



To Counterfeit is Death

BENJAMIN FRANKLIN'S ANTI-COUNTERFEITING
PAPERMAKING TECHNIQUES FOR COLONIAL
CURRENCY

Map of Lenape languages and tribe



Monetary system in the early 1700s

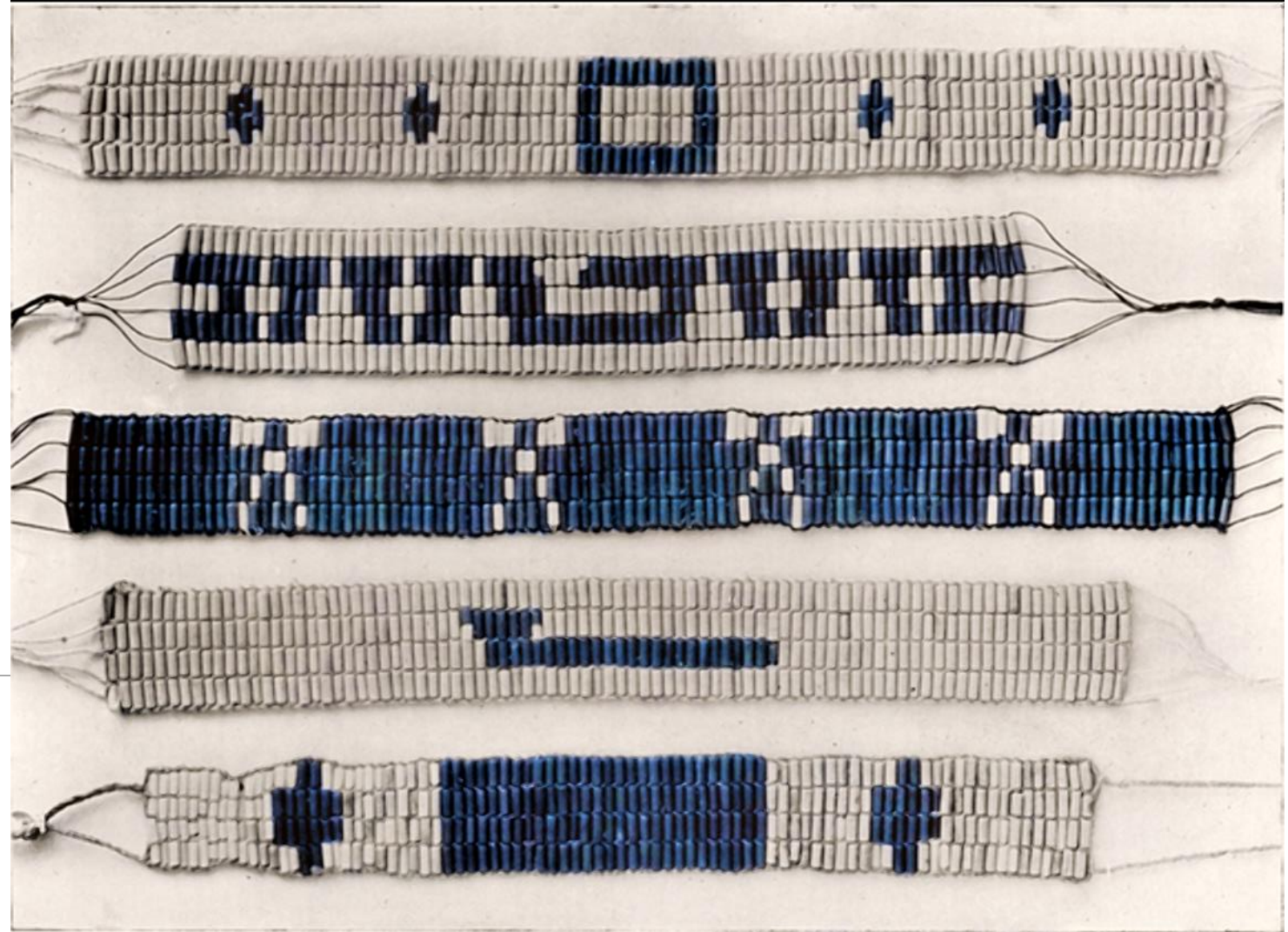


Image credit:
https://commons.wikimedia.org/wiki/File:Wabanaki_Wampum_Belts.png

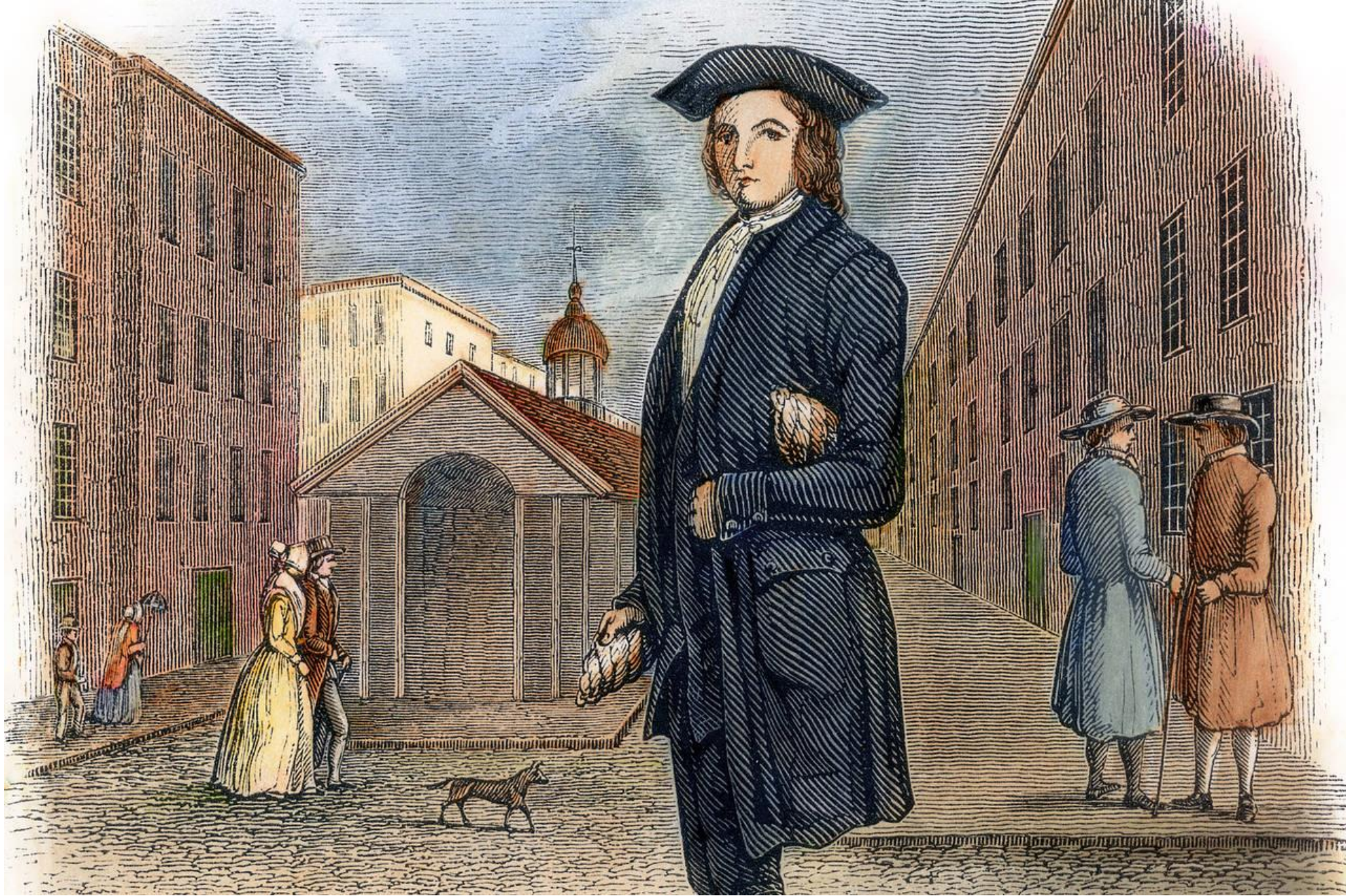
Five unique Wabanaki Wampum Belts from the Penobscot, 1915.



Philadelphia in the early 1700s

Monetary system in the early 1700s





Rendering of a young Benjamin Franklin.

Image source: <https://www.wsj.com/articles/young-benjamin-franklin-review-poor-richard-sows-his-oats-1537225792>

Paper money led to an increase
in:

Internal trade

Employment

New construction

Number of residents

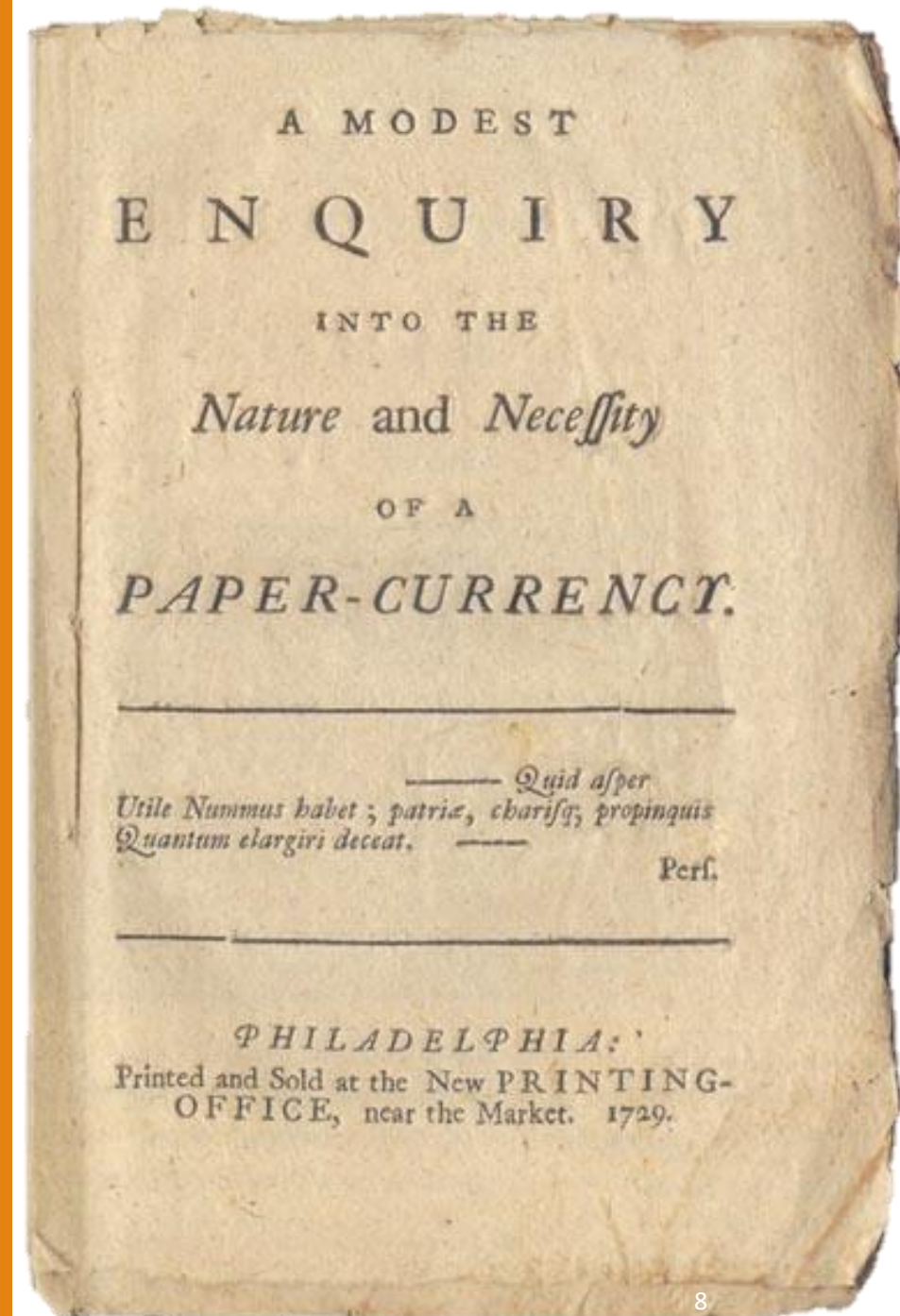
Paper money led to an increase
in:

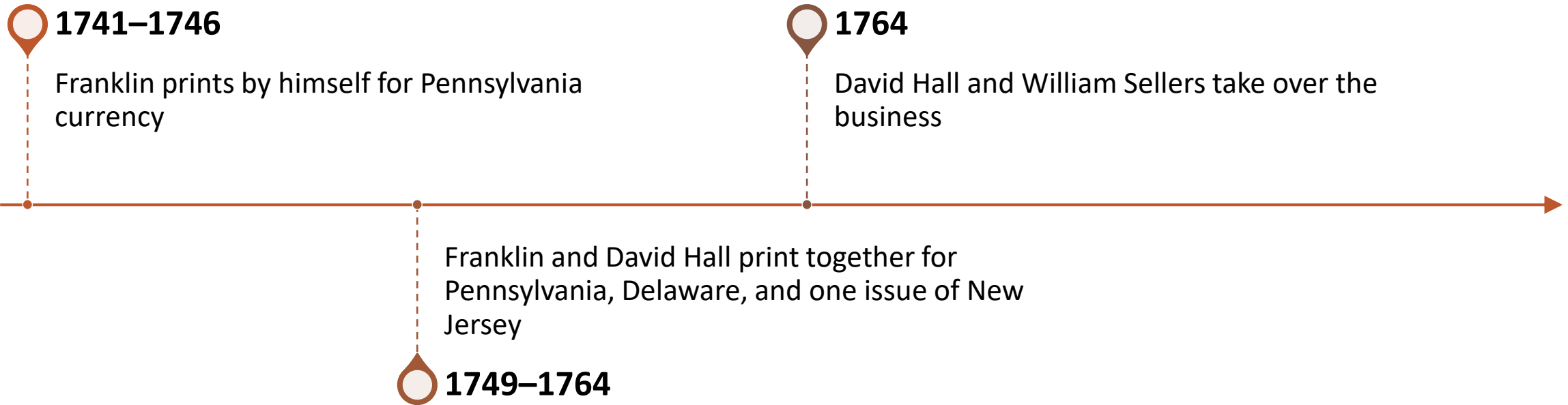
Internal trade

Employment

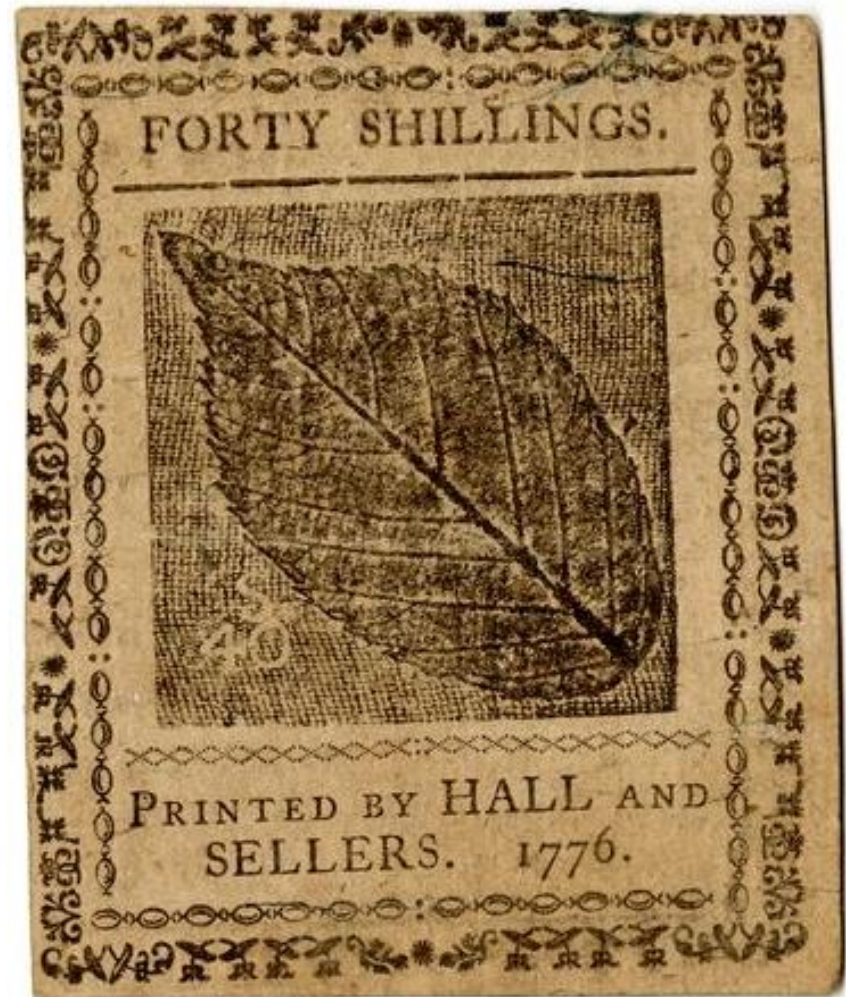
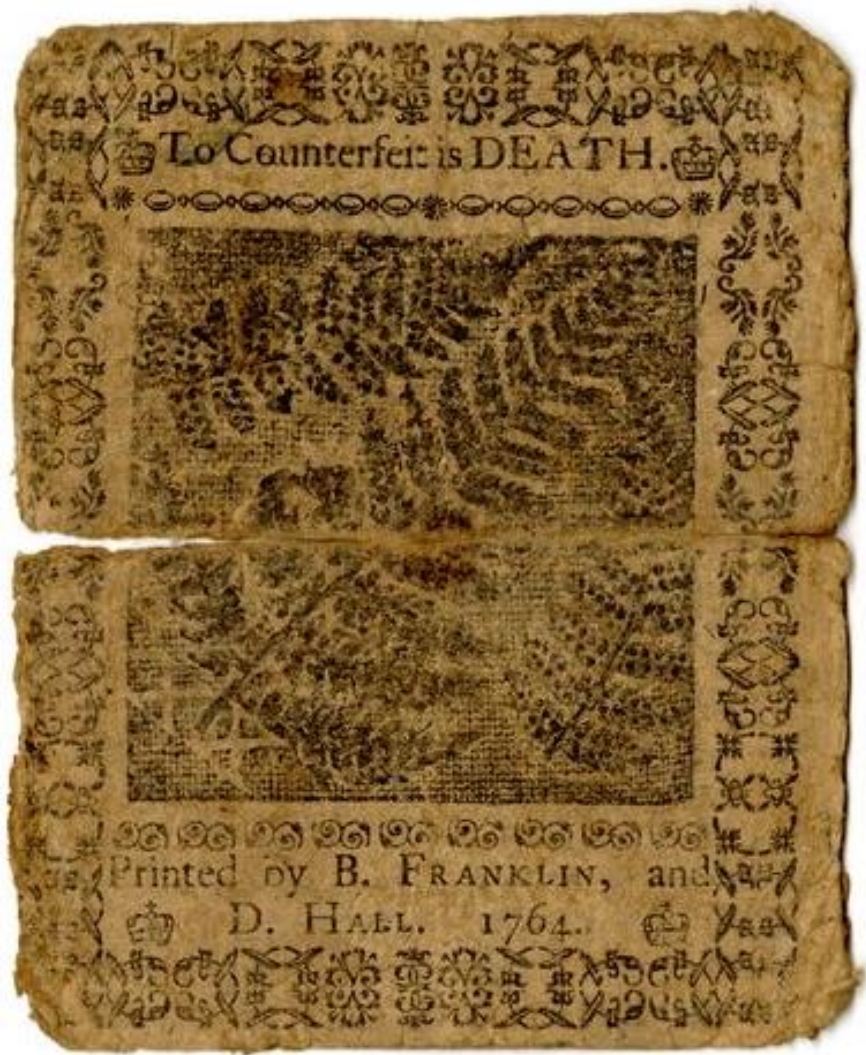
New construction

