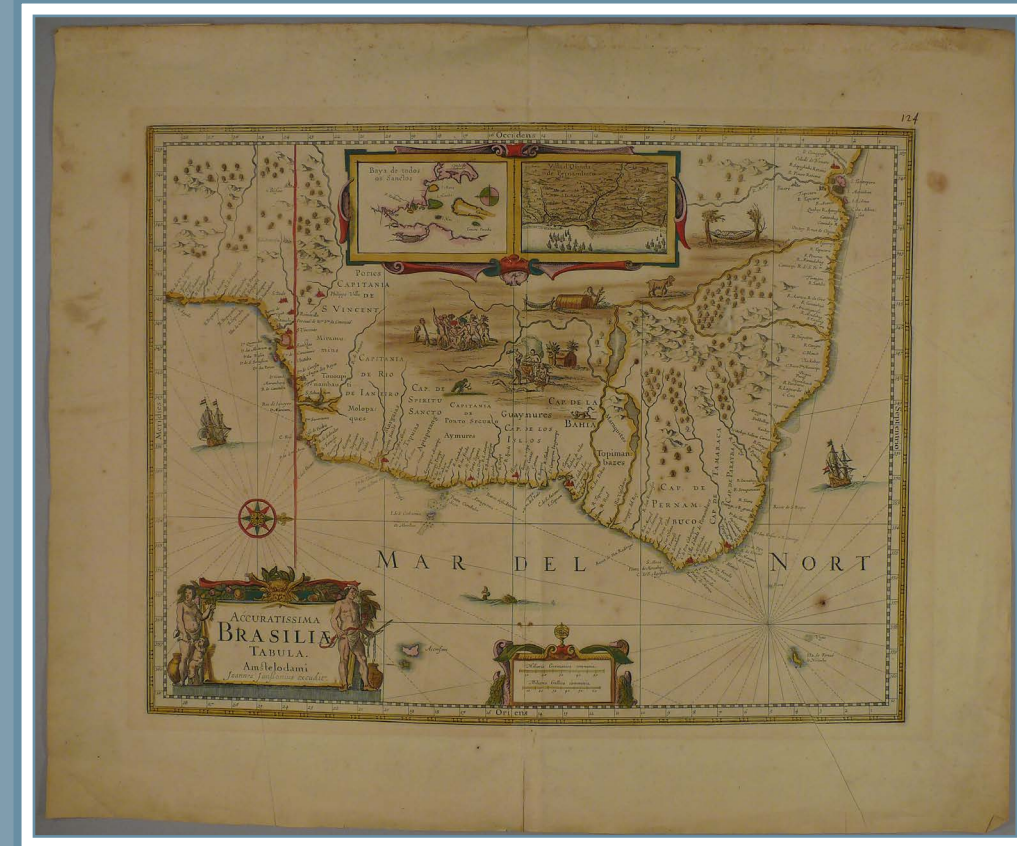


Woodblock and engraving with hand applied pigments  
143cm W x 151.7cm H

DAI NIPPON CHIZU, 1871

ACQUARTISSIMA BRASILEIA, 1630



Black ink etching with hand-colored pigments  
60.5cm W x 50.3cm H

CATUGA & SENECA COUNTIES, NY, 1859



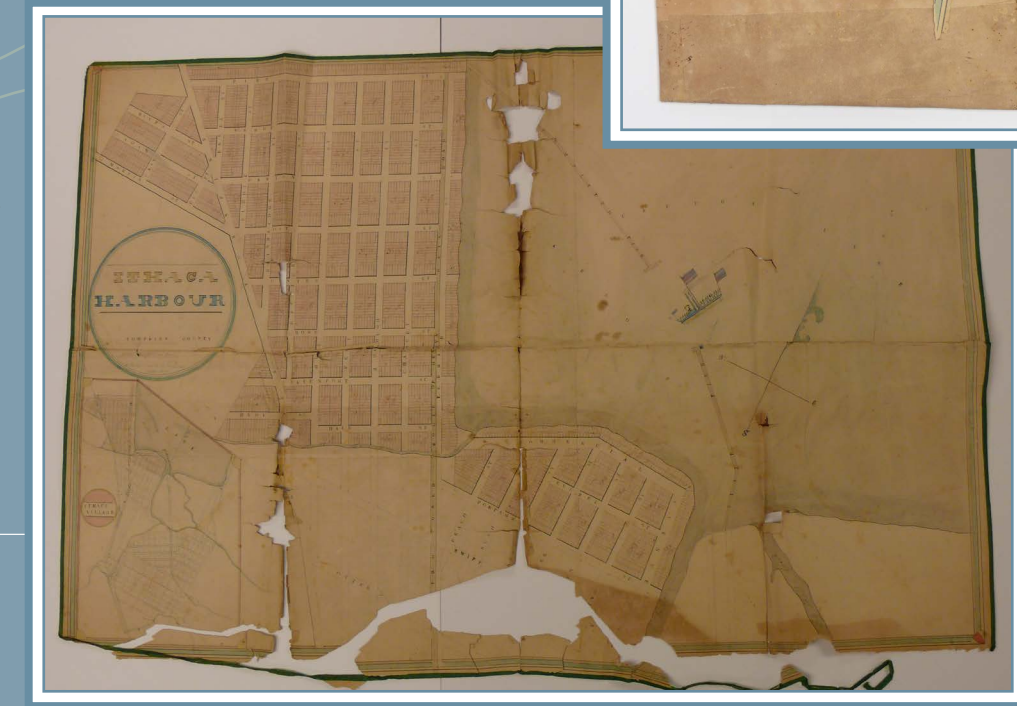
Varnished 19th century lithograph with fabric backing  
148cm W x 151cm H

PERFECT CENTER, 17TH CENTURY



Black ink etching  
60cm W x 50.1cm H

ITHACA HARBOUR, 19TH CENTURY



Hand-drawn and colored map  
105cm W x 70cm H

TOMPKINS COUNTY, NY, 1853



Varnished 19th century lithograph backed with fabric  
149cm W x 108cm H

# THE TOPOGRAPHY OF TREATMENT: Maps in the Conservation Lab

STABILIZATION

DISASTER



Before treatment: surface distortion caused by folded storage

Folded storage of flat materials leaves horizontal and vertical creases in the support material. With use, these areas become worn and prone to tear—most often where a vertical and horizontal crease intersect. Additionally, folds leave the item with surface distortions that hinder the item to lay flat.

