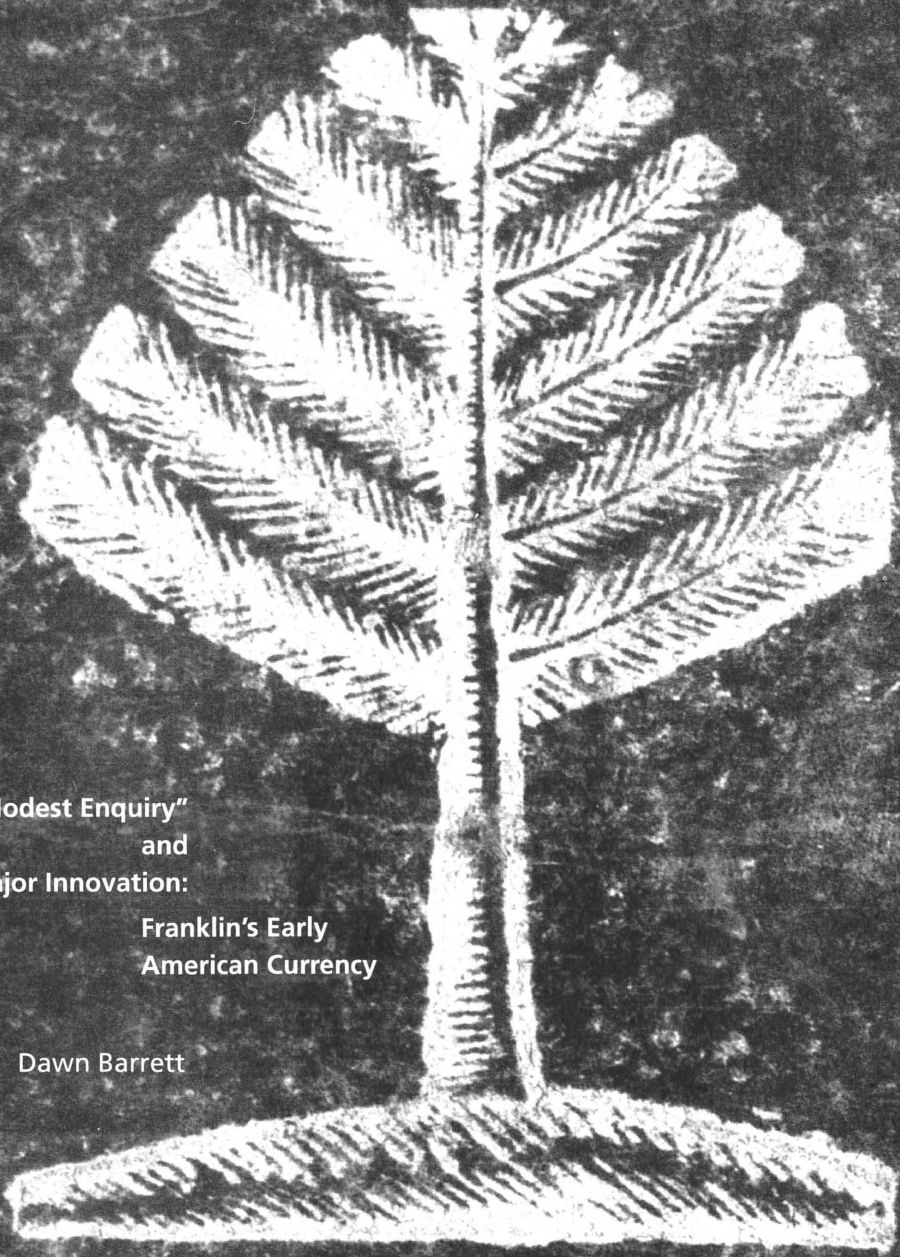


REE SHILLIN



"Modest Enquiry"  
and  
Major Innovation:

Franklin's Early  
American Currency

Dawn Barrett

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Dawn Barrett, 316-363  
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Dawn Barrett, a native of Massachusetts, lives in The Hague and works as an independent designer and design strategist. She was assistant concept advisor for the 1989 exhibition: Vorm van Geld (Form of Money) for the Stedelijk Museum, Amsterdam. She also produced an audio visual program on the design of Dutch paper currency. A

**American colonial paper money is put in the** visiting faculty member of the Graphic Design Department at the Rhode Island School of Design, Barrett is currently writing a book on the use of photography in the design of postage stamps. **author examines paper currency with regard to paper, printing and design and scrutinizes the function of text elements with regard to security and authenticity.** Benjamin Franklin's innovations for security paper and adapting nature printing for use in currency production are also discussed. The imagery of paper currency is examined with regard to ideological motives in the creation of a new and independent nation.

The title is a reference to a pamphlet written and printed by Benjamin Franklin in 1729 entitled: "A Modest Enquiry into the Nature and Necessity of a Paper Currency," which argued the economic benefit of issuing paper currency in Pennsylvania. Franklin later remarked in his autobiography that: "Our debates possess'd me so fully of the subject, that I wrote and printed an anonymous pamphlet on it. . . It was well receiv'd by the common people in general; but the rich men dislike'd it, for it increas'd and strengthen'd the clamor for more money, and they happening to have no writers among them that were able to answer it, their opposition slacken'd and the point was carried by a majority in the House. My friends there, who conceiv'd I had been of some service, thought fit to reward me by employing me in printing the money; a very profitable job and a great help to me. This was another advantage gain'd by my being able to write."

### Background

The three hundred year history of American paper currency is a complex one, with many changes occurring in the regulation and occasion of its issue. The chronology can be simplistically divided into four general periods: early American paper money: 1690-1800; private bank notes: 1800-1865; federally issued Civil War currency: 1861-1865; modern federal issues: 1865-present.<sup>1</sup>

<sup>1</sup> Doty, *World of Paper Money*, 117.

The four forms of paper money used in colonial America were: receipts for commodities called commodity notes; bills of credit based on tax receipts; colonial loan-office notes, and bills of exchange.<sup>2</sup>

<sup>2</sup> McCusker, "Colonial Paper Money," 95-96.

In the sixteenth and seventeenth century, inland trade in colonial America was chiefly conducted according to the ancient custom of bartering, where one commodity was exchanged for another. Although the quantity of the goods could be rated and legally set as a standard scale of exchange (i.e., ten pounds of pork = one beaver skin in season), having no established method for controlling the quality of the goods meant that inferior quality goods were the ones most frequently offered

for the payment of debts (especially those offered for the payment of taxes).<sup>3</sup> Native Americans were an important part of the local economy and it was often the commodities they controlled, like beaver pelts and wampum, that set the standard for the exchange of other forms of local commodity money. Commodity notes were developed as a way of standardizing the grading of produce. Tobacco was made the official currency of Virginia in 1619, but its perishable and bulky nature made it an inconvenient major currency. Tobacco notes were issued as

3 Massey, "Early Money Substitutes," 15-18. The exchange rate "ten pounds of pork = one beaver skin in season" is from a reproduction of a 1703 price list illustrated in Taxay, *Money of the American Indians*, and reproduced in Massey's article.

warehouse receipts as early as 1669 in Antigua and circulated as a kind of paper money there. Although the practice was abolished in Antigua in 1675, tobacco receipts were declared legal currency in 1727 in Virginia. These were one of the most trustworthy and useful currencies for many decades.<sup>4</sup>

4 Massey, "Early Money Substitutes," 20.

Bills of credit were issued by colonial legislative authority usually during wartime when insufficient funds were available in the treasury. Bills of credit functioned as a credit promise for the later payment of taxes. Unlike commodity money, bills of credit were declared legal tender and circulated freely within the issuing colony as well as neighboring ones. The issue of loan office notes were secured on the basis of collateral offered. The most common of these were the loans made on land

security. Land-office notes were first issued in Barbados in 1706, and were used on the continent later, as a recourse against the depreciating value of bills of credit. Land-office notes allowed individuals to borrow money at a specified interest rate and pay it back over a period of time. Strictly speaking a bill of exchange is a negotiable instrument rather than a form of paper money, but it can also be counted among the four forms of colonial paper currency, because it also circulated in lieu of other media of exchange.<sup>5</sup>

<sup>5</sup> McCusker, "Colonial Paper Money," 100-101.

The inventiveness of colonial American monetary experimentation can be attributed to a cultural predisposition to take risks, but it is more truthful to cite the pragmatic aspects of the colonial situation as the main impetus for the progressiveness of the local administrators. The conditions leading up to the use of paper money in the British American colonies can be summarized in three categories: the effects of imperial monetary regulations; on-going problems with coin and money substitutes; and emergency military situations.