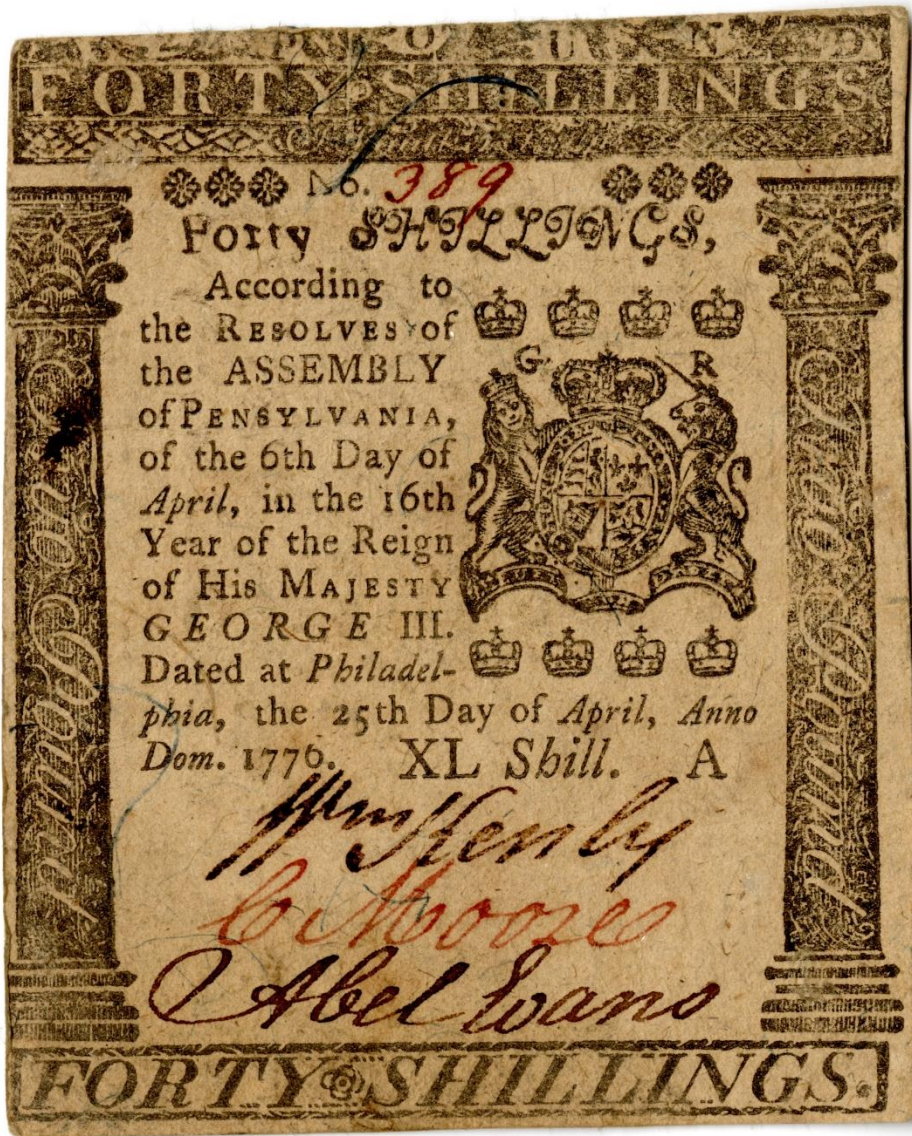
Number of residents



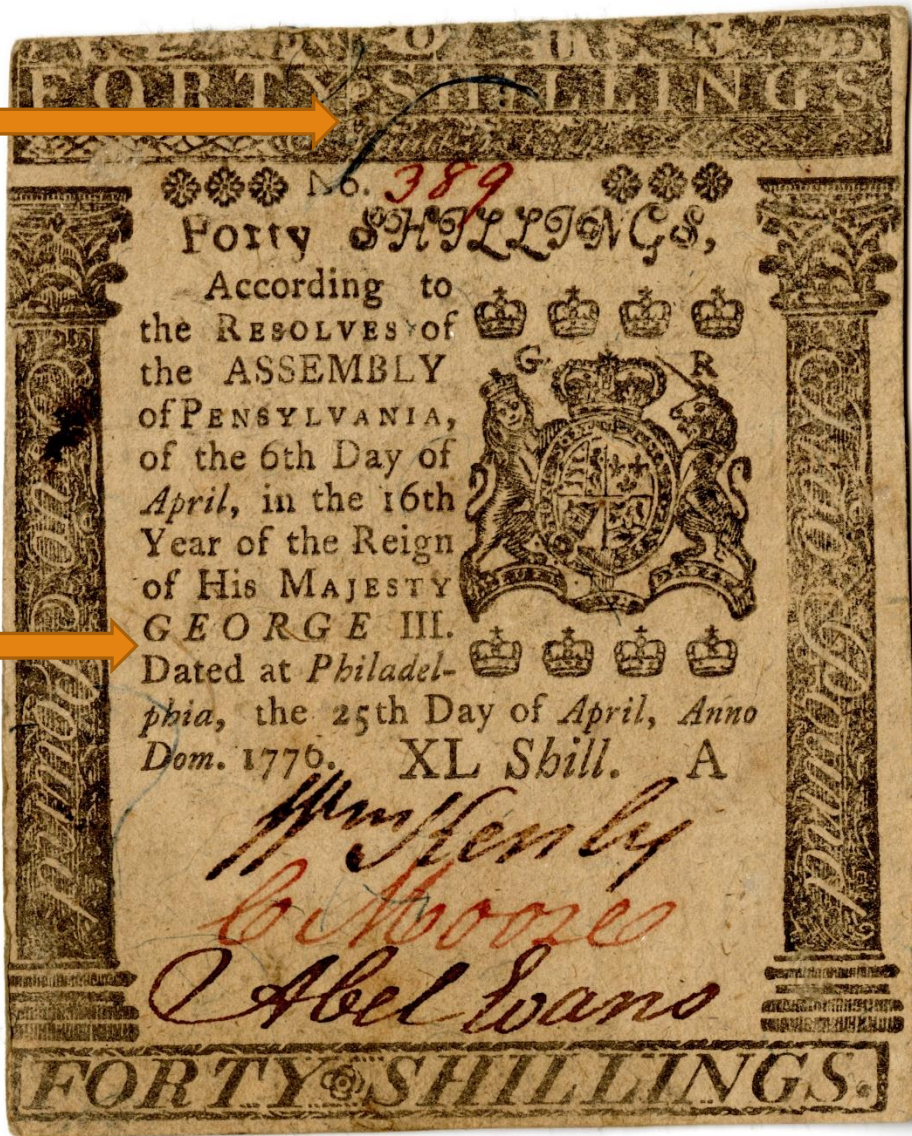


Currency printing timeline





Anti-counterfeit measures

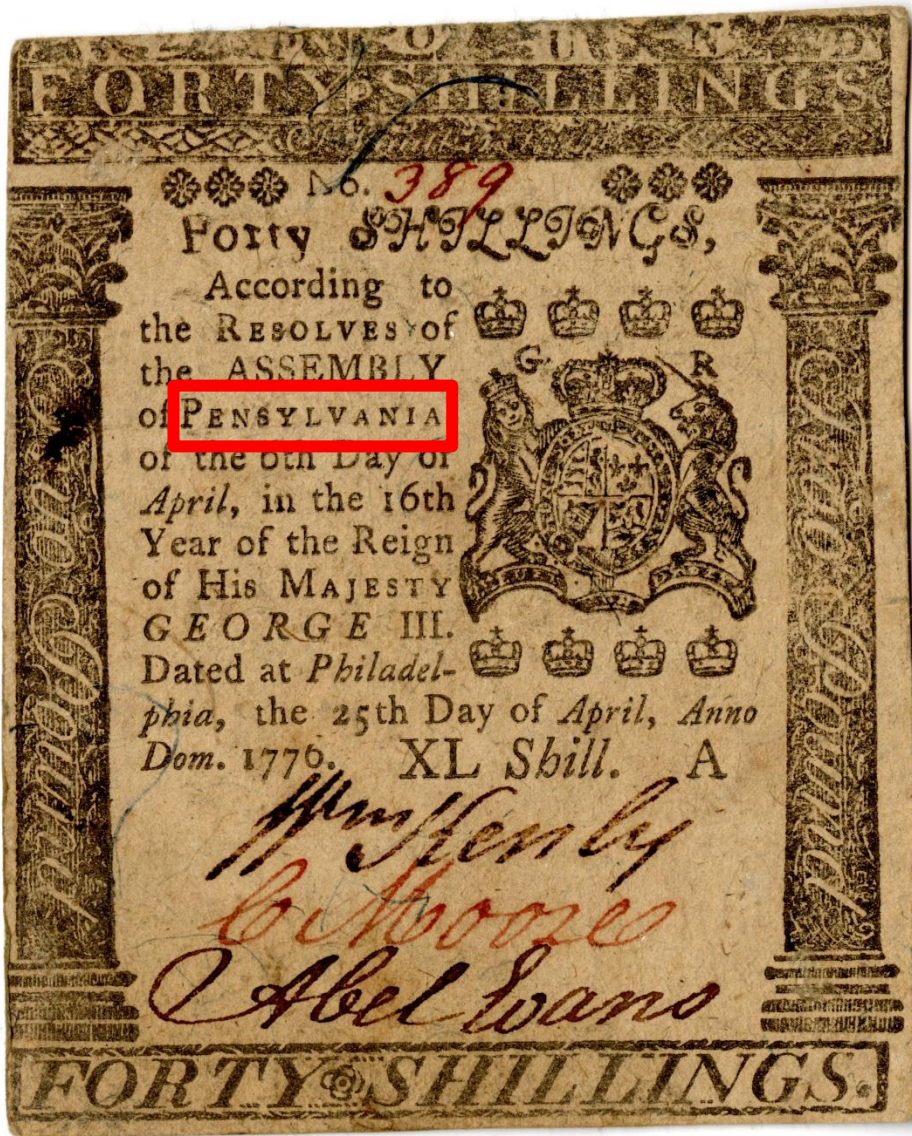


Anti-counterfeit
measures

Mica flakes in the paper



Anti-counterfeit
measures



Anti-counterfeit
measures




FIFTEEN SHILLINGS.



To Counterfeit is DEATH.

Printed by HALL and
SELLERS.

FORTY SHILLINGS.



PRINTED BY HALL AND
SELLERS. 1776.

No. 389

Forty SHILLINGS,

According to
the RESOLVES of
the ASSEMBLY
of PENNSYLVANIA,
of the 6th Day of
April, in the 16th
Year of the Reign
of His MAJESTY
GEORGE III.
Dated at Philadel-
phia, the 25th Day of April, Anno
Dom. 1776. XL Skill. A



*Mussey by
C Moore
Abel Sans*

FORTY SHILLINGS.

