

Other materials were used to hide messages, ranging from buttons on a textile to hollowed out small, silver balls.

One particularly unlucky British spy named Daniel Taylor was caught in New Windsor, New York with a message sent from Henry Clinton to John Burgoyne hidden inside one of these small silver balls.

In haste, the spy swallowed the silver ball to avoid detection. However, Patriot soldiers forced the spy to drink a purgative and vomit up the ball. Momentarily undeterred, Taylor grabbed the ball and swallowed it again. Under the threat of being hanged and having the ball cut out of his stomach, Taylor relented. However, Taylor would eventually meet the cruel fate of the gallows, executed on October 16, 1777.

Washington in 1781 was unable to write to Lafayette in Virginia because Lafayette didn't have a cipher and James Moody, a British spy, was consistently stealing Washington's mail. British Generals Burgoyne, Clinton, and Howe, several times during the war, created letters with false information that they hoped would fall into American hands. They hoped the Americans would be deceived by the information.

Black Chamber Operations

James Moody had lived in Sussex County, New Jersey before joining the British. He knew the passes through the mountains that Washington's curriers had to take. He would wait until the courier tried to travel through the pass then he relieved him of their correspondence.

Both sides were able to get one of their spies to be an express rider carrying the mail. David Gray was a courier for the British going from New York City across Long Island through Connecticut to Colonel Samuel Wells, a resident British spy, in Brattleboro, Vermont. He would return through Westchester County, New York but would stop in the Hudson Highlands where Washington would read the mail he was carrying.

The Americans operated Black Chambers (secret offices where sensitive letters were opened and deciphered by public officials) in the Highlands and General Philip Schuyler ran one in upstate New York.

The stamp in the seal would be duplicated, the letter was opened and if needed transcribed, and the letter resealed using the duplicate seal. The French started a Black Chamber operation in 1590. The British operated a black Chamber in the British post office since at least 1732 and since 1765 all diplomatic mail was read.

Washington had set up both New York Black chambers, the one in the highlands and General Schuyler's operation.

A Mr. Fish of the Saratoga area of upstate New York had advised Washington that Moses Harris was to be a British courier of secret correspondence for the British between Canada and Albany. Harris had proposed that Fish should intercept him and take the letters.

Washington had a better idea. If Harris did not deliver the letters he would be suspected and not trusted with future mail. Washington had Harris take the letters to General Philip Schuyler who would open the mail, transcribe them, reseal them, and send Harris with them to their destination.

This would allow Harris to be a trusted courier for the British and the Americans would learn more of the British operation in upstate New York.

Elias Nexsen, a New York City merchant, was asked by the British commander on Staten Island in 1776 to deliver a letter to Royal Governor Tryon who was on board a ship in the harbor. Nexsen, as he put the letter in his pocket, was able to slip his finger under the freshly sealed letter thereby loosening the seal. He took the letter to Washington who read it and resealed it.

He delivered the letter to Tryon. The letter informed Washington that the British were going to attack Long Island which happen on August 27, 1776.

Information here is primarily from US State Department; Mount Vernon Foundation; National Archives; University of Michigan; The Atlantic

In an effort to provide a brief, informal background summary of various people, places and events related to the American Revolution, I made this informal compilation from a variety of sources. This is not intended to be a technical reference document, nor an exhaustive review of the subject. Rather, it is an assemblage of information and images from various sources on basic background information. For ease in informal reading, in many cases, specific quotations and citations and attributions are often not included – however, sources are noted in the summary. The images and text are from various sources and are presented for personal, noncommercial and/or educational purposes. Thanks, Peter T. Young