<sup>6</sup> Sosin, "Imperial Regulation of North America." As a consequence, colonial commerce was forced to rely upon coin of other countries, money of account, barter system and the use of money substitutes like nails, powder and shot. There was a great variety of coin in circulation in European and American trade (including Central and South America). A partial listing includes the Danish rigsdaler and krone; the Dutch rijksdaalder and leeuwendaalder; the German reichstaler and thaler; the English crown, shilling and guinea; Portuguese dobra de quatro escudos and peça (Johannes); the Spanish peso de plata, piastra ('piece of eight') and pistola (gold

The British crown forbade the exportation of specie to the colonies in North America.<sup>6</sup> As a consequence, colonial commerce was forced to rely upon coin of other countries, money of account, barter system and the use of money substitutes like nails, powder and shot. There was a great variety of coin in circulation in European and American trade (including Central and South America). A partial listing includes the Danish rigsdaler and krone; the Dutch rijksdaalder and leeuwendaalder; the German reichstaler and thaler; the English crown, shilling and guinea; Portuguese dobra de quatro escudos and peça (Johannes); the Spanish peso de plata, piastra ('piece of eight') and pistola (gold

doblon); and the French ecu, or louis d'or ('French guinea'). The most abundant coin in America was the Spanish peso or piaster. The peso was called 'piece of eight,' because of its divisible nature. This coin was later referred to as the Spanish dollar, which was declared as the basic unit of the monetary system of the United States by the Continental Congress of 1775. The complexity of having so many different currencies

operating in the same arena meant that people were accustomed to figuring value in exchange rates, and dealing with money of account.<sup>7</sup>

*7 McCusker, Money and Exchange in Europe and America, 1600-1775. A*

*Handbook, 7.*

As no substitutes to coin were accepted in trade by the British merchants, specie was hoarded to use for payment. The shortage of circulating coin was additionally aggravated by an unfavorable balance of trade for the colonies. The trading situation varied greatly between individual colonies and differed from region to region according to the available local resources. In New England the value of imports consistently exceeded that of exports, which meant that the little specie that did circulate was constantly being drained away to pay for goods imported from the mother country. It is therefore not surprising that it was the New England colonies (chronically short of specie and more desperate for a circulating medium) that were the first to issue publicly

*8 The southern rice producing colonies, authorized paper currency.<sup>8</sup> British regulations also forbade the and the mid-Atlantic tobacco producing sponsorship of banks in the colonies, so bank notes were not a means to colonies had a more consistent market remedy the local shortage of money. for their goods in England, and*

*therefore did not suffer the same trade imbalance as found in the north, where products (like lumber and fish) were less easily traded with England.*

Because foreign coins did not bear indication of their value in colonial currency, their value was always debatable.<sup>9</sup> An advantage of paper money, over coin, was the explicitness of its value. In an effort to keep the specie circulating in the local economy, colonies gave a higher value for the coin. Although overvaluation served a short term goal of increasing the quantity of circulating coins, it made the use of coin

problematic between colonies, and had an adverse effect on value and prices.<sup>10</sup>

centuries. Clipping (removing the edges

of coins to obtain small amounts of

It took conditions of emergency and necessity to initiate the widespread their precious metals) and sweating

acceptance of paper currency. When left with no alternative, paper (leaching out metals with heat) were

common ways of obtaining precious metals

conditions of crisis (brought about by military campaigns) that spawned from coins. The result was a coin no

longer as heavy or valuable as the

world site of the first issue of publicly authorized paper money. Bills of amount stamped upon it. Paper had the

credit were first issued in Massachusetts Bay Colony in 1690 when the advantage of being impervious to

Massachusetts colonial treasury lacked funds to pay soldiers returning debasement.

from a campaign against the French in Quebec. The officials had counted

ed on the spoils of a successful campaign to provide revenue necessary

for the payroll. When it appeared that the soldiers would mutiny for lack

of pay, the decision was taken to issue paper money which would be

11 Brock, *Currency of the American* honored in the payment of debts such as taxes.<sup>11</sup> One can only imagine

Colonies 1700-1764: A Study in the frustration of the soldiers when told that a printed piece of paper

Colonial Finance and Imperial was a fair exchange for their services. Soldiers typically received only a

Relations. fourth of the stated value. A year later, in an effort to sweeten the deal,

a discount incentive was offered. Those wishing to use bills of credit for

the payment of taxes would receive a discount making these bills even better than money. At that point their value and use began to gain some acceptance in the eyes of the general public (*figure 2*).

The financial strategy for issuing bills of credit worked like this: bills were printed to pay debts incurred by the state for services like soldiering. The colonial treasury could replace the funds paid out in paper money by allocating a percentage of the next tax collection to pay for the redemption of the bills. In the 1690 Massachusetts issue, the bills of credit were based upon money that was expected, rather than on funds already held. This was a workable system, so long as those tax revenues were actually received, and the earmarked funds really used for the retirement of the paper bills. But it did not always work according to plan. Tax collection was never complete or timely, and money collected was often diverted to other urgent causes, which not atypically were also military ones. When other new and equally urgent needs arose, the decision was often taken to print more money, without having first retired the old, and so it went. Despite good intentions to balance the amounts issued in paper currency with hard monies or land to back it, most colonies fell prey, at least occasionally, to the temptation to print money as the need arose, while they neglected to balance the accounts in their treasuries.

**Printing colonial and continental currency**

Paper's utility as a counterfeit deterrent is almost equal to its importance as the substrate for the printing. The most secure currency paper is made from a formula of secret ingredients that also contains specially devised watermarks or other unique materials. To enhance security, watermarked and specially manufactured papers were used in the production of early American paper currency. Like most paper used in American colonial

printing, the paper employed for the earliest currency issues was imported from Europe.<sup>12</sup> Paper mills in New England were not established until 1728, almost thirty years after the introduction of paper currency in that region. Mills operating before this time in America were all located in the middle colonies, which did not issue paper currency until later in the century. (The earliest paper mill in America was built by William Rittenhouse and his sons in 1690 (coincidentally the same year as paper currency was first issued in Massachusetts).

Security features found in American-made currency paper of the mid-eighteenth century include the addition of mica, colored silk threads and other fibrous materials. Colored threads first appear in the paper of

currency printed by Benjamin Franklin during the 1730s. (Crane paper observed are in Franklin's Pennsylvania company, the manufacturer of contemporary American currency paper, of August 1739. Green threads are found in 10 shilling bills, invented by Franklin and is over 200 years old.) The first use of mica for red and blue fibres are seen in the 15 currency printing occurs in Pennsylvania, Delaware and New Jersey issues and 20 shilling. The earliest printed by Franklin, during 1740s.<sup>13</sup> Franklin, who characteristically occurrence of mica I've seen is sought inventive design solutions for commonly vexing problems, Franklin's August 1746 Pennsylvania experimented with paper formulas that included the addition of mica and asbestos.<sup>14</sup> Experimentation with recipes for paper manufacture was

just one among several ways that Franklin helped stimulate the growth of the Philadelphia area paper industry. Chronically at a loss for

12 Eddy, *Account Books Kept by Benjamin Franklin*, 2:19.

reasonably priced, reliable sources of paper, it served his own interests as a printer and retailer, to encourage the development of local paper-mills.<sup>15</sup> Later in his life Franklin boasted that he had been responsible for the development of eighteen different paper mills in the Philadelphia region. His cooperation with paper mills was both experimental and entrepreneurial in nature. He collected rags that he then sold to paper-makers. In addition to buying paper from local paper mills to use at his own press, he conducted a vigorous wholesale trade as paper supplier to other printers and ran a stationery store at his press that sold small quantities of paper at retail prices. Franklin's ledgers indicate that he sold about two thirds of the paper that he bought.

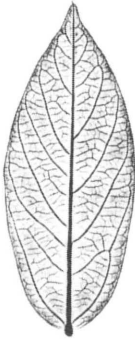
Accounts with local paper makers first appear in Franklin's ledgers in 1735, and mark the first phase of the increased paper production in the Province of Pennsylvania.<sup>16</sup> Entries in Franklin's 1742 account ledger show sums being paid out to Anthony Newhouse, for which there is no receivable product. It is possible that these expenses were incurred by Franklin as research and development costs for the creation of currency paper with mica, and that these payments were purposely omitted from the ledger as a way of protecting the secrecy of those operations with Newhouse. The first specific mention of "money paper" occurs in Franklin's ledgers of July 27, 1743/44 recording "4 reams and 14 quires for paper money" purchased from Anthony Newhouse.<sup>17</sup> Starting in the following year, Newhouse furnished most of the paper Franklin used to print currency during the 1740s.<sup>18</sup>

15 Eddy, *Account Books Kept by Benjamin Franklin*, 2:30-31.

16 Franklin bibliographer, C. William Miller, suggests that Franklin was experimenting with paper concoctions with papermaker Anthony Newhouse in the 1740s. Miller, C. William. 1974. *Benjamin Franklin's Philadelphia Printing 1728-1766: A Descriptive Bibliography*. Philadelphia: American Philosophical Society, xli.

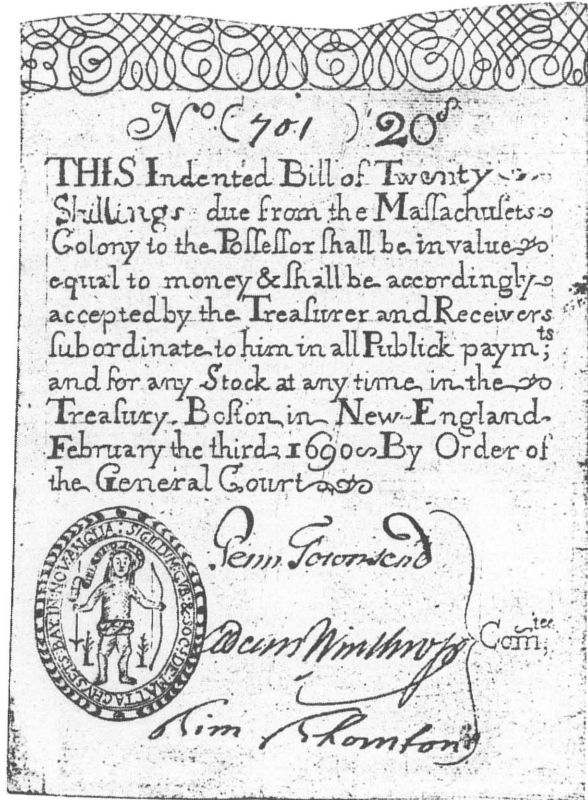
17 Eddy, *Account Books Kept by Benjamin Franklin*, 2:26-28.