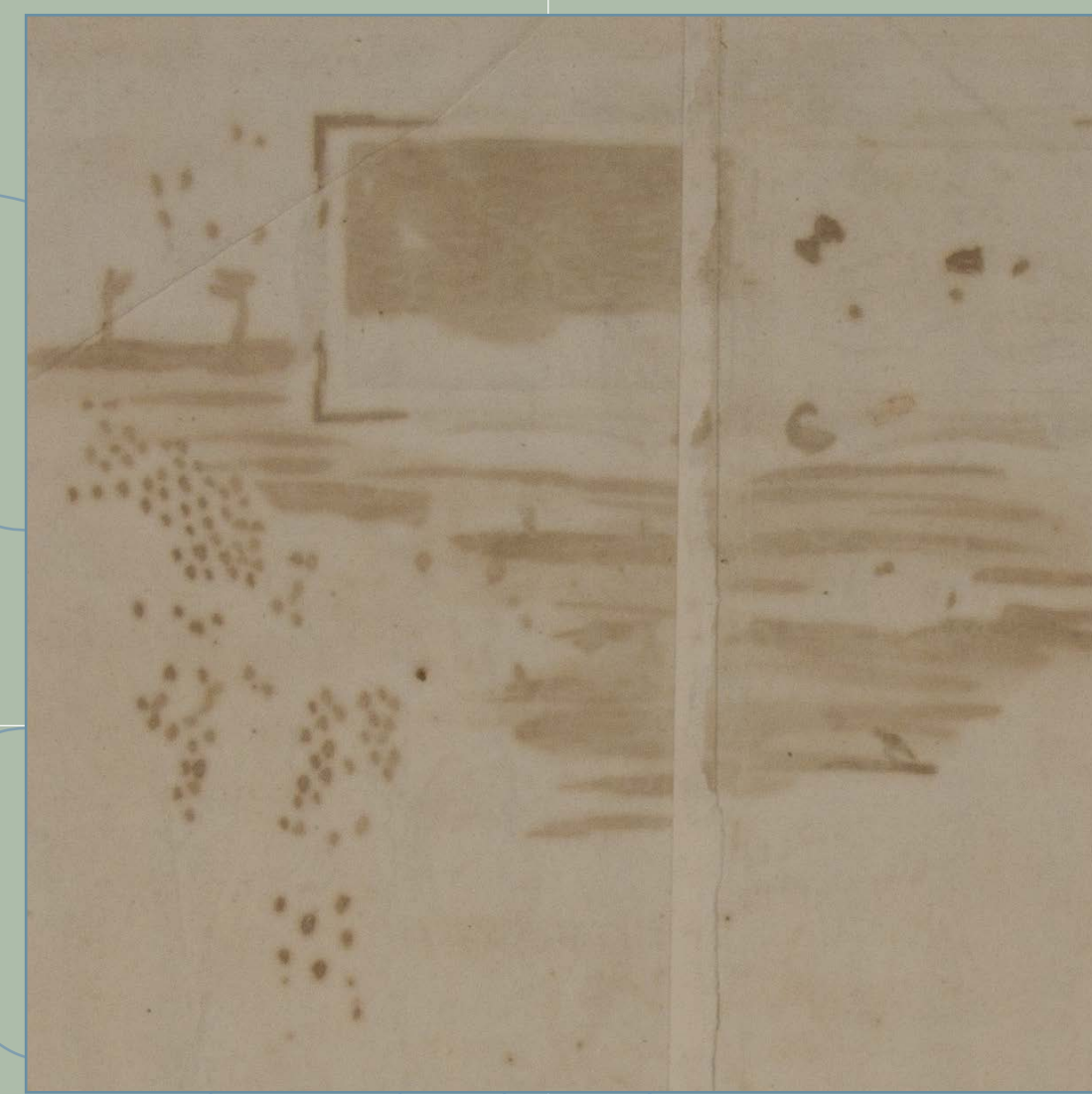


After treatment: local humidification reduced surface distortion from folded storage, and mending stabilized weakened and torn areas.



Details: deteriorating pigments, recto

Pigments direct treatment needs and treatment options. The degradation products of the green and brown pigments have stained the verso of the paper support and have begun to 'burn' through the paper leaving these areas unstable and prone to cracking and loss.

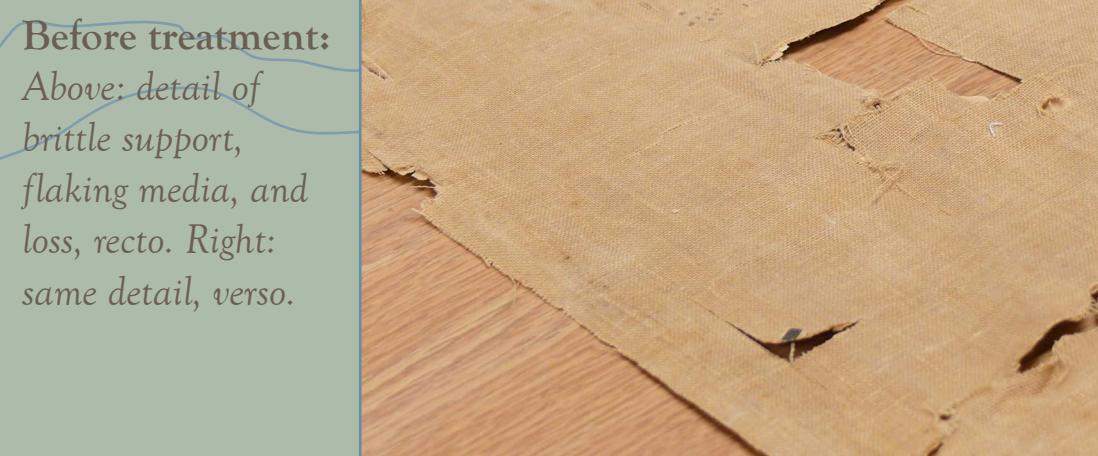


Detail: deteriorating pigments, verso

Aqueous treatment can reduce the acid degradation of paper, but to be an option ALL pigments must be insoluble in water. This map contained soluble pigments and therefore could not be treated aqueously. Instead weakened areas were stabilized on the verso with a thin tengujo Japanese tissue.