12-pointed star



8-pointed star



Anti-counterfeit
measures

Curved background lines
Pointier/sharper leaf edge



Straight background lines
Rounder/blurrier leaf edge



Anti-counterfeit
measures

Longer curve at base of red diamond



Shorter curve at base of red diamond



Anti-counterfeit measures

Diamond cutout indicates a
confiscated counterfeit

Examples of counterfeit notes in the APS collection



Newspaper advertisements

“citizens are warned that the word Indented in the first line is too high, and towards the bottom the words “of this” were put too close together...and all lines of printing were more uneven than in the true bills”

Pennsylvania Gazette
August 8, 1734

Newspaper advertisements

Philadelphia. July 22, 1777.

WHEREAS a certain *William Howe*, alias *Gen. Howe*, alias *Sir William*, alias *any thing or nothing*, has lately gone off greatly in debt to sundry persons in New-Jersey and other parts of the Continent, and has not left wherewithal to make payment for the same; this is therefore to caution all persons not to trust him on any account, as they will certainly lose their money. Said *Howe* is charged with having in company with one *Cornwallis*, not yet taken, broke into several houses in New-Jersey, and stolen and carried off many valuable effects; likewise with being concerned in counterfeiting the currency of this Continent, and of having starved to death several good subjects of these States, while he was chief Jailor at New-York. He is a very ill-looking fellow, and is an indented servant to a certain *George Whelp*, alias *Guelph*, alias *King George*.

Whoever will secure said *Howe* in any of the Jails of this Continent, or will give notice where he is, to the American army, shall be handsomely rewarded.

N. B. He was lately seen skulking about Amboy, Westfield, and Spank-town, in the Jerseys, and has not since been heard of. Should he attempt to practise his villainies in this city, 'tis hoped all persons will be on their guard to apprehend him.

British mocking Americans
Continental Journal (August 14, 1777)

Poor Richard, 1737.

A N

Almanack

For the Year of Christ

1737,

Being the third after LEAPYEAR:

<i>And makes since the Creation</i>	Years
By the Account of the Eastern Greeks	7243
By the Latin Church, when ☉ ent. ♀	6934
By the Computation of <i>W. W.</i>	5744
By the Roman Chronology	3704
By the Jewish Rabbits	3496

Whereto is contained,

The Lunations, Eclipses, Judgment of the Weather, Spring Tides, Planets Motions & mutual Aspects, Sun and Moon's Rising and Setting, Length of Days, Time of High Water, Fates, Courts, and observable Days.

Fitted to the Latitude of Forty Degrees, and a Meridian of Five Hours West from London, but may without sensible Error, serve all the adjacent Places, even from Newfoundland to South-Carolina.

By RICHARD SAUNDERS, Philom.

PHILADELPHIA.

Printed and sold by B. FRANKLIN, at the New Printing-Office near the Market.

RATTLE-SNAKE HERB.

THE Indians long made a Secret of the Herb they used in curing the Bite of that venomous Reptile a RATTLE-SNAKE: but since some curious Persons among the English have fully discover'd and are now well acquainted with it, I hope it will be an acceptable Service to these Parts of the World, if I make it more publick by the following Description, with the Figure of a Leaf of it.



THE Top and Branches of the Plant are thick set with small yellow Flowers in August & September. It is a Species of Golden-Rod, known from the other Sorts by the smoothness of the Leaf, and its pungent Taste, and occasioning when chewed & swallow'd, a small Stoppage of the Breath, and Contraction in the Throat; and the Stalk, which is in some Places less than a yard in height when at full Growth, in others more, is of a dull purple colour, and smooth, and cover'd with a fine blue Dust, like that on many of the English Plums. It grows in most Wood-Lands, but under the Shade of Trees is seldom rank or large, or with more than one, two or three Stalks. It is also found on the Banks of dry Ditches, & sometimes in them, & in Hedge-Rows: But it is most luxuriant near to Run Sides, if the Soil be rich, and not too moist, nor too much shaded.

The Root continues over the Winter, and if set in a good Garden, will send forth (in the 2d or 3d Year) at least 50 Stalks. The Plant shoots early in the Spring & withers late in the Fall.

The Indians use it variously; sometimes they bruise it, sometimes chew it and spit in the Patient's

Patient's Mouth, some lay it to the Wound, others about the Wound, sometimes they boil it and give the Water to drink, washing the Wound with it likewise: but always some of it is to be swallowed, either with the Spittle or with Water.

The Leaf figur'd in the Margin is one of the largest; for the most part they are not near so big though the Shape be the same.

Planets Motions for the 1, 8, 15, and 22 Days in each Month, 1737.

Month	Days	Sun's Place						Sun's Place							
		♌	♍	♎	♏	♐	♑	♌	♍	♎	♏	♐	♑		
January	1	22	41	6	21	1	27	23	20	8	20	23	18	14	D.
	8	29	49	5	23	5	26	23	26	48	21	23	21	17	8
	15	6	56	5	24	8	14	17	3	28	22	25	27	21	14
February	22	14	3	5	26	12	23	29	10	10	23	22	22	26	24
	1	24	11	5	29	17	26	23	19	15	23	22	7	26	23
	8	1	15	5	28	21	13	18	26	30	24	21	12	10	27
March	15	8	17	6	25	21	7	11	3	14	25	20	16	17	22
	22	15	18	6	3	25	29	1	10	0	25	19	21	24	23
	1	22	17	6	5	27	23	1	19	44	26	18	27	21	28
April	8	29	14	7	7	8	14	22	26	34	26	17	13	19	28
	15	6	9	7	8	12	22	8	3	26	26	16	6	20	28
	22	13	5	8	10	16	29	17	10	20	26	15	11	28	28
May	1	22	51	9	12	22	28	23	19	15	26	14	17	22	28
	8	29	41	10	13	26	14	3	26	13	26	14	22	17	11
	15	6	29	10	15	28	19	14	3	13	26	14	26	26	3
June	22	13	15	11	16	5	24	8	10	14	26	15	11	28	28
	1	21	55	13	18	10	28	28	20	18	25	13	8	16	22
	8	28	39	13	19	14	28	14	27	23	25	14	12	25	10
July	15	5	21	14	20	19	26	26	4	7	29	24	14	17	21
	22	12	3	15	21	23	27	26	11	3	24	14	22	14	21
	1	21	35	16	22	29	21	14	20	47	23	15	28	23	15
August	8	28	15	17	22	28	17	14	27	55	22	16	7	7	26
	15	4	54	18	23	8	14	14	5	2	22	17	8	11	26
	22	11	34	19	23	12	13	10	12	13	21	18	13	10	13

Joseph Breintnall's
Nature Prints of Leaves

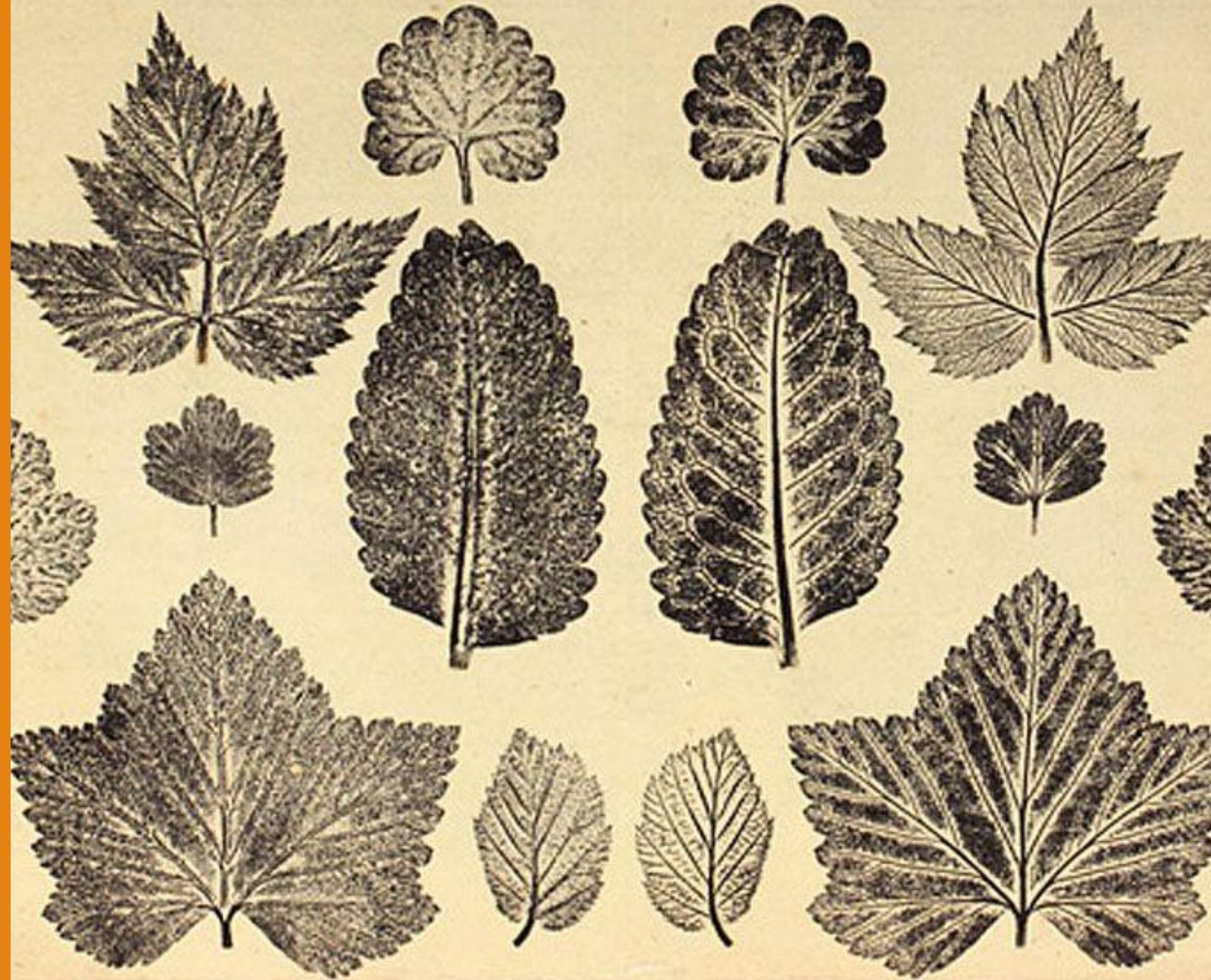
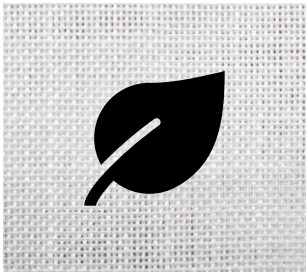