18 Mica has not been used in American currency since colonial times, but the use of metallic flecks in currency was introduced in the 1994 Dutch hundred guilder, designed by Jaap Drupsteen.

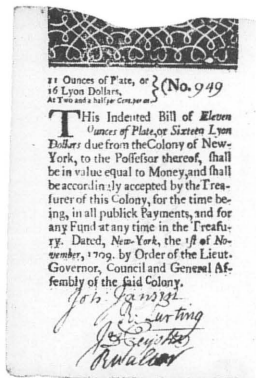


**Figure 1** A sample mono leaf print printed by Joseph Breintnall of Philadelphia (circa 1731-44). This nature printing process was adapted by Benjamin Franklin in the late 1730s as a security device for paper currency printing. Reproduction, courtesy of the Library Company of Philadelphia.

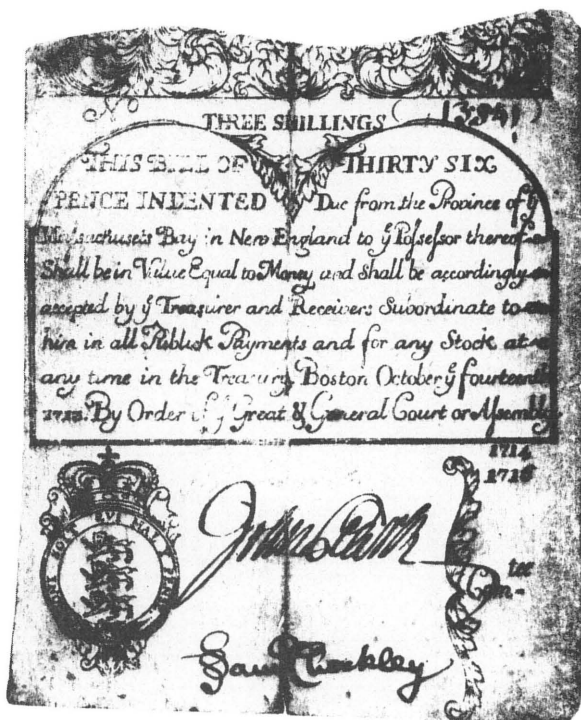
**Figure 2** This 1691 indented bill of credit was issued by the Colony of Massachusetts Bay according to a February 3, 1690/91 resolution and was printed from an engraved copperplate. This was the second issue of paper money in Massachusetts, and was receivable by the Treasurer for taxes at a five percent premium. The Massachusetts' colony seal shows an Indian with a speech banner reading (in reverse) "COME OVER AND HELP US." The bill was fraudulently altered to raise the denomination from two shillings and six pence to twenty shillings. Reproduction courtesy of Eric P. Newman Numismatic Education Society.



**Figure 3** This New York silver issue, indented bill of credit with currency stated in "Lyon Dollars" (referring to the "leeuwendaalder," the Dutch "lion dollar" coin with royal heraldry depicting two facing lions) was issued in 1790. Initially issued as receivable for taxes at two and one-half percentage interest, the premium was later revoked. Printed by William Bradford with woodcut engraving and typeset text. Reproduction, courtesy of Eric P. Newman Numismatic Education Society.



**Figure 4** This 1713 Massachusetts indented bill was redated and reissued in 1716. The shape surrounding the text was distinctive for that denomination and was intended to protect the bill from alterations. This copperplate engraving was reused with later dates added for at least eighteen subsequent issues from 1716 to 1740. Royal arms contain the motto "HONI SOIT QUI MAL Y PENSE" (Evil to him who evil thinks). Reproduction, courtesy of Eric P. Newman Numismatic Education society.



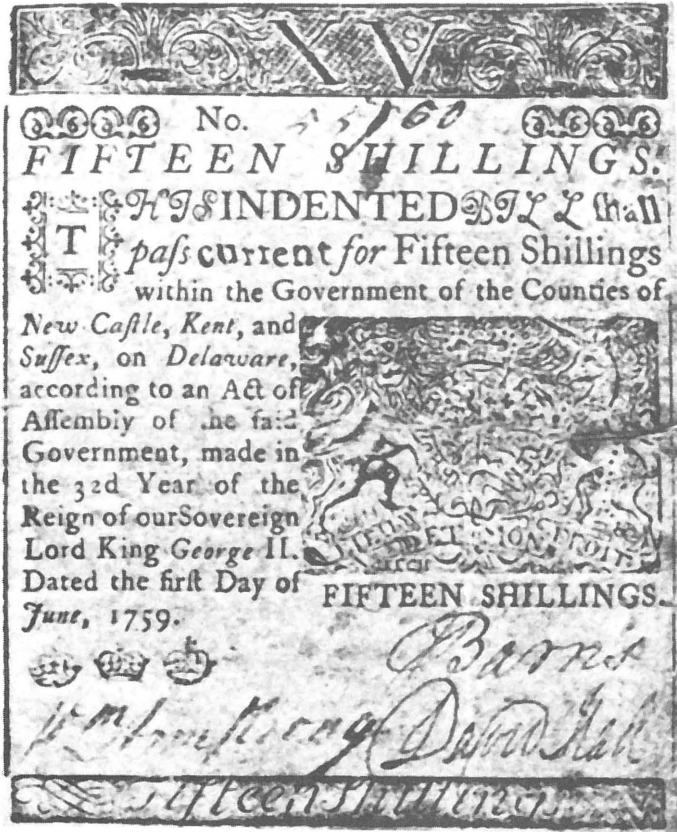


Figure 5a Front. This Delaware 1759 legal tender bill of credit was printed by Benjamin Franklin and David Hall, employing partly engraved blocks and partly set type. The Arms contain the motto "DIEU ET MON DROIT" (God and my right). Reproduction, courtesy of Eric P. Newman Numismatic Education Society.



**Figure 6** Here is a page of leaf prints by Joseph Breintnall produced during the years 1731-44. Plant identifications include: "Pidgeon Pea, French Mallow, Wormwood, Snakeroot, Sage, Raspberry, Tansey, Mulberry, etc."

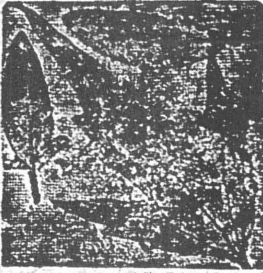
Breintnall used the nature printing process to document local botanical species some of which he sent to British botanists interested in indigenous American plants. His enthusiasm for the activity lead him to also make portfolios of nature prints for sale. Two albums of Breintnall's prints were given by his widow to the Library Company of Philadelphia. Reproduction, courtesy of The Library Company of Philadelphia.





**Figure 7** Back. This 1779 continental currency demonstrates a nature print made with two willow leaves on cloth. The paper contains mica (left side, near edge of square) and colored threads (visible in upper segment of the first leaf) and bears the watermark "CONFEDERATION" for this and higher denominations and "UNITED STATES" for lower denominations. A new set of nature prints was made for this and other newly added denominations. Punctuation marks were included in the border design. Before the issue was complete, the exchange rate had slipped to \$40 in bills for \$1 in specie. Reproduction, courtesy of the Print Department of Boston Public Library.

† ONE DOLLAR. †



PHILADELPHIA :

Printed by HALL and SEL-  
LERS. 1776.

† TWO DOLLARS. †



PHILADELPHIA :

Printed by HALL and SEL-  
LERS. 1776.

THREE



Philadelpha :  
Hall & S

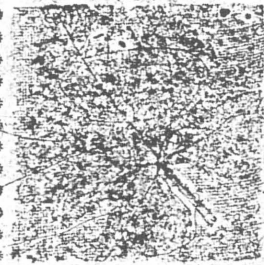
EIGHT DOLLARS.



PHILADELPHIA :

PRINTED BY HALL &  
SELLERS. 1776.

† SEVEN DOLLARS. †



PHILADELPHIA :

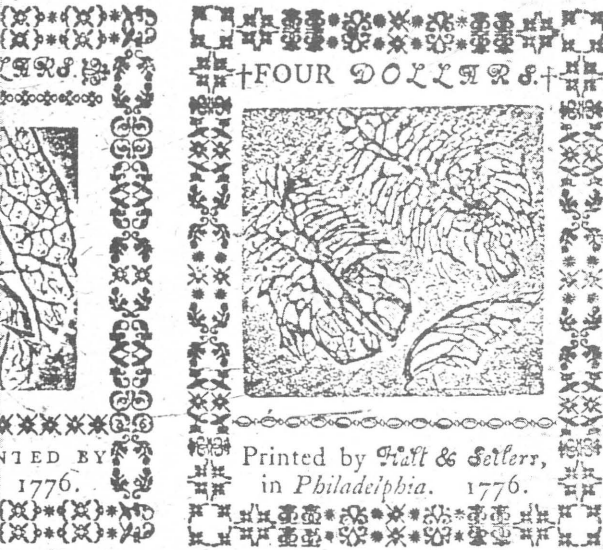
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& SELLERS. 1776.