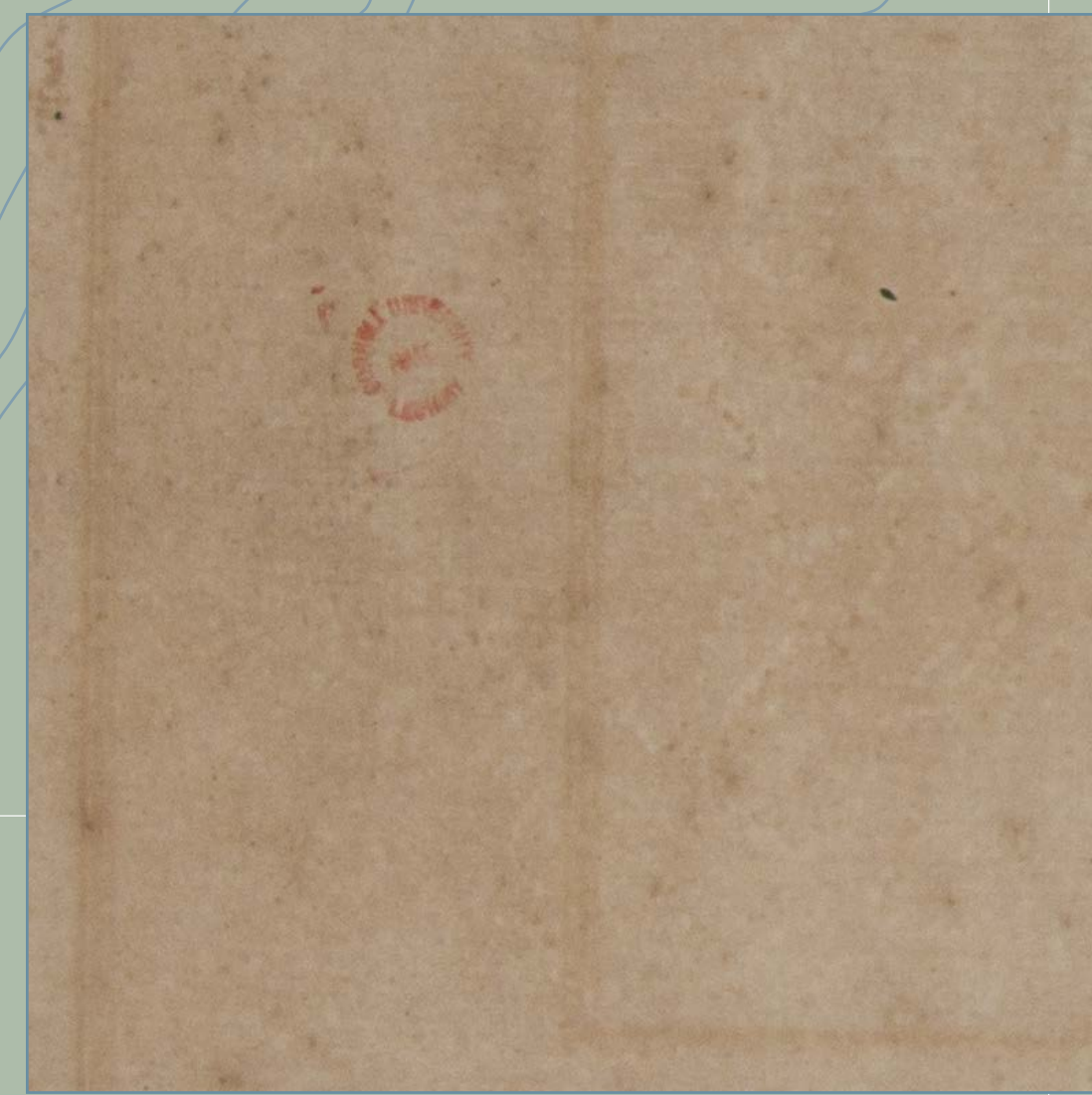
Before treatment: Above: detail of brittle support, flaking media, and loss, recto. Right: same detail, verso.



19th century lithograph maps were often lined with fabric and coated with varnish. The high lignin content of 19th century wood pulp papers contributes to acid degradation leaving the paper support extremely brittle and prone to cracking, flaking, and loss as it pulls away from its fabric backing. This map had been stored in an unsupported roll resulting in horizontal and vertical creases, and undulations in the surface of the support accelerated damage.