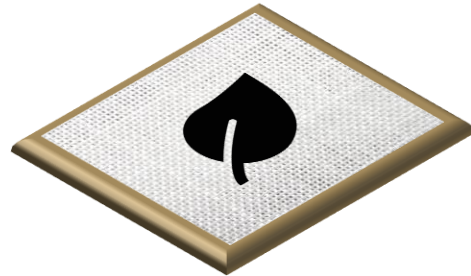
Image credit: The Library Company of Philadelphia

Leaf casting

Step 1: Glue leaf to cloth



Step 2: Glue leaf/cloth to small piece of wood



Step 3: Place into shallow box and pour in plaster



Examples of plaster leaf molds



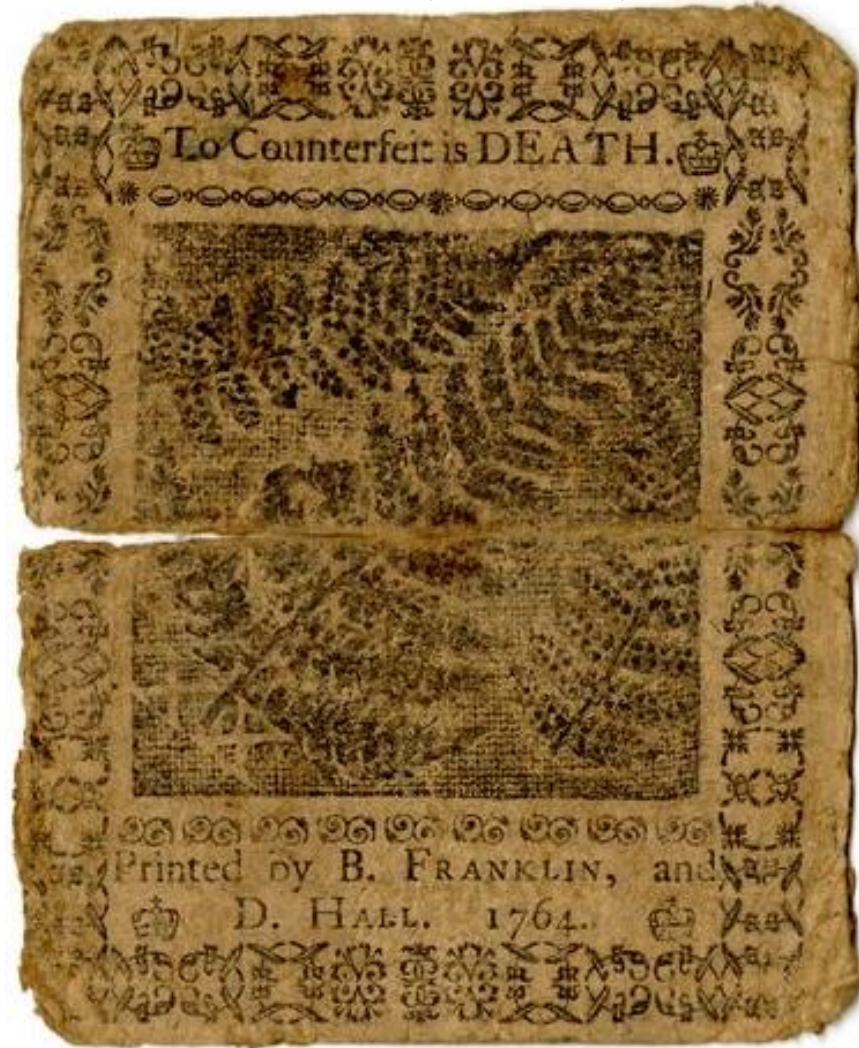
Leaf block used
to print paper
money, ca.
1760.

The Library Company of
Philadelphia, on deposit from
the Delaware County Institute
of Science.



Pennsylvania, 20 shillings
Franklin & Hall, June 18, 1764

Dryopteris fern at center

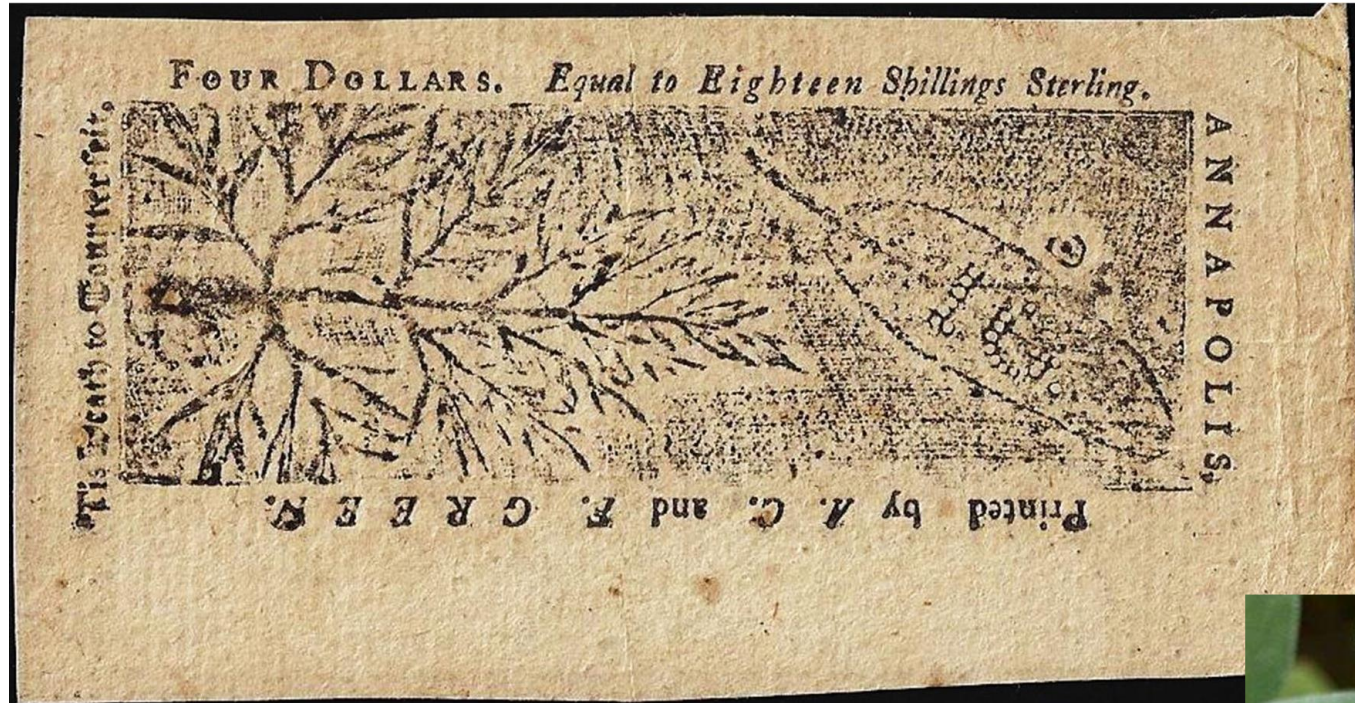


Dryopteris fern, right and left
Underside with spore bodies



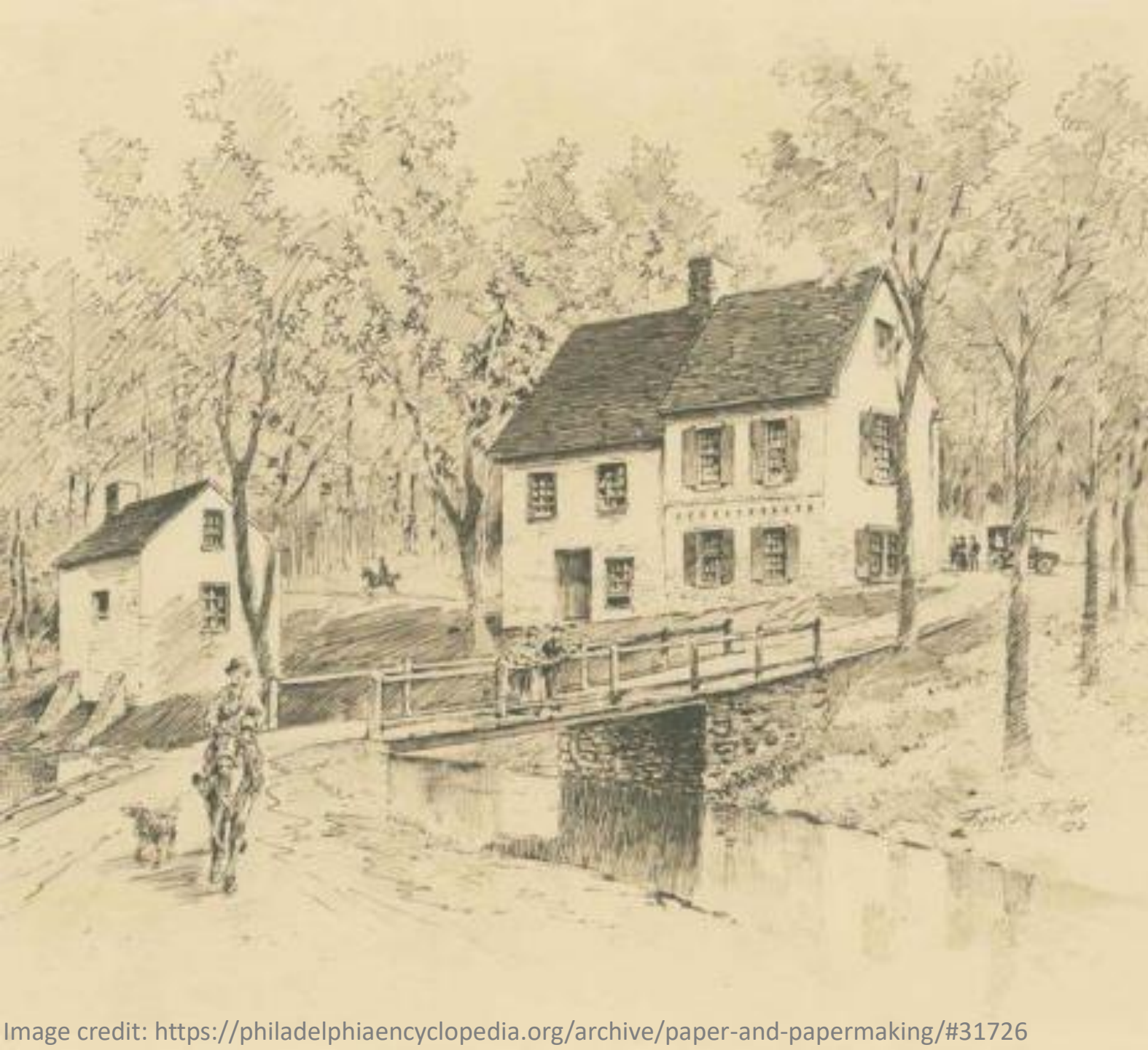
Maryland, Four Dollars
Anne & Frederick Green, April 10, 1774