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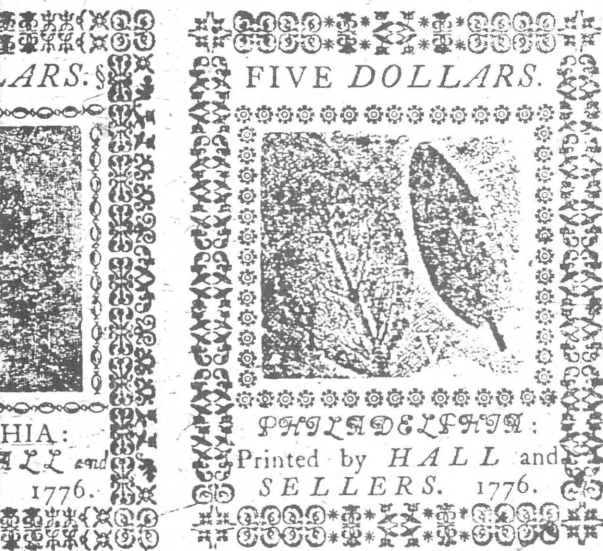


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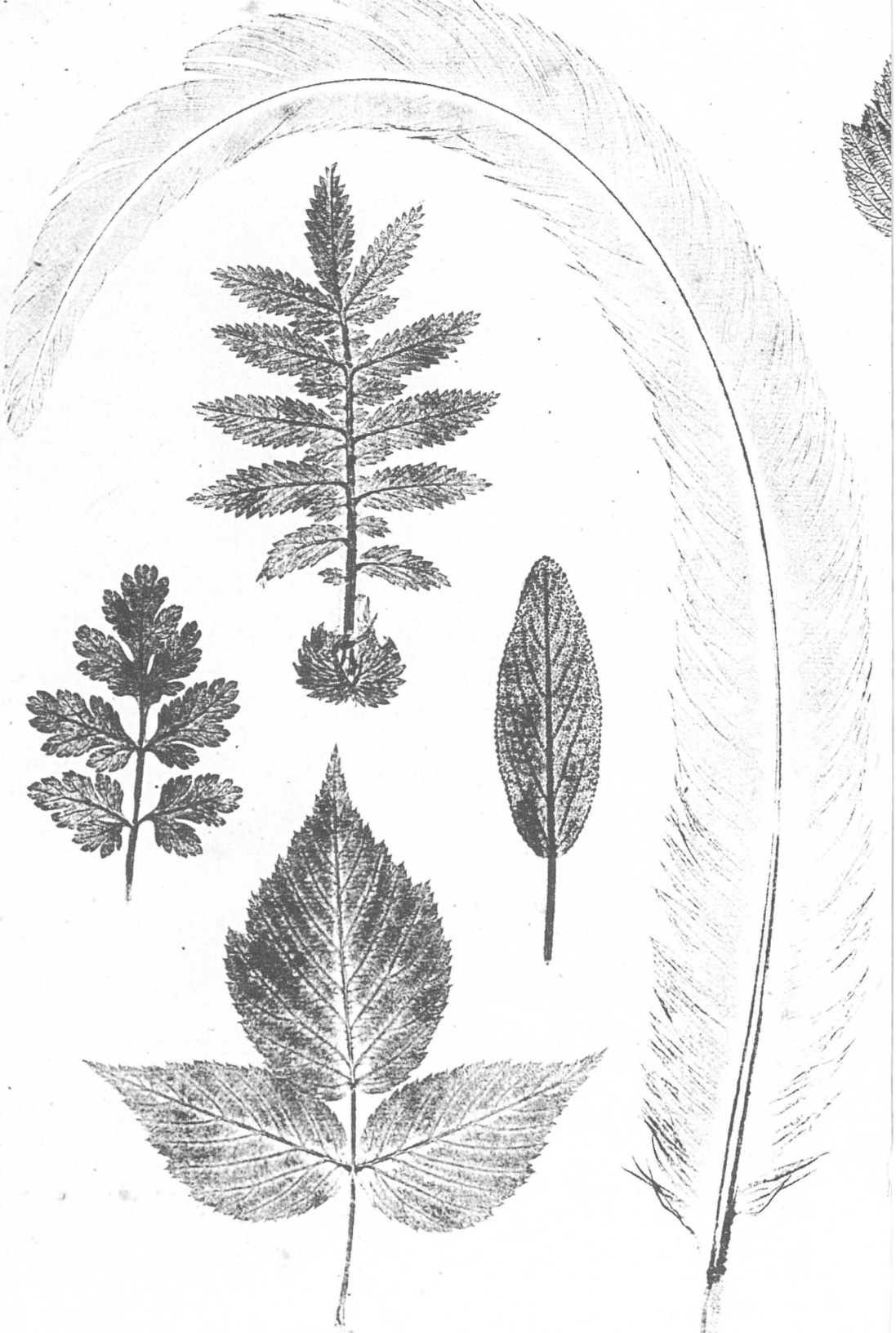
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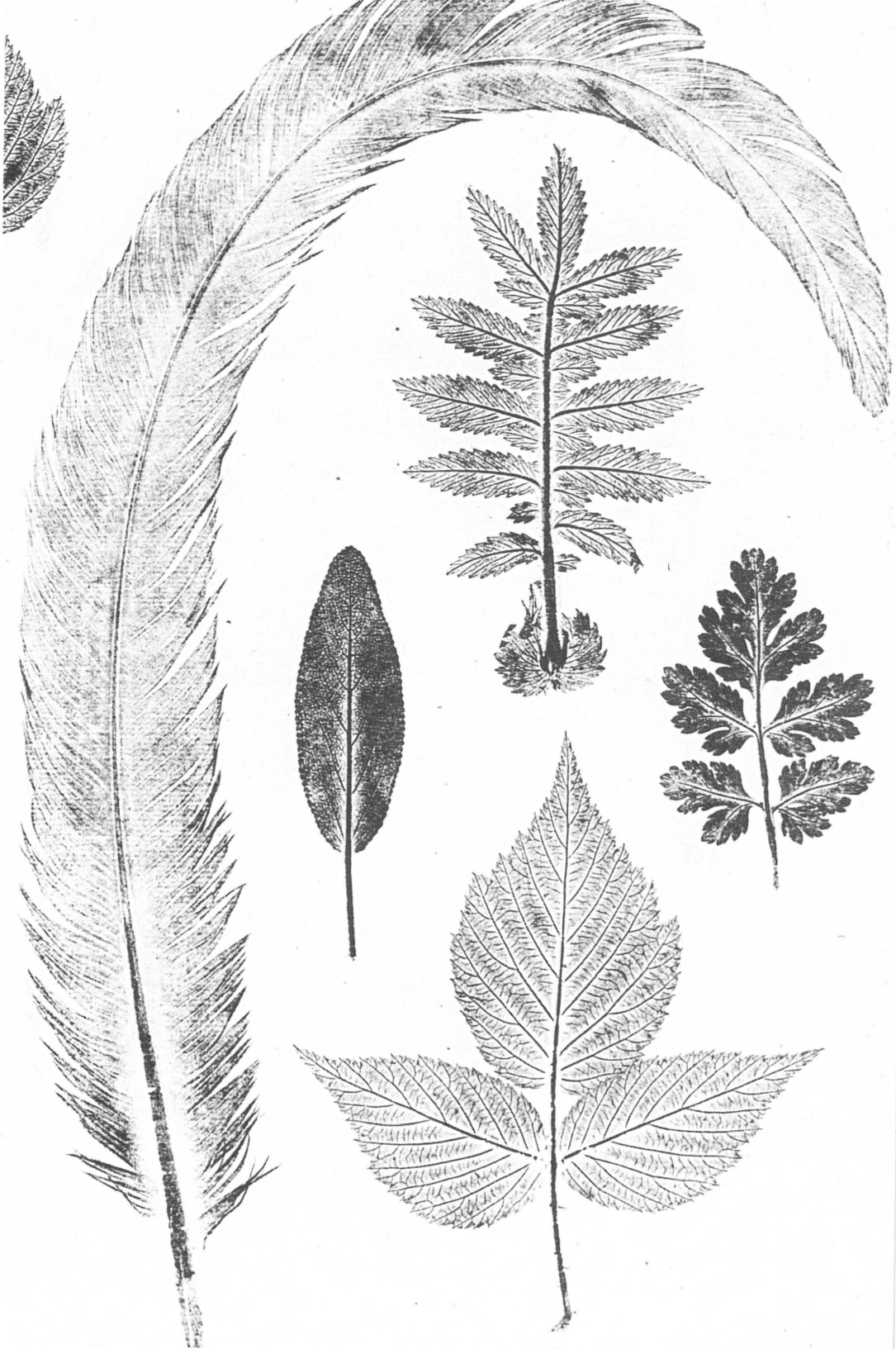


**Figure 8** Back. This 1776 continental currency shows detail of an uncut sheet showing the back of 1, 2, 7, and 8 dollar denominations. (The front of this print is figure 15.) The nature prints on \$2 and \$8 were used on previous Pennsylvania issues. Colored silk threads are visible on denominations above \$8. These were printed by Hall and Sellers of Philadelphia, the subsequent owners of the Franklin and Hall printing firm, with paper produced by Ivy Mills of Chester County, Pennsylvania. Reproduction, courtesy of the Print Department of Boston Public Library.



**Figure 9** (Next page) Here is a full page of nature prints by Joseph Breintnall, made by inking both sides of the specimen, placing it on the inside of a folded sheet and applying pressure. The leaf in the center must have been printed separately. In addition to leaves, Breintnall also printed cloth and feathers. Although feathers are never used in currency printing, cloth features prominently as the background in the cast metal nature prints (see figure 7). Reproduction, courtesy of The Library Company of Philadelphia.