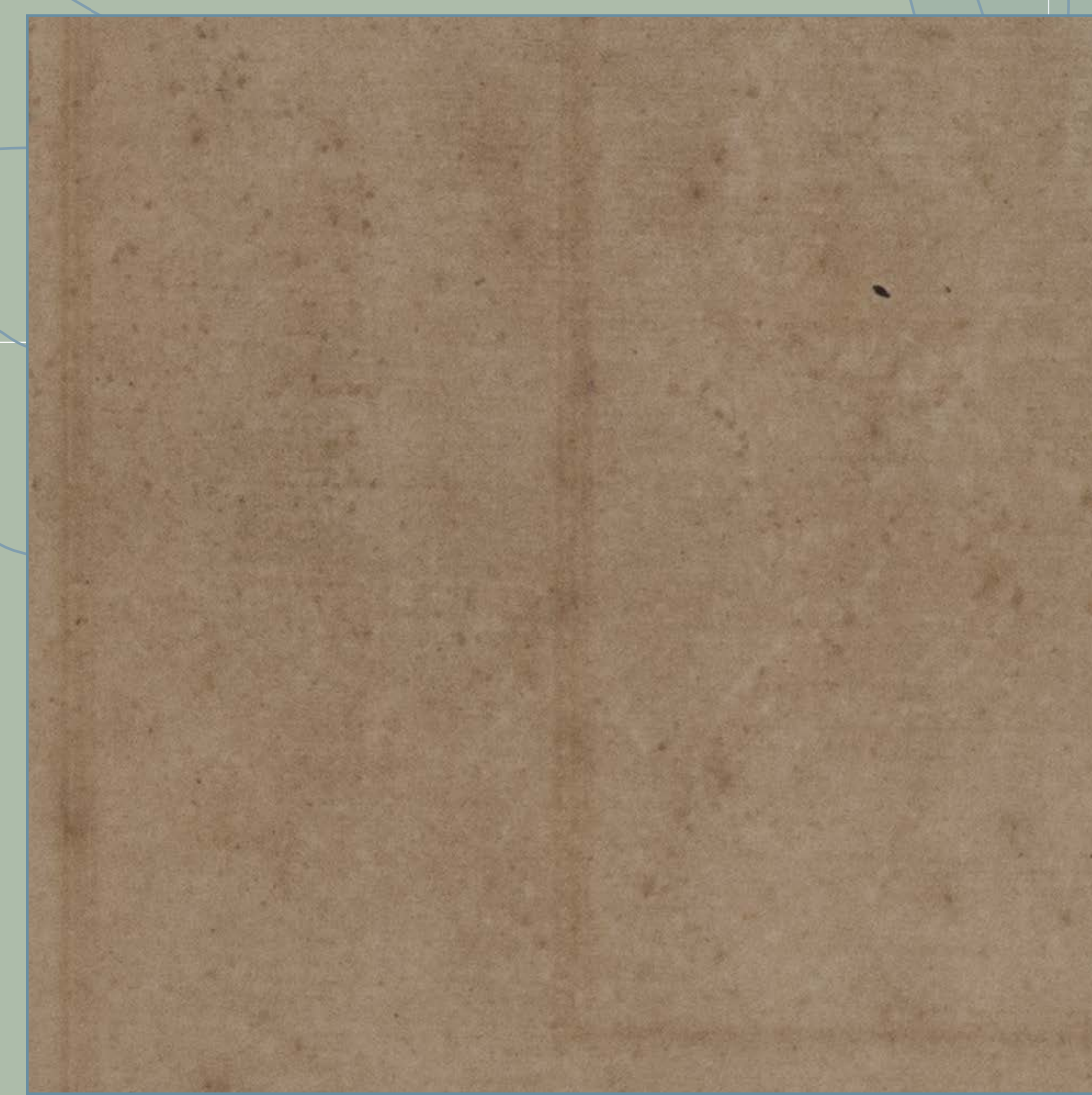


After treatment: detail of stabilization



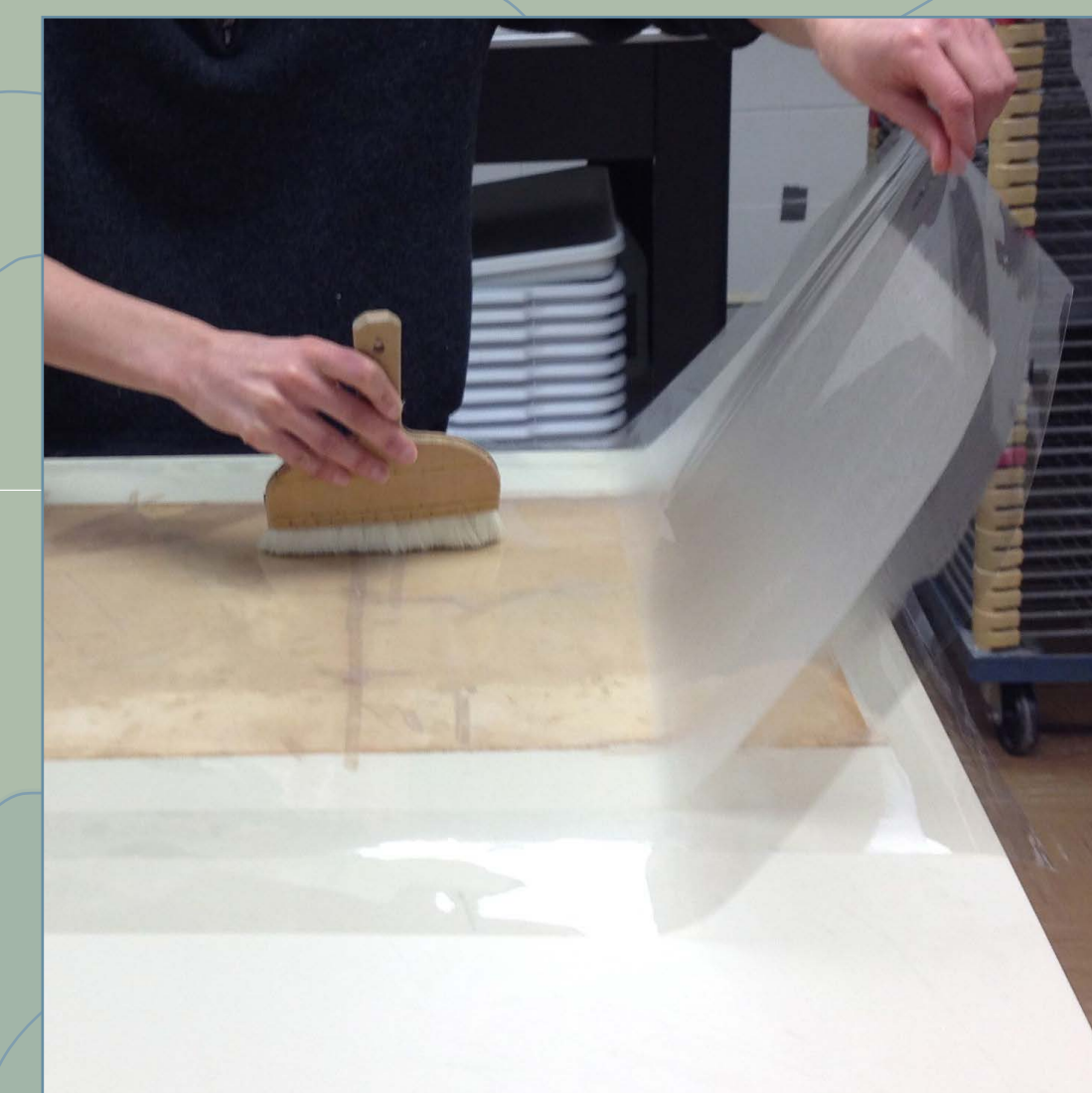
Before treatment: water soluble red ink stamp

The red ink ownership stamp on the verso reads "Cornell University Library" and was added at the time of acquisition. Aqueous treatment would reduce the acidity and discoloration of the brittle paper support by reducing the acidity and discoloration. However, the red ink stamp tested soluble in water, presenting the possibility that the ink would bleed into surrounding areas of the support and through to the recto. The fixative Cyclododecan-Spray was tested for possible masking during aqueous treatment. In the end, and with the curator's agreement, a blotter washing treatment allowed for a more controlled reduction of the ink stamp.