Daucus carota,
carrot greens



Salvia officinalis,
culinary sage



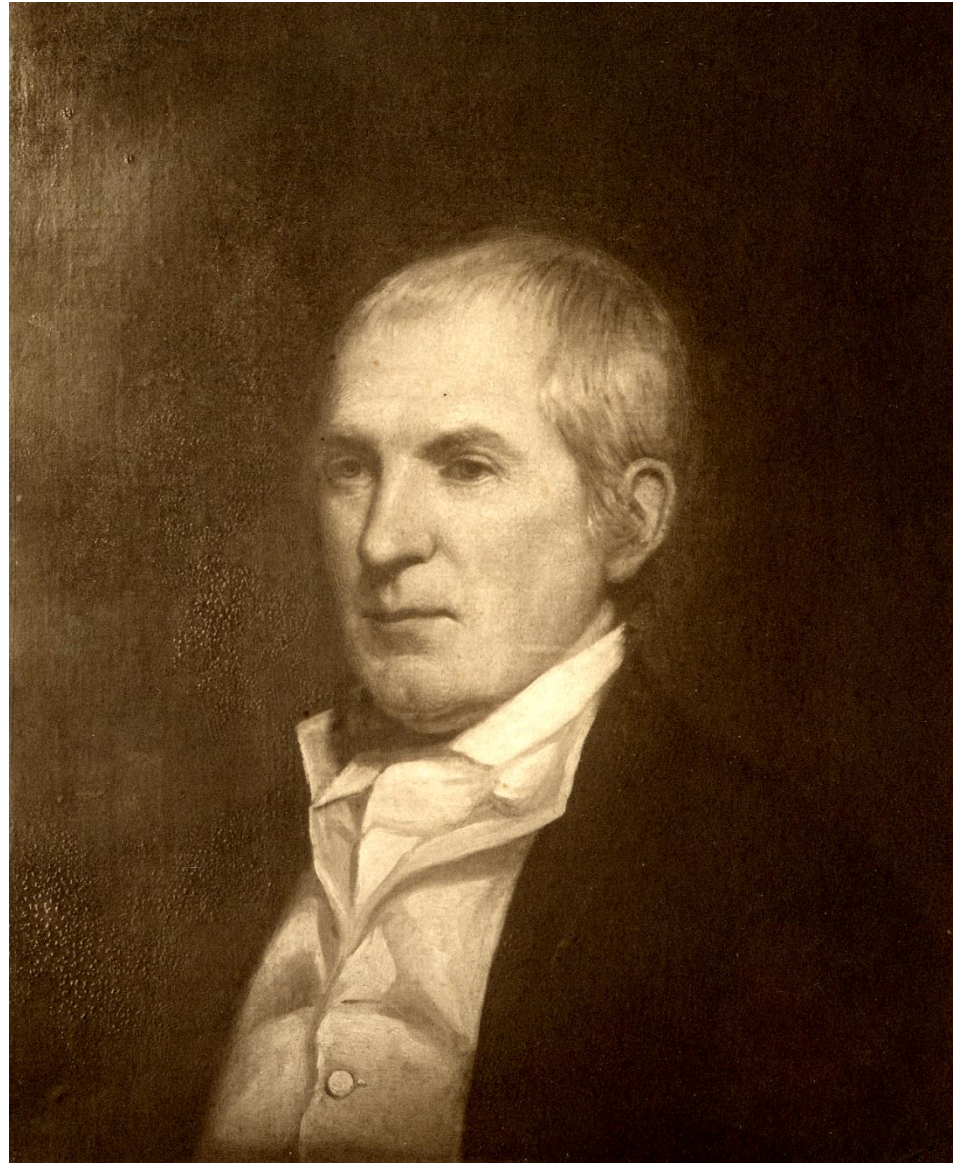


Site of America's first papermaking mill

Constructed in 1690
by William
Rittenhouse

Nathan Sellers

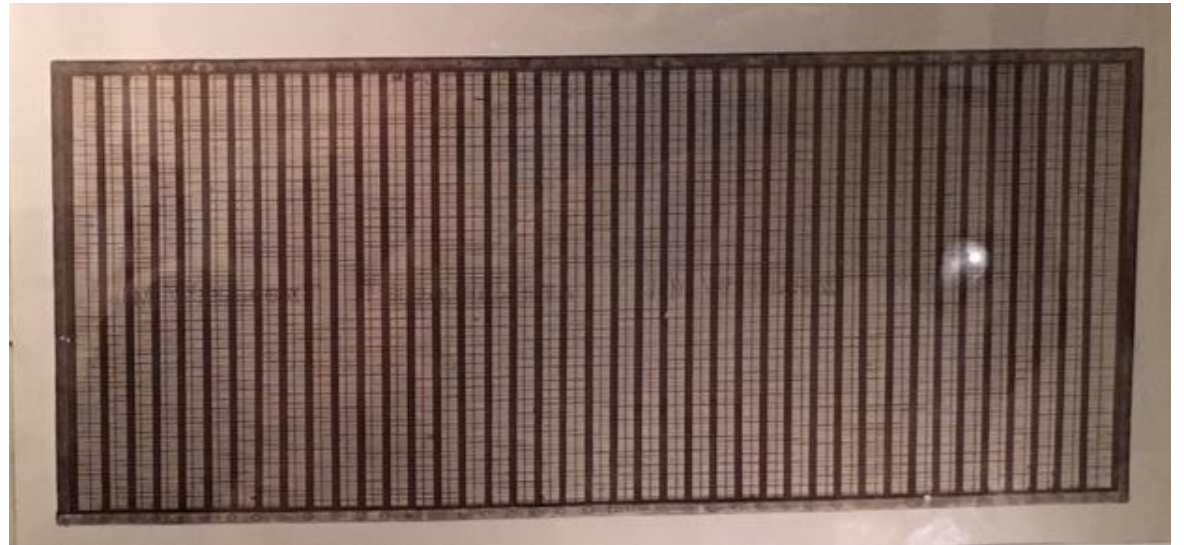
Portrait by Charles Wilson Peale, ca.
1820



Nathan Sellers and American Papermaking

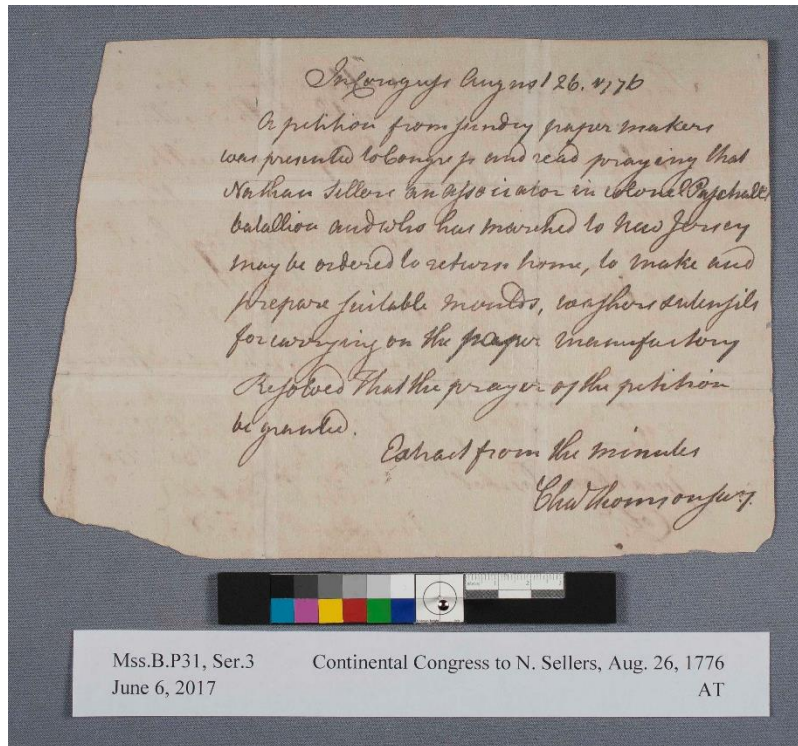


Nathan Sellers,
hand-drawn brass wires,
before 1787



Photograph of one of Nathan Sellers's laid
paper molds with J. W. Wilcox watermark

Nathan Sellers and American Papermaking



Continental Congress,
pass releasing Nathan Sellers from military
service to make paper molds
(APS, Peale-Sellers Family Collection)

In Congress August 26, 1776
A petition from sundry paper makers
was presented to Congress and read
praying that Nathan Sellers, an associator in
Colonel Paschall's batallion and who has
marched to New Jersey may be ordered to
return home to make and prepare suitable
moulds, washers & utensils for carrying on
the paper manufactory. Resolved that the
prayer of this petition be granted.

Extract from the minutes
Chas Thomson, Sec^y.