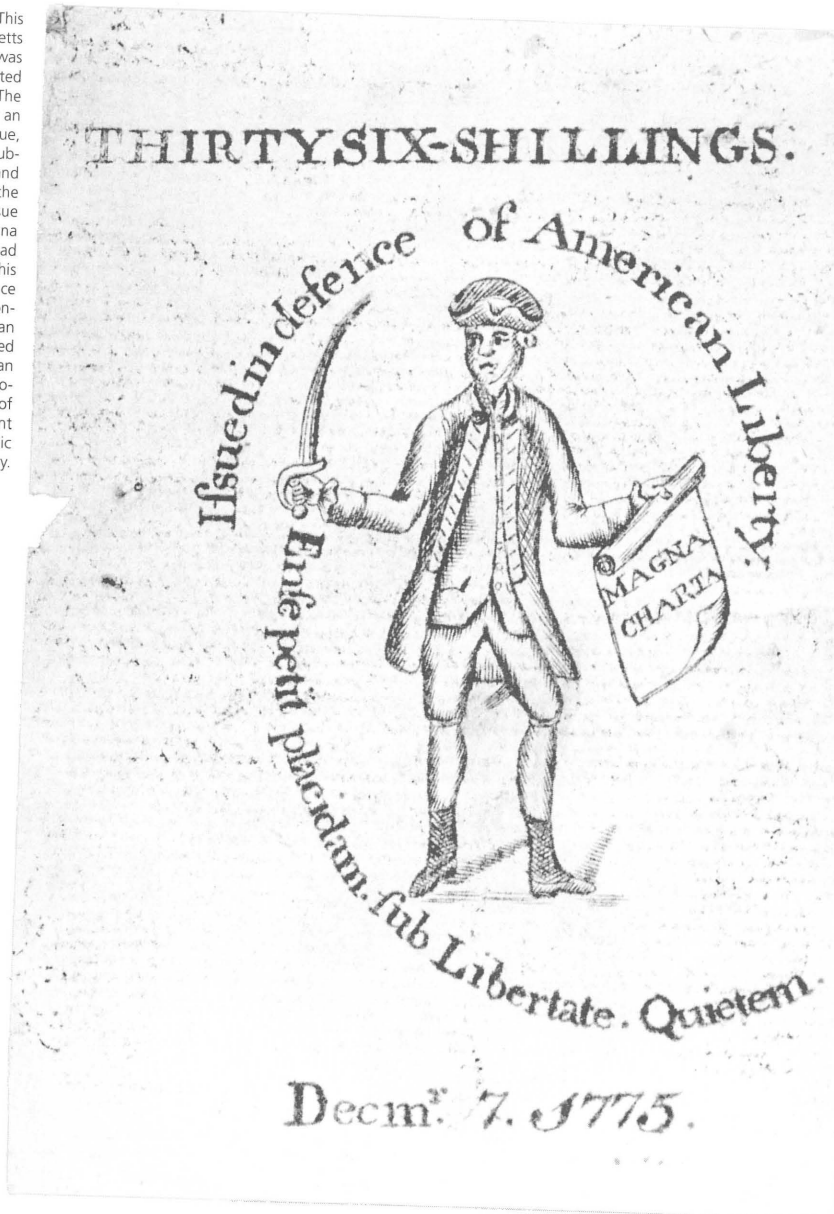
**Figure 10** Back. This is the 1776 Massachusetts "pine tree shilling." Because paper money was argued and justified as a needed stimulus to trade, vignettes portraying local economy and commerce were not uncommon subject matter for pictorial representation. Nonheraldic imagery for New England currency includes ships or shipyards as well as representation of local resources and export commodities like cod and pine trees. The front of this bill was engraved and printed by Paul Revere. Reproduction, courtesy of the Print Department of Boston Public Library.



**Figure 11** Front. This 1775 Maryland bill was issued to promote the manufacture of gunpowder and contained a propagandistic woodcut by Thomas Sparrow. Reproduction, courtesy of Eric P. Newman Numismatic Education Society.

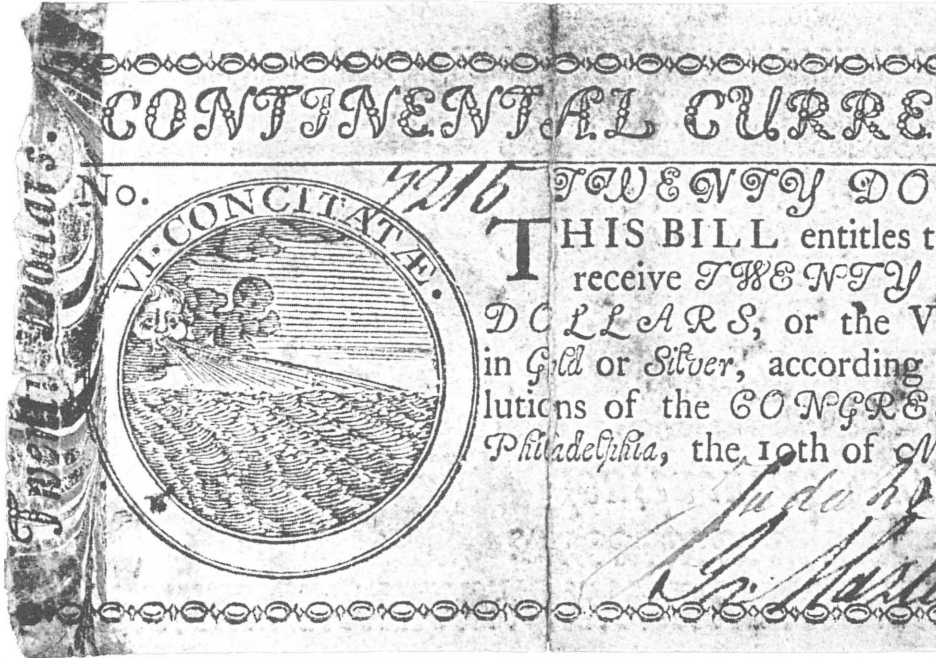


**Figure 12** Back. This 1775 Massachusetts legal tender bill was engraved and printed by Paul Revere. The plate, first used for an earlier August issue, was reused in subsequent issues and modified for the November 1776 issue by changing "Magna Carta" to read "Independence." This is a rare instance where a non-allegorical human figure was depicted on early American currency. Reproduction, courtesy of the Print Department of the Boston Public Library.



**Figure 13** Back. This 1779 South Carolina bill of credit showed an image of Prometheus bound and attacked. It was engraved and signed by Thomas Coram of Charleston. Reproduction, courtesy of Eric P. Newman Numismatic Education Society.





**Figure 14** Front. For the printing of the \$20 denomination of the 1775 continental currency, Benjamin Franklin supplied a paper with a polychrome, marbled edge as a deterrent for counterfeiting. (There are no known counterfeits of this issue in existence.) The printed emblem shows a strong wind making waves. It was created by Franklin and included the motto, "VI. CONCITATAE" which he translated as "raised by force." An article signed "Clericus," but attributed to Franklin, described the symbolic meaning: "... in figurative language great waters have signified the people, and waves an insurrection. The people of themselves are supposed as naturally inclined to be still. . . Their rising here appears not to be from any internal cause, but from an external power. . . The black cloud perhaps designates the British Parliament, and the waves the colonies." Reproduction, courtesy of the Print Department of Boston Public Library.

THE UNITED STATES OF AMERICA  
**ONE DOLLAR.** No. 56791  
 THIS Bill entitles the BEARER to receive ONE SPANISH MILLED DOLLAR, or the Value thereof in Gold or Silver, according to a Resolution of CONGRESS, passed at PHILADELPHIA February 17, 1776.  
*Wm Coats*  
*Per Williams*  
 ONE DOLLAR.

THE UNITED STATES OF AMERICA  
**EIGHT DOLLARS.** No. 56791  
 THIS Bill entitles the Bearer to receive EIGHT Spanish milled DOLLARS, or the Value thereof in Gold or Silver, according to a Resolution of CONGRESS, passed at Philadelphia February 17, 1776.  
*Wm Coats*  
*Per Williams*  
 EIGHT DOLLARS.

THE UNITED STATES OF AMERICA  
**TWO DOLLARS.** No. 56791  
 THIS Bill entitles the Bearer to receive TWO SPANISH MILLED DOLLARS, or the Value thereof in Gold or Silver, according to a Resolution of CONGRESS, passed at Philadelphia February 17, 1776.  
*Wm Coats*  
*Per Williams*  
 TWO DOLLARS.

THE UNITED STATES OF AMERICA  
**SEVEN DOLLARS.** No. 56791  
 THIS Bill entitles the Bearer to receive SEVEN SPANISH milled DOLLARS, or the Value thereof in Gold or Silver, according to a Resolution of CONGRESS, passed at Philadelphia February 17, 1776.  
*Wm Coats*  
*Per Williams*  
 SEVEN DOLLARS.