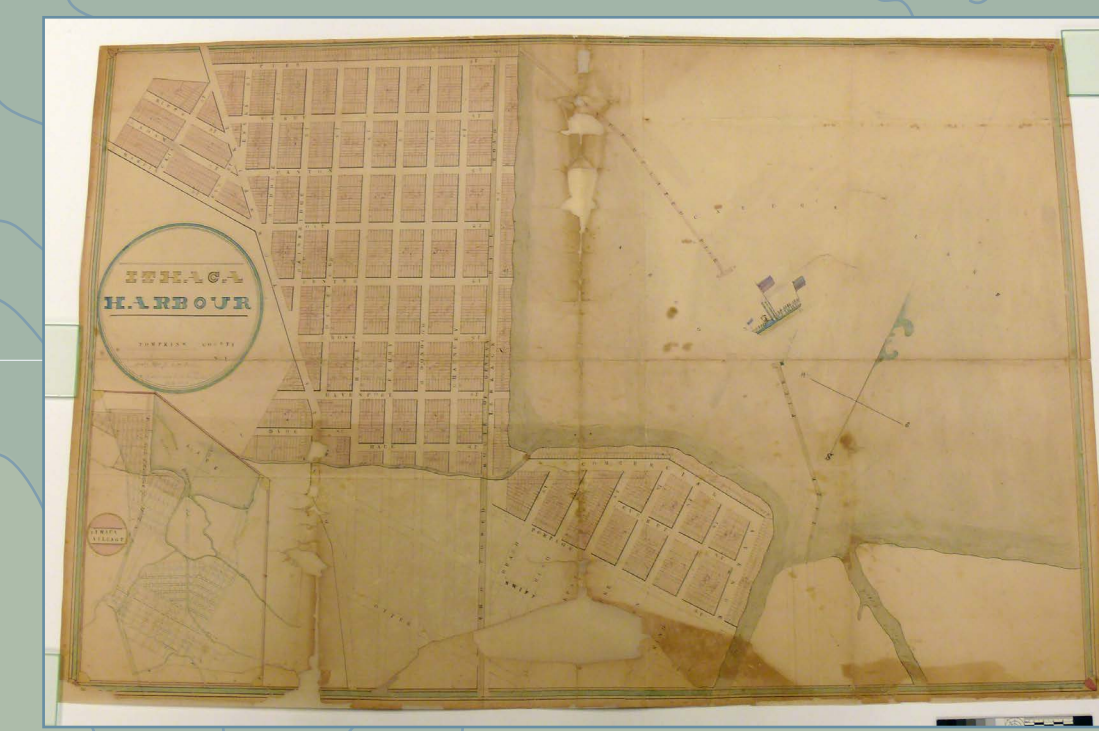
After treatment: water soluble red ink stamp removed

Flexibility in the support can be enhanced to brittle materials through aqueous treatment, and lining can efficiently and effectively stabilize materials that are heavily worn and fill significant areas of loss in one step.



During treatment: Lining the map

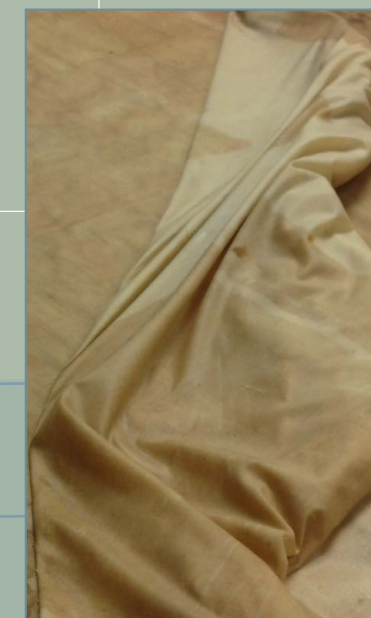
Aqueous treatments do not remove, but can reduce discoloration. It will often "grey" the tone of the support more likely closer to the original color than the discolored state. The Japanese tissue used for the fills and lining was toned to blend in with the anticipated color of the treated item.



After treatment



Before treatment: tide-lines



During treatment: removing the fabric backing

Disasters present the need for an expedited time frame in order to minimize and prevent permanent damage.

A burst pipe sent a deluge of water over this 19th century lithograph map. A masonite backing board in contact with the map and when wet released acid degradation into the map with resulted in tide-lines on the recto. The water caused the fabric lining to begin to separate from the map. It was removed and the adhesive it left behind reduced.



After treatment