Vellum — Wove wire No. 3

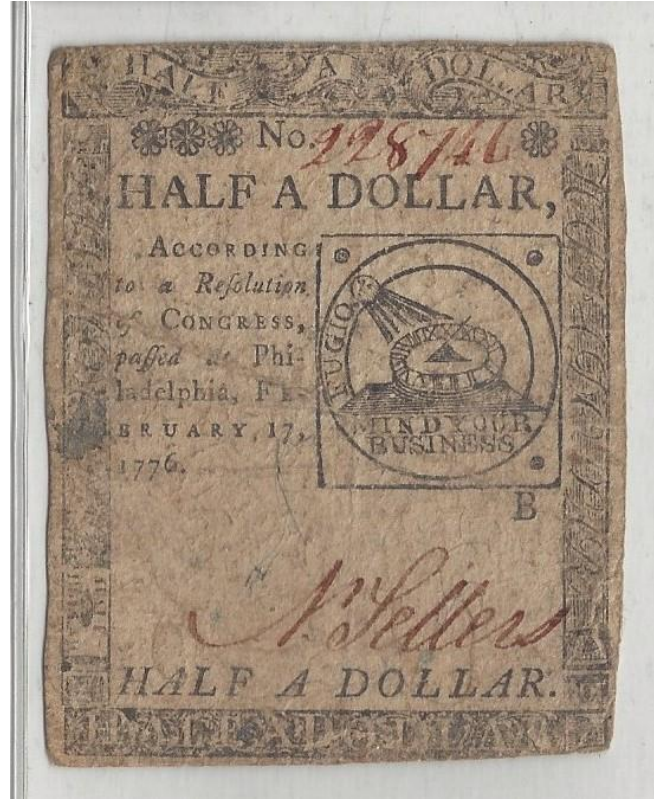
Mold & bag — 5.10.0
SALEM BANK 72 letters 6.15.0 } \$12.5.0

29 *Elliston & John Perot — Bank Mold — 13 1/4 by 16 1/4 — 14 bands*
Soids — Bar wire 24
Mold & bag — 5.10.0 *Try do — 32*
NEWBURY PORT 8 times is 88 letters 8.5.0 *to incl 25 & 28*
 \$13.15.0

John Jordan jr — Bank Mold — 13 by 16 — 14 bands
Vellum — Wove wire No. 36
\$ molds & bag — 5.10.0
KENTUCKY J CO. 8 times is 88 letters
 & 1/4 \$ ea — 8.8.0
 \$13.15.0

Matthew Carey — Bank molds 12 3/4 by 16 — 13 bands
for New York — Vellum — Wove wire No. 36
Molds & bag — 5.10.0
STATE BANK 72 letters — 6.15.0
 \$12.5

Detail of paper mold orders for banks, Nathan Sellers account book



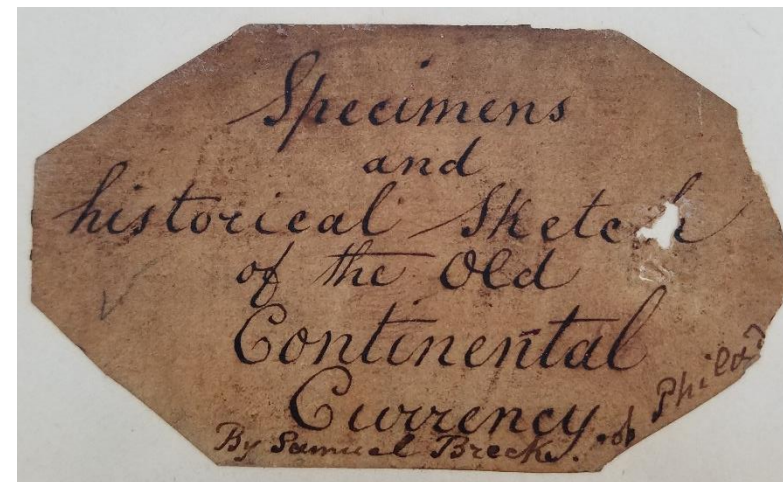
Half dollar bill signed by Nathan Sellers

Specimens and historical sketch of the Old Continental Currency

Samuel Breck's scrapbook of colonial currency in the APS collection

159 original currency notes (1759-1780)

7 counterfeit notes

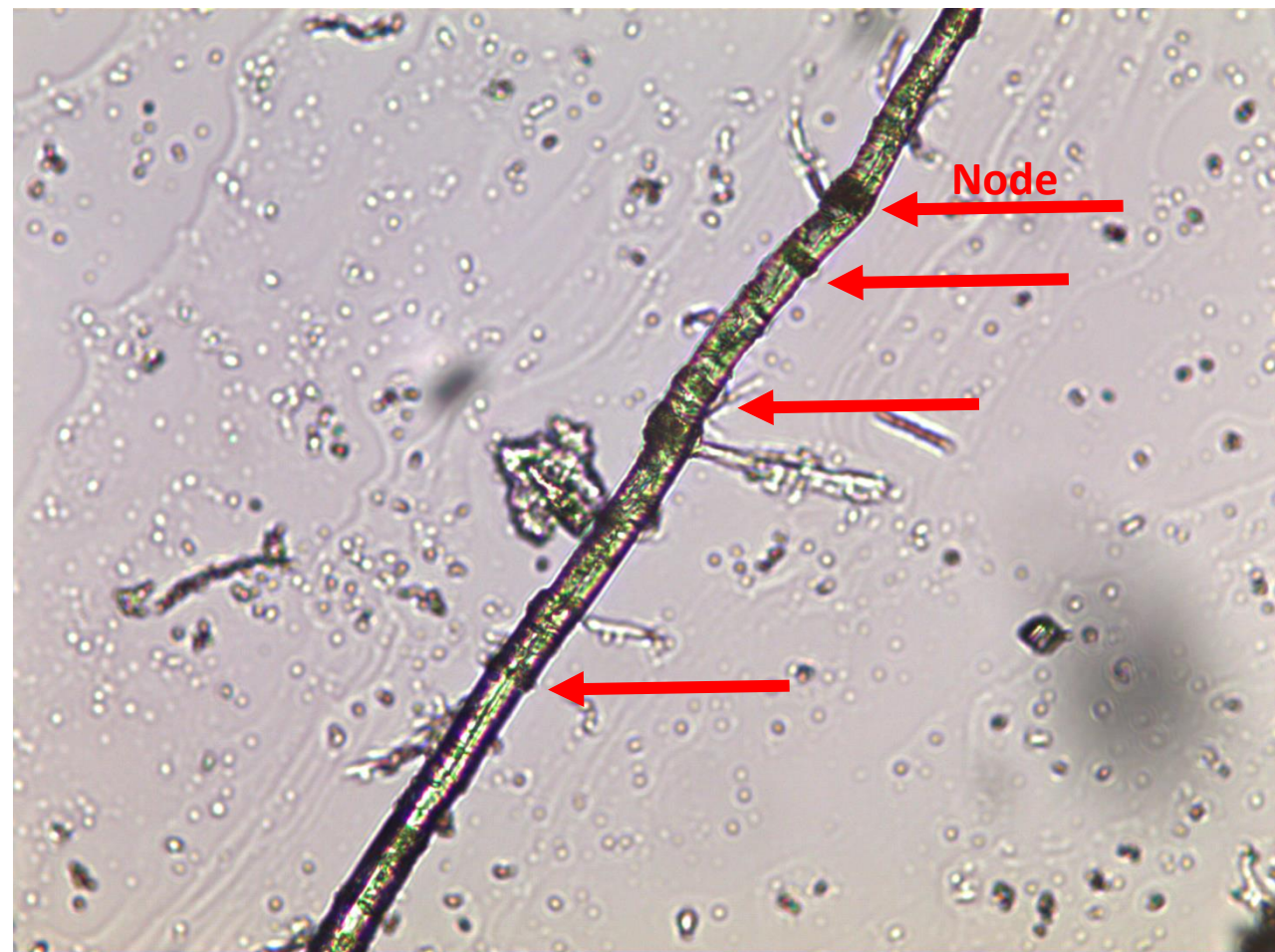




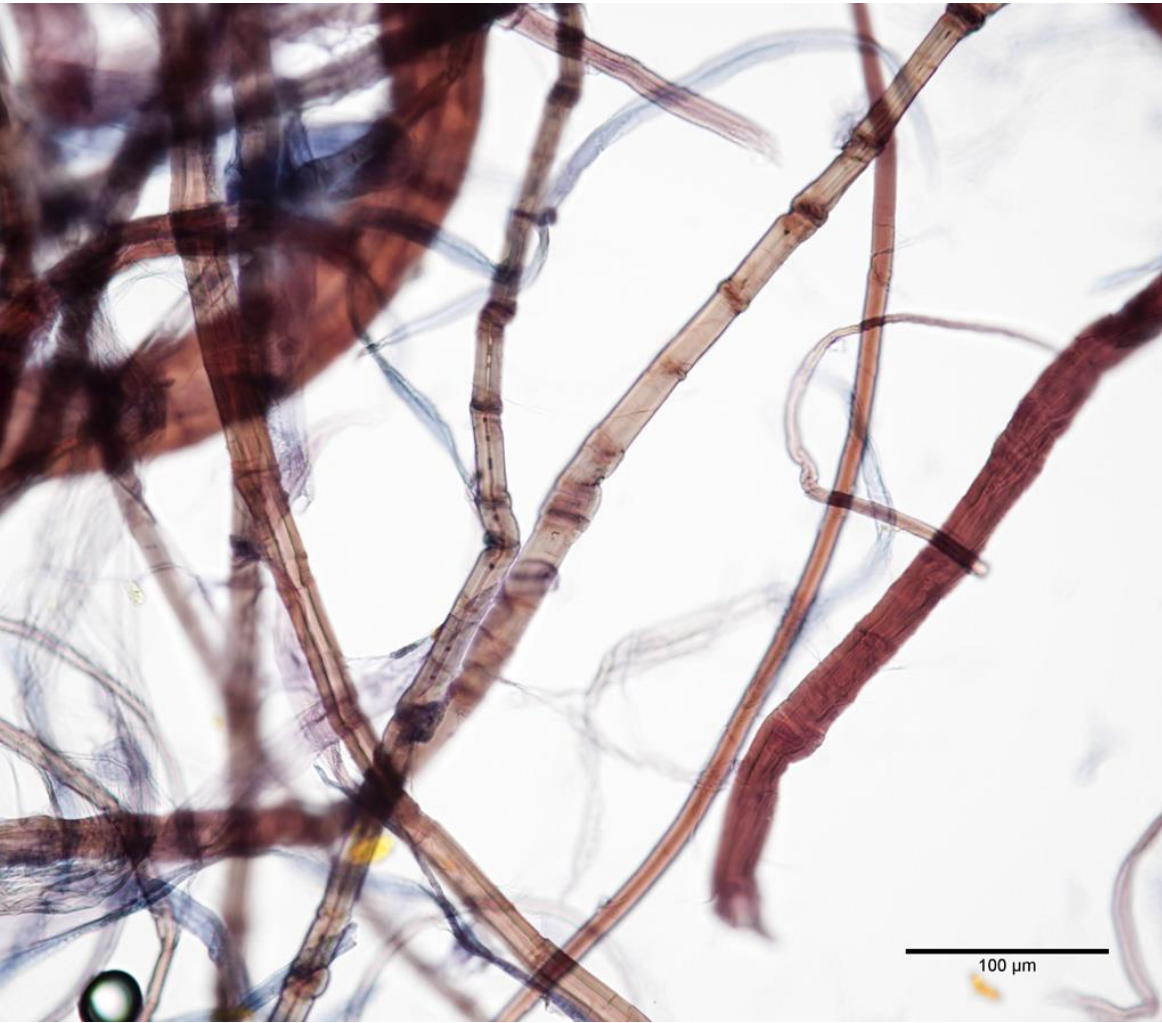
Reference photomicrograph of flax at 200X. Sample provided by the MFA Textile Conservation Lab.