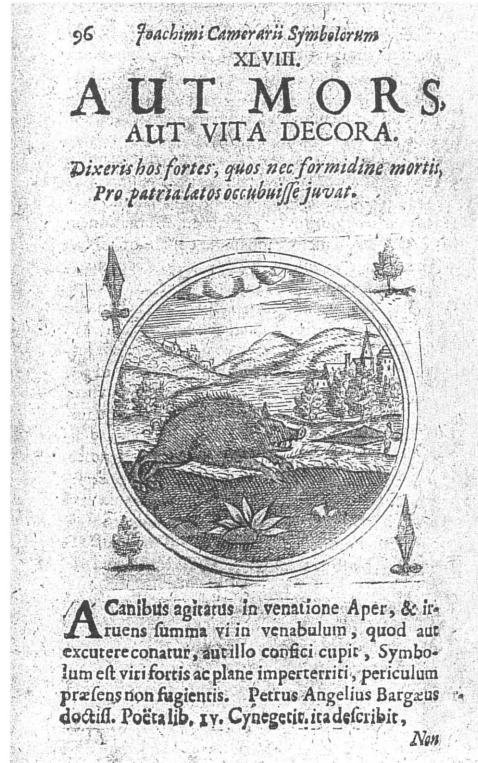
THE UNITED STATES OF AMERICA  
**THREE DOLLARS.** No. 56791  
 THIS Bill entitles the Bearer to receive Three SPANISH milled DOLLARS, or the Value thereof in Gold or Silver, according to a Resolution of CONGRESS, passed at Philadelphia February 17, 1776.  
*Wm Coats*  
*Per Williams*  
 THREE DOLLARS.

THE UNITED STATES OF AMERICA  
**SIX DOLLARS.** No. 56791  
 THIS Bill entitles the Bearer to receive SIX SPANISH MILLED DOLLARS, or the Value thereof in Gold or Silver, according to a Resolution of CONGRESS, passed at Philadelphia February 17, 1776.  
*Wm Coats*  
*Per Williams*  
 SIX DOLLARS.

THE UNITED STATES OF AMERICA  
**FOUR DOLLARS.** No. 56791  
 THIS Bill entitles the Bearer to receive Four Spanish milled Dollars, or the Value thereof in Gold or Silver, according to a Resolution of CONGRESS, passed at Philadelphia February 17, 1776.  
*Wm Coats*  
*Per Williams*  
 FOUR DOLLARS.

THE UNITED STATES OF AMERICA  
**FIVE DOLLARS.** No. 56791  
 THIS Bill entitles the Bearer to receive FIVE SPANISH MILLED DOLLARS, or the Value thereof in Gold or Silver, according to a Resolution of CONGRESS, passed at Philadelphia February 17, 1776.  
*Wm Coats*  
*Per Williams*  
 FIVE DOLLARS.

**Figure 15** Front. This uncut sheet of signed 1776 continental currency (see back of figure 8) contains emblems including: an acanthus plant with motto *DEPRESSA RESURGIT* (though oppressed it rises) taken from Camerarius and used for \$1 bill; some grain being threshed with motto "*TRIBULATIO DITAT*" (affliction improves it) on the \$2 bill; a harp with thirteen strings with motto: "*MAJORA MINORIBUS CONSONANT*" (large and small in harmony) on \$8 bill. Describing the harp emblem Franklin wrote: "I conceive that the frame may be intended to represent our new government by a Continental Congress; and the strings of different lengths and substance, either the several colonies of different weight and force, or the various ranks of people in all of them, who are now united by that government in the most perfect harmony." Reproduction, courtesy of the Print Department of Boston Public Library.

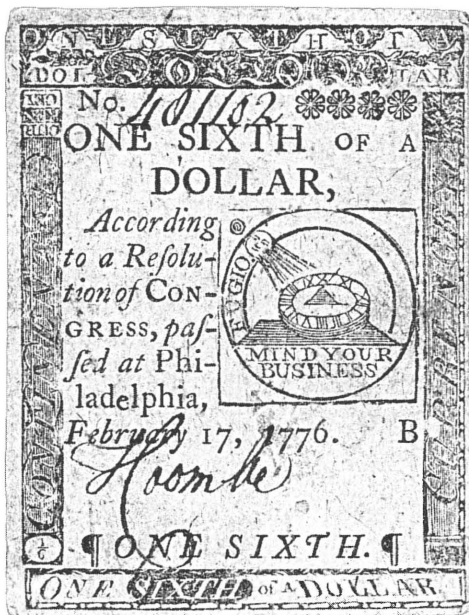


**Figure 16** Volume 2, page 96 of the 1702 edition of the motto book *Symbolorum ac Emblematus Ethico-Politicorum* by Joachim Camerarius was in Benjamin Franklin's library. The emblem was one that was chosen by Franklin to appear, with its existing motto, on the four dollar denomination of the continental currency of 1775. (See figure 17.) The motto "*AUT MORS, AUT VITA DECORA*" (translated by Franklin as "Death or liberty") is the classical antecedent for Patrick Henry's famous phrase "give me liberty or give me death." Reproduction, courtesy of The Library Company of Philadelphia.

**Figure 17** The emblem appearing on the front of the 1775 \$4 continental currency used an image and motto from a seventeenth century motto book (figure 16). Concerning this emblem Franklin wrote: "On another bill is impressed a wild boar of the forest rushing on the spear of the hunter. . . with this motto AUT MORS, AUT VITA DECORA, which may be translated — Death or liberty. The wild boar is an animal of great strength and courage, armed with long and sharp tusks, which he well knows how to use in his defence. He is inoffensive while suffered to enjoy his freedom, but when roused and wounded by the hunter, often turns and makes him pay dearly for his injustice and temerity."

*Pennsylvania Gazette*,  
September 20, 1775, Number  
2439. Reproduction, courtesy of  
the Print Department of Boston  
Public Library.





**Figure 18** Front. This 1776 fractional continental currency shows Franklin's design of a rebus containing a sun, a sun dial and the Latin word "FUGIO." Under this design is the English text "MIND YOUR BUSINESS." The combination suggests that because time (the sun) is flying, pay attention to your business or get to work. In the wording is also the unmistakable suggestion "mind your (own) business" that is not unlike other Franklin proverbs such as "time is money." "FUGIO" is also a reference to the older and familiar *tempus fugit* (time flies) motif that frequently appeared in religious contexts such as gravestones, but in this design Franklin has secularized the meaning. Reproduction, courtesy of the Print Department of the Boston Public Library.



**Figure 19** Back. This 1776 fractional continental currency shows Franklin's chain design of the united colonies. This design was reused and widely adopted for many other patriotic uses, including the fugio cent of 1787 and the liberty cent of 1793. Franklin's sketches and final drawings for this device are in the collection of Franklin papers, housed in the American Philosophical Society. Reproduction, courtesy of the Print Department of the Boston Public Library.

Franklin later served as an advisor to the committee of the Continental Congress responsible for the design and printing of the currency, so it is not surprising to also find mica and silk threads featured in Continental Currency paper (*figures 7-8, 15*). Paper for this currency was manufactured at Ivy Mills, a Pennsylvania paper mill owned by

19 Wilcox, "The Wilcox Paper Mill (Ivy Mills) 1729-1866," 7:1, 28-34.

Thomas Wilcox, who knew Franklin and supplied him with all kinds of paper.<sup>19</sup> The use of mica in the currency paper was so well established by the end of the eighteenth century that it was also regularly included in counterfeits. Paper made with "silk and isinglass in it &c." was found

20 Newman, "Counterfeit Continental Currency Goes to War," 70:10.

among other counterfeiting equipment seized on a captured British ship en route to British-occupied New York in 1779.<sup>20</sup>

**Printing**

Early American paper money was printed by two methods: intaglio engravings on metal plates (*figures 2, 4, 12, 13*); and relief printing with cast type combined with cast ornaments (*figures 5, 7, 14, 15*), or with type combined with engraved "cuts" in either wood or metal (*figures 3, 11*). Combinations were also employed, most typically with plate printing for the front and relief printing for the back. As a matter of course, all printed currency also included handwritten portions, for the serial numbering and signatures.

**Nature printing**

Perhaps the most ingenious invention in all of early American paper money printing is Franklin's use of nature prints on paper currency. Nature printing was a common eighteenth century technique used for recording and conveying information about the form and structure of

plants. The practice of mono-printing botanical specimens dates as early as the Renaissance, but nature printing techniques had never been

translated into mechanical print processes until Franklin invented a way to print a leaf in a 1737 edition of Poor Richard's Almanac.<sup>21</sup> The leaf was used as an illustration for an article on the plant's medicinal value as a snake bite remedy. By casting a leaf in what is thought to have been a plaster and asbestos mixture, Franklin created a lead stereotype that

could be nailed to a wooden block and printed in relief along with other cast elements and type.<sup>22</sup> Two years later, Franklin used this process to create leaf images on Pennsylvania paper currency. In order to make a consistent print impression (for up to 34,000 identical prints), Franklin

must have developed a method to cast these leaf and cloth impressions in metal, using a soft, intermediate mold.<sup>23</sup> The uniqueness and delicacy of a natural object made a cast impression that could never be adequately rendered by counterfeiters, as long as the process remained a secret.

Franklin was acquainted with the (mono) nature printing process as it was currently practised by botanists and natural historians of the time. The botanist John Bartram, and the scrivener Joseph Breintnall made nature prints (*figures 1, 6, 9*) for many years before Franklin adapted the

process.<sup>24</sup> Joseph Breintnall, a friend of Franklin, was the presumed author of the Poor Richard "Rattle-Snake Herb" text. While working as a printer in London early in this career, Franklin had learned the rudiments of typesetting and refers in his autobiography to making replacement type when working in Keimer's print shop later in Philadelphia. With only a rudimentary knowledge of typesetting and without the help of any type foundry in the colonies (the first type foundry in America was not established until twenty years later), Franklin was able to devise a means

of casting botanical specimens as a security device.<sup>25</sup> Franklin passed  
25 Numismatist Eric Newman has shown how  
along this secret security feature to his partner David Hall, as well as to  
the same plaster cast of the original  
other currency printers he sponsored without ever allowing the  
leaf had been reused to make more than  
knowledge to become public (*figures 5b, 7, 8*).  
one lead casting. This allowed multiple

printing of the exact same leaf. Newman,  
What is most remarkable about this invention is that it remained a  
"Nature printing on Colonial and  
complete secret (to historians of printing as well as numismatists), until  
Continental Currency," 77:2-5, 147-623.

the mid-twentieth century when research was conducted on the leaf  
illustrations contained on early Pennsylvania currency included in an  
exhibition of botanical illustrations at the Philadelphia Museum of Art in  
26 "A World of Flowers," 236-240.  
the year 1963.<sup>26</sup> Franklin's invention also predated, by about fifty years,  
the use of stereotyping, which was later developed in Paris as a currency  
printing innovation useful for producing the French assignats.

## Design

Like most paper money, early American currency is comprised of standard elements deemed necessary for its proper functioning as a monetary instrument. The distinguishing visual components of early American paper money are: text, borders and certain kinds of symbolic or figurative imagery. Each of these elements help perform one or more of the following functions: defining the use, conditions and worth of the financial instrument; establishing authority and trust in the representative value; working as a security device, to deter or detect counterfeiting and alterations; and identifying the issuing body, region or political purpose underpinning the emission.

## Text

That eighteenth-century American paper money is text heavy is not surprising given the fact that its antecedents are composed only of words. Text was used to establish and explain the financial functions of the paper in the following message elements:

*Denomination* Value was indicated in an established currency. Early American paper money was mostly issued in British Sterling (shillings and pence), but measures of gold and silver are also referenced. In 1775 the Continental Congress decided on using what was called “Spanish Milled Dollars” as the currency standard. Denominations are chiefly indicated by words rather than figures.

*Classification* This identified the paper with an official or unofficial name. (e.g., “this bill”; “this lawful money”; “proclamation money”; etc.). During eighteenth century America many kinds of money were produced, using different methods of financial backing, with different rules for circulation and redemption. Words used on the bill itself do not always spell out the basis of the money’s issue.

*Terms* This explained the conditions and rules for its use to both bearer and receiver: e.g., “shall be equal in value equal to Money and shall be accordingly accepted by the Treasurer . . . in all publick payments for any stock at any time” (*figure 2*) — “this indented bill shall pass current. . .” (*figure 5b*).

*Authorization* Here the body responsible for issue was named, citing the location and date of the authorizing act or resolution, e.g., “By Order of the Great and General Court or Assembly” or “according to an Act of Assembly of the said Province . . .” It is primarily by resolution date, rather than the date of the printing or actual issue, that currency of this period is identified.

*Deliberate misspellings* This and other secret marks were sometimes made in the text as a security check. Since counterfeiters tended to faithfully reproduce the original, including its misspellings, this was not effective against outright counterfeiting. A different misspelling of the same word assigned to each denomination, however, did serve as a secret check for detecting alterations made to raise the value.

*Manufacture information* The printer, engraver and date was often included on the back of typeset bills (*figures 5b, 7, 10*).

*Warning to counterfeiters* The standard line: “Tis DEATH to Counterfeit” or “To Counterfeit is DEATH” was included on the back of most typeset bills. A counterfeit warning appears frequently, despite the fact that a death penalty was not consistently enforced (*figure 5b*).

*Signatures* To help control security and authorization, as few as one, and as many as four persons signed each bill. Not infrequently, a contrasting color of ink was used for signatures as a partial deterrent to counterfeiting. The presence of signatures harkens back to earlier forms of paper money, recording the transfer of monies of account between individuals.

*Serial number* Each bill was given a unique number for that denomination and date of issue. Numbers were handwritten in a specific location. Pre-printed indicators varied from the prompt word 'No.' (*figure 3, 5b*) to the use of brackets (*figures 2, 4*). More specific indicators, like a defined box or rules, helped standardize the visual consistency of larger emissions.

## **Borders**

At first impression, the border designs on early American paper money seem to be an ornamental device. While it was true that their form follows the aesthetic traditions of the applied and decorative arts of the period, border designs on paper currency served a utilitarian security function that was developed over time, in a direct response to successful counterfeiting practices.

*Indented border design* This provided validation and verification for the redemption of bills. Indented borders were complex designs that spanned the area where the bill was connected to the stub receipt retained by the authorities. The indented design was irregularly cut through, often in a curved or wave-like motion. When brought for redemption, the bill was matched to the issue number of the stub and checked for genuineness by aligning the design of the indented portion with the remainder. Genuine bills should fit like a puzzle piece. Although the design helped check the genuineness at the time of redemption, it was a useless security check when the bill could not be compared to its stub (*figures 2-4*).

*Abstract designs* The complexity and detail of these designs created a general deterrent to counterfeiting. Ornament provided an occasion to include detailed line work that was difficult to reproduce. The abstract, non-pictorial nature of borders also provided a place to combine unusual printing techniques. Cast type was combined with cast ornaments and engraved "cuts," which together produced a tangle of printing techniques that counterfeiters would have to replicate (*figure 5a*).

*Characteristic border shapes* These helped tag denominations with a distinct visual code that separated each from the other and gave the public an easy way to detect alterations (*figure 4*).

*Organizational tool* Definition of the outer perimeter of the bill helped to increase standardization of form and cutting. Improved consistency and regularity was a positive factor for public recognition and thus a benefit for security (*figures 7, 8, 10*).

*Hierarchy designator* Borders define a secondary level of information for the placement of secret marks, security checks and engraver's initials. Having a secondary position allowed text to be used for the uniqueness of its form rather than for its usual meaning. Punctuation marks and dingbats of all kinds, as well as Hebrew and Greek letters were included in the border to foil counterfeiters. The peculiarity of their shape, and their rarity of occurrence in the colonial printers' stock of type was enough to make their use a beneficial security device (*figures 5b, 7, 8*).

*Alterations deterrent* A tight retaining border surrounding the text limits the space available to make alterations to the value. The word “four” cannot be altered to make “fourteen” unless the extra space can be used from the margin area. Alterations squeezed within the tightly defined available space became more obvious to the viewer (*figure 4*).

*Denomination alteration deterrent* Borders provided a place to embed denomination values. When the number or word of the denomination is repeatedly tangled within a web of ornament, it was harder to raise it to a larger number (*figures 5a, 15, 18*).

## Imagery

The imagery found on early American paper money varies considerably over its hundred year history. Paper money design has never been the testing site for pictorial novelty or formal experimentation. In the eighteenth century, currency designs most often are seen to mimic the imagery found on antecedent monetary forms. As a new invention, the publicly authorized paper money of colonial America needed to acquire the same respect and authority that its antecedent forms already commanded. By mimicking the form of private exchange notes, it was perhaps thought possible that a visual similarity would transfer some of the trustworthiness and authority of the earlier instrument. This is one explanation, but another equally probable one is that the silversmith-engravers asked to make plates for printing money (in what were typically emergency conditions) simply copied the appearance of the

nearest comparable item as a pragmatic way of generating an appropriate visual form. Bills of exchange were veritable templates for the copperplate engravings of early eighteenth-century money in the northern colonies.

Broadly speaking, imagery was used for three diverse but overlapping functions: as a deterrent to assist in security objectives; in the definition and establishment of monetary function; and as a means of expressing self identity.

Differences in the use of imagery depend mainly upon the circumstances of time and location. The imagery found on the money of the colonial period (1690-1774) can be characterized as: derivative; more emblematic than pictorial; chiefly pragmatic in nature, with images serving primarily functional capacities (depicting commerce and finance rather than allegorical figures); secular rather than religious in nature; and only gradually an embodiment of regional identity late in this period (*figures 2, 4, 5, 10*).

During the early colonial period paper money contained only a nominal use of imagery. Apart from the inventive use of nature printing, imagery was limited to symbols that identified the issuing authority. Heraldry, coats-of-arms and colony seals derived from other sources had a standard application, much like the use of a logo that needed no visual reinterpretation. Already known by the public, these signs signified authority and authenticity and helped to convey an impression of trustworthiness to the user (*figures 2, 4, 5a*). Expressions of regional identity, where they did exist, were depictions of regional commerce or

local commodities (i.e., the cod fish and pine tree of Massachusetts — *figure 10*). In mid-century, pictorial imagery was more frequently used to make a memorable, visual distinction between denominations. When a figurative image, like a particular animal, was visually associated with a single denomination, it helped secure the value by deterring alterations (*figure 5b*). Obvious visual distinction between denominations is something that has since become a standard, familiar feature of most currency design, but it was one which was introduced in the middle part of the eighteenth century as a direct response to successfully passed alterations. The use of imagery was also occasionally considered as a means of dissuading counterfeiters. In reaction to the activities of Owen Sullivan who counterfeited 24,000 pounds of Rhode Island and New Hampshire bills (in addition to large quantities of New York bills), a proposal was made to the New York Assembly in 1773 that the bills also bear the representation of “an eye in a cloud, a cart and coffins, three felons on a gallows, a weeping father and mother, with several small children, a burning pit, human figures being forced into it by fiends and a label with the words “let the name of a Money Maker rot.”<sup>27</sup> This imagery was not adopted and warnings against counterfeiting remained textual.

<sup>27</sup> Scott. *Counterfeiting in Colonial America*, 11.

In the last quarter of the eighteenth century, the amount of imagery on colonial currency became more reflective of specifically American circumstance and attitudes. During the revolutionary period (1775-1780) the imagery found on paper money can be characterized as more original; more propagandistic in nature; more moralistic in tone (although still not overtly religious); and less reliant on established symbols of power. During the years following 1775, currency bore imagery that

increasingly served both ideological motives and expressions of self identity. Imagery was also used in a propagandistic way, to help promote the rebellious and patriotic sentiments needed to unify popular opinion and bolster the fight for political independence.