Image credit: Keith Lawrence, Museum of Fine Arts, Boston

http://cameo.mfa.org/wiki/File:34_flax_200X.jpg



Photomicrograph of colonial currency from 1759 of flax at 200X.

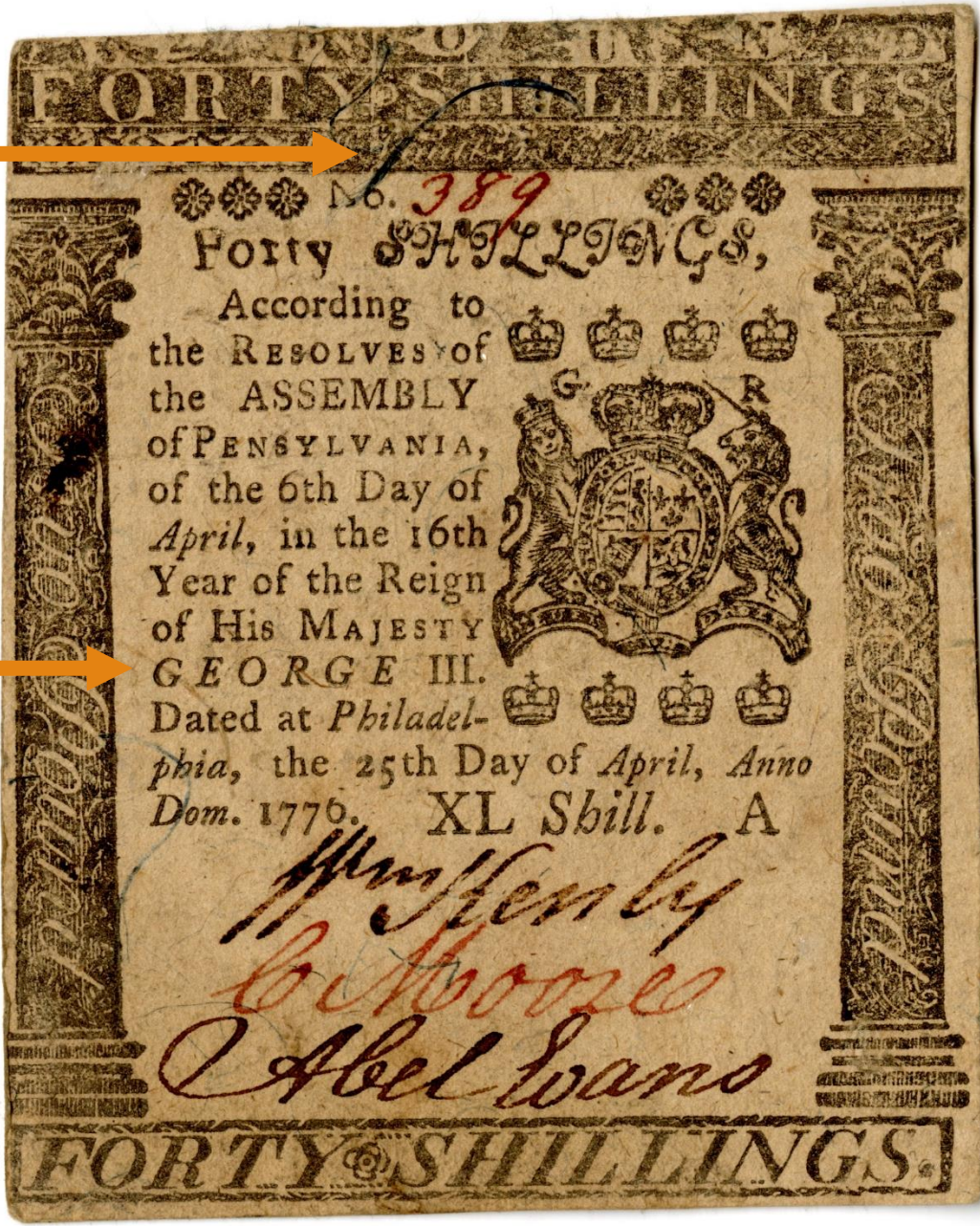


Photomicrograph showing flax bast fibers with shive at 400x. Sample has been stained with Graff "C" stain. Image credit: Jennifer McGlinchey Sexton and Paul Messier.

http://cameo.mfa.org/wiki/File:Flax_40x_nodes_bastshive.jpg



Photomicrograph of colonial currency from 1759 of flax at 400X, stained with Graff "C" stain.



No. 389

FORTY SHILLINGS

According to
the RESOLVES of
the ASSEMBLY
of PENNSYLVANIA,
of the 6th Day of
April, in the 16th
Year of the Reign
of His MAJESTY
GEORGE III.
Dated at *Philadel-*
phia, the 25th Day of *April*, Anno
Dom. 1776. XL Skill. A



Munsterly
Moore
Abel Swan

FORTY SHILLINGS



Reference photomicrograph of flax at 200X. Sample provided by the MFA Textile Conservation Lab.

Image credit: Keith Lawrence, Museum of Fine Arts, Boston

http://cameo.mfa.org/wiki/File:34_flax_200X.jpg



Photomicrograph of dyed blue fiber of colonial currency from 1775 of flax at 200X.

Asbestos

Benjamin Franklin's purse woven of asbestos fibers, presented to Sir Hans Sloane
ca. 1700



“I also send you a few Sheets of Paper made of the Asbestos. I am sorry it is so tender. I made some formerly that was much stronger. Please to present a Sheet of it to your noble President, if he will be so good as to accept such a Trifle.”

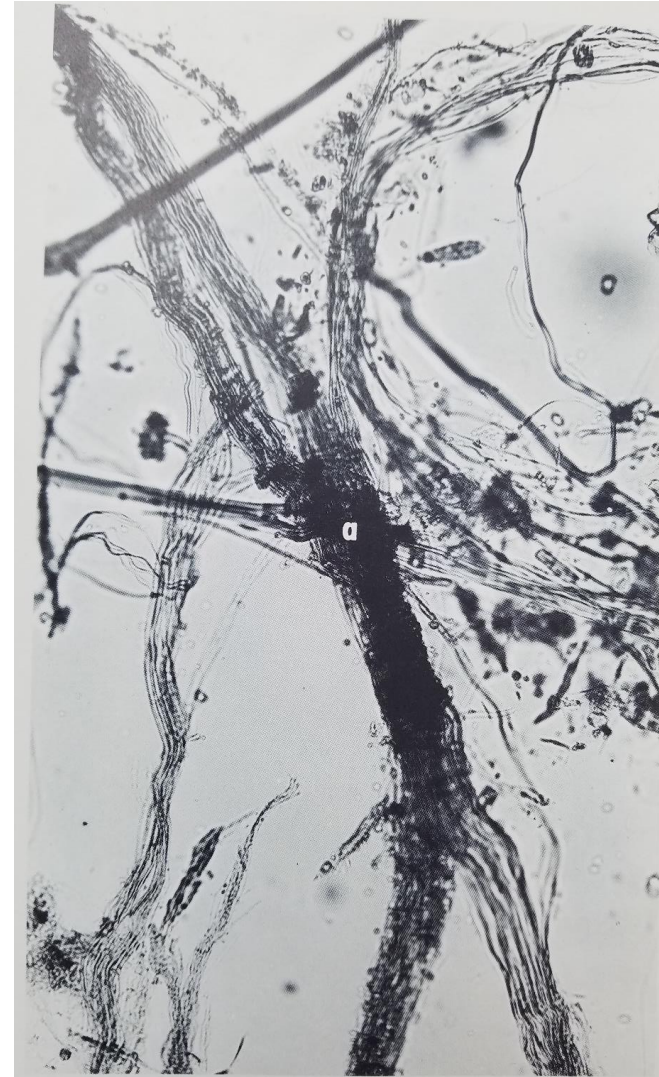
BENJAMIN FRANKLIN IN A LETTER TO PETER COLLINSON

JUNE 26, 1755

[Franklin] had several years ago gotten a piece of [asbestos], which he gave to one of his journeymen printers in order to get it made into a sheet at the paper mill. As soon as the fellow brought the paper, Mr. Franklin rolled it up and threw it into the fire, telling the journeyman he would see a miracle, a sheet of paper which did not burn. The ignorant fellow insisted upon the contrary, but was greatly terrified upon seeing himself convinced. Mr. Franklin then explained to him, though not very clearly, the peculiar qualities of the paper. As soon as he was gone, some of his acquaintances came in, who immediately recognized the paper. The journeyman thought he would show them a great curiosity and astonish them. He accordingly told them that he had curiously made a sheet of paper which would not burn, [if] it were thrown into the fire. They pretended to think it impossible, and he as strenuously maintained his assertion. At last they laid a wager about it, but while he was busy with stirring up the fire the others slyly besmeared the paper with fat. The journeyman, who was not aware of it, threw it into the fire and that moment it was all in flames. This astonished him so much that he was almost speechless, upon which they could not help laughing, and so disclosed the whole artifice.

Peter Kalm, from The Franklin Papers
November 11, 1748

Asbestos fibers



Sample of a commercial asbestos paper, 185x
Papermaking Fibers: A Photomicrographic Atlas
Ed. Wilfred A. Côté

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1966.0006 Currency

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Currency (Two sheets Continental Currency)

Category:

Prints and Maps

Creator (Role):

Hall & Sellers (Printer)

Place of Origin:

Philadelphia, Philadelphia, Pennsylvania, Mid-Atlantic, United States, North America

Date:

1779

Materials:

Ink; Paper (laid)

Techniques:

Letterpress

Museum Object Number:

1966.0006

Complete Details

Object Number

1966.0006

Further research

Differences in materials and techniques between colonies, states, and printers

Differences in materials and techniques over time

Role of female printers



Acknowledgements

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Jessica Linker and staff at The Library Company

Joan Irving and Jocelyn Alcántara-García

Franklin Papers

American Philosophical Society Library & Museum staff



View the exhibition online or in person!