It was during the American Revolution that paper money was first blatantly used as a tool of political propaganda. As a circulating medium of exchange, money had the inherent power of locomotion, and could act like an advertisement that need not be posted or delivered to actively promote a chosen message. During the revolutionary war, the message contained on the American paper money can be summarized as: perceive the English crown as your enemy who will not grant your entitled rights; unite with other colonies to fight against Britain; suffer the necessary hardships; and sustain hope and faith in the struggle as the only possible means to attain the desired goal of independence and nationhood.

By illustrating ideas of injustice and moral certitude, colonial patriot printers and artisans visually reinforced the political arguments for the liberties that all Englishmen, since the Glorious Revolution of 1688, had come to believe were their natural rights. Paul Revere's engraving of the "sword in hand" figure on the back of the Massachusetts currency issues from 1775 shows a man with a sword in one hand, the Magna Carta in the other with a surrounding text that reads "Issued in defence of American Liberty" and "Ense petit placidam, sub Libertate Quietem" (By arms he seeks peace with freedom — *figure 12*). In 1776, the document in his hand was changed from Magna Carta to a declaration of Independence. Bills authorized by the August 14th 1775 Resolve of

the Maryland Convention were issued to promote the manufacture of gunpowder. In a suitably incendiary fashion, the woodcut image depicted Britannia receiving a petition of the Continental Congress, while King George III stands upon the text of the "M. Charta" and applies a fire torch to an American city which is under attack by a British fleet (*figure 11*). Without political representation in the British Parliament, American colonists felt their rights had been violated sufficiently to liken their situation to servitude, slavery and victimization. Manifestations of this political rhetoric were applied directly to visual representation. On verso plates of a 1779 issue of South Carolina bills of credit, the engraver, Thomas Coram, depicts Prometheus bound and attacked by a vulture (*figure 13*).

### **Continental currency**

There is a distinct difference in the design and tone of the imagery found on paper money produced under the direction of the Continental Congress and those of the same period that were issued by the individual colonies. In 1775, Franklin had been appointed to serve on the committee "to get proper plates engraved, to provide paper and to agree with the printers" for the first issue of the Continental paper currency. Owing largely to Franklin's previous experience as a currency printer, the continental dollars were designed and produced in a way that assured visual consistency and unity in the overall appearance of the various denominations and all subsequent issues. In fact, the visual design and manufacture was better attended to than its economic underpinnings. The printing was done by the firm of Hall and Sellers who were successors to the Franklin Hall printing firm and had abundant

experience with Franklin's security inventions for currency printing and paper. Continental currency contains mica and colored silk thread in its paper, and all the versos are decorated with nature prints, some newly made and others reused from earlier Pennsylvania currency issues (*figures 7-8, 15*).

The first and all subsequent issues of continental currency were designed with a consistent repeating format, with each denomination bearing a different emblematic seal. The emblems consist of an image surrounded by an accompanying motto written in Latin (*figures 15, 17*). The use of emblems as symbolic devices was a convention inherited from Europe, but was adapted for use in the currency design in a particularly American way. There were three approaches: appropriating emblems found in older sources in their same form; adapting extant emblems but modifying them to a more specific use; and creating new emblems specifically addressing the concerns of the time.

Franklin seems responsible for the choice and creation of most of the emblems. Ones taken from existing sources are contained in books previously held in his private library, while sketches exist in Franklin's papers for two of the three newly invented ones, e.g. linked chain of colonies (*figure 19*); the "time flies so mind your own business" rebus for the fractional currency issued in 1776 (*figure 18*); and the wind upon the ocean emblem on the twenty dollar bill (*figure 14*). Franklin was adept at the use of visual imagery and relied on emblem books for other well known visual devices (including the 1754 cut-snake, "join, or die" cartoon).<sup>28</sup> Seven of the emblems found on the continental currency are taken from Joachim Camerarius *Symbolorum ac Emblematus Ethico*

28 Lemay, "The American Aesthetic of

Franklin's Visual Creations," 476-479.

Politicorum. The 1702 Mainz, Germany edition of this work was a part of Franklin's personal library, and is extant in the collection of The Library Company of Philadelphia (*figure 16*). To assist the public's interpretation of these symbols, Franklin also wrote an anonymous article which signed Clericus, is attributed to Benjamin Franklin. September 20, 1775 *Pennsylvania Gazette*,  
 29 An article on the front page of the Company of Philadelphia (*figure 16*). To assist the public's interpretation of these symbols, Franklin also wrote an anonymous article which signed Clericus, is attributed to Benjamin Franklin. speculatively explains the meanings and reinforces the politically rhetorical nature of these images.<sup>29</sup> Emblems created for the larger denominations of later issues are attributed to Francis Hopkinson, and it is notable that they are executed in a style made to match that of the earlier issues.<sup>30</sup> Fugio cent," 79:1587-98.

### The final irony for design

By the late eighteenth century Americans had learned how to make a consistent, well designed paper money that was secured against counterfeiting by many ingenious and effective methods. The final irony was that the more secure, better designed and more consistently printed the money was, the less inherently valuable it became (*figures 7-8 14-15, 18-19*). Owing to hyper-inflation caused by over issuing, it was precisely at the time that the physical form of paper money had reached its apogee of technical innovation and aesthetic refinement, that it suffered its most ignoble decline, slipping below every conceivable threshold until it eventually obtained zero valuation. The paper money that followed the continental currency was produced by different means, with different financial backing. It appears that the anti-aesthetic philosophy used to produce these subsequent bank notes was guided solely by the principle that it should not look like preceding currency which was notoriously known to be "not worth a continental."

### Importance of paper money

Because much of eighteenth century American paper money suffered hyper-inflation caused by overissuing, paper currency of the colonial and revolutionary period have generally had a bad reputation as unstable and poorly developed monetary forms. But this bad reputation is far worse than it deserves and is due mainly to the predominantly conservative character of economic theory that has prevailed among late nineteenth- and early twentieth-century economists. More recent economic historians insist that for the colonial period, the behavior of individual colonies cannot be judged as a single entity. In order to grasp the history of paper currency use, each colony must be considered individually. Whereas some colonies over-issued paper money to the eventual detriment of its value (e.g., Massachusetts and Rhode Island), other colonies (in the mid-Atlantic region) were more conservative in nature and kept the quantity of issues well within a range of acceptability.<sup>31</sup> In the course of the eighteenth century, the need for a more abundant circulating currency was great enough in all of the colonies that they each eventually issued paper money in some form and it was neither irresponsible or economically unwise for them to do so.

<sup>31</sup> Brock, *Currency of the American*

*Colonies 1700-1764.*

Although trade with Britain was conducted in bills of exchange and specie, the development of inland trade required a more available means of exchange. Paper money provided an available circulating currency that made the expansion of inland trade increasingly possible and profitable. In this way, paper money was a significant factor that effected the growth and development of the colonial economies. Since the ready availability of paper money threatened the complete dominance that the gentry and aristocracy had previously held over lending and capital

investments, it was members of this class that were the most adamantly opposed to its introduction and use.<sup>32</sup> An increased circulating medium (i.e., taxes and tariffs) was the basis of much of the arguments and inflamed sentiments of the colonists during the mid part of the century (e.g., the stamp act, tea tax, etc.).

more easily obtain loans, which in turn increased their potential for amassing wealth based on labor and trade. (Benjamin Franklin is an example of how a tradesman could earn enough to retire at an early age, and live off the earnings of the financial investments and loans he later made to other printers and tradesmen.) The ability to gain financial power by mercantilism and industry, rather than from proprietary wealth, was a fundamental change in the financial, social and political organization of eighteenth-century colonial America. When the common man had access to the means of acquiring wealth through agriculture and trade rather than only from inheritance, a threatening challenge was posed to the previous social order dominated by the gentry and aristocratic classes. Insofar as paper money helped to create this potential, it can also be held partially responsible for the changing nature of economic conditions and ideological sentiments that sparked political

<sup>32</sup> Wood, *The Radicalism of the American Revolution*, 65-66, 140-141.

<sup>33</sup> Wood, *The Radicalism of the American Revolution*, 65-66, 140-141.

revolt in the revolutionary struggle for independence from Britain.<sup>33</sup>

If paper money has such an important place in the formation of the United States, why is it that it doesn't have a more ennobled status in the traditional telling of American history? Despite the fact that it's a great story and that notable patriots were involved in the manufacture, design, and authorization of paper currency, history books are generally silent on the matter. One suggestion is that the generally poor reputation of paper money is a result of economic theory which has held a dim view of the stability of paper currency. Because hyper-inflated colonial

currency and continental dollars provided an obvious example of an overissued and insufficiently backed paper currency, they provide an excellent case to illustrate the potential disaster of any paper currency that is unsupported by metal reserves.

Because paper money can also be seen as the underlying cause and eventual means by which a revolutionary war is fought, it is also suggested by some economists that conservative thinkers perceive the link which has historically existed between the creation of paper money and political revolution.<sup>34</sup> The American Revolution was not the only revolution fought or won on the basis of a paper currency. Paper money also served the rebel causes in both the French and Russian revolutions. Although there is no way to measure the effectiveness of the propagandistic messages contained on paper money during the revolution, it is clear that without paper money, the revolutionary war could never have been fought or won. It was paper money, issued by the Continental Congress and the newly formed states, that paid for the expenditures and sustained the military engagement.

34 Galbraith, *Money. Whence It Came.*

*Where It Went*, 58-67.

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