

The Inventions and Diffusion of Hyperinflatable Currency

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Paper money, when discretionally issued by a government, can be a very powerful political and economic tool. Who invented it and who caused its global diffusion? Scholars are quick to claim the precedence of their home countries without justifying their claims or contesting competing claims. I examine the monetary and public nature of the candidate currencies and the transmission of information about paper currency inventions between countries and across time. I conclude that it was invented independently a few times and its global diffusion began in Canada in 1685.

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“For a thing to work perfectly, it has to be invented in France and improved in England.”

Jean Ryhiner

1. Introduction

Avid readers of monetary history regularly come across many conflicting, home-biased claims regarding the origin of paper money in the West. The claims are made not in the context of numismatics but rather in light of the awesome political and economic effects of paper currency. To be precise, it is *unbacked, public* paper currency (henceforth, *hyperinflatable currency*) rather than paper currency per se that generates such interest. Before this miracle of public finance became a permanent feature of the global monetary order, it was introduced time and again and created numerous hyperinflations whose consequences were sometimes good (e.g., financing the American Revolution) and sometimes terrible (e.g., the rise of Nazism).

The goal of this paper is to discover the earliest common ancestor of today's hyperinflatable currencies. I find the generic pattern described by Usher (1954) and Mokyr (1990) with regard to technological inventions: a first invention in China; later independent inventions in Europe which did not catch on; a French invention which did spread; a quick critical revision by Englishmen, which gained more fame than the French invention; and finally, diffusion to the rest of the world.

The similarity to technological inventions should not be surprising. Paper currency per se is substitution of paper for gold in a special type of good – the medium of exchange. It eases the everyday use and transportation of currency, while the gold stays in a vault. Hyperinflatable currency goes further by eliminating the need to possess gold as backing,

at least when the currency is issued. Substitution of paper for gold in electronics would surely count as a technological invention worth studying. The differences from technological inventions are the political, rather than the commercial context and the noncoincidental residence of the French and English inventors in America.

Besides setting the historical record straight, this paper makes two contributions. First, it discusses fundamental issues in monetary theory: what is currency? When is an object considered public currency, illegal currency, or a bond? Second, the complex relations between Canada and Massachusetts in the late seventeenth century are analyzed in the process, adding to our understanding of early colonial America and its economy.

The paper is organized as follows. Section 2 defines hyperinflatable currency. Section 3 dismisses pre-1685 contenders. Section 4 discusses the 1685 Canadian currency. Section 5 proves that it probably *caused* the 1690 Massachusetts currency. The diffusion from Massachusetts to the rest of the world is discussed in Section 6.

2. What is Hyperinflatable Currency?

According to historical evidence an object must fulfill four conditions in order to create hyperinflation: it has to be currency, made of paper, issued by a government, and its quantity must be discretionary. I elaborate on these conditions below.

(i) It must be *currency*, rather than other forms of government debt, because currency has a firm grip on day-to-day transactions and is particularly susceptible to government abuse. It must be a general medium of exchange, regularly used hand-to-hand for purchases of most goods and services in theory and/or practice. It does not matter if the invention was not immediately successful or if it was an accidental discovery¹.

¹ Recall that Columbus did not try to discover a new continent and never realized that he did.

(ii) *Paper* currency, rather than token coins, is another condition, because the magnitude of inflation possible with low cost, easy to produce, paper currency is much higher than could be achieved with coins. This makes paper currency worthy of a separate discussion. Medieval leather currency, for example, cannot qualify².

(iii) The third condition is *government-issued* currency, because no private currency could have such impact. Without some legal backing by the government, such currency would not be accepted. The quantity must be controlled by a government branch, including nominally private entities as the Bank of England used to be.

(iv) The currency's quantity must be *discretionary*, because currency that is soundly backed by real assets cannot have these effects. The test is whether the quantity is constrained by the availability of backing real assets *at the moment of issue*. Promises to obtain real assets for backing or convertibility are irrelevant for the current discussion.

In short, the object I seek is essentially identical to our twenty first century paper currency.

3. Pre-1685 “Paper Currencies”

Before discussing the main contenders, the paper currencies of Canada and Massachusetts, it is necessary to rule out earlier contenders. China is the first chronologically, with its invention of paper currency in the first Millennium³. It was used for about five centuries in China and neighboring countries. Although reported by Marco Polo, there is no positive evidence that it had much of an effect on Western paper currency⁴. The problem was that

² See Usher (1954), p. 239, on the qualitative paper-leather difference in the general context of printing.

³ See von Glahn (1996) for the most updated study of Chinese paper currency.

⁴ Davis (1910), vol. I, p. 2, Nussbaum (1957), p. 15.

Polo reported a perfect and soundly backed system of convertible paper currency, even though the currency became hyperinflationary at the time of his visit⁵. The system he described was more of interest to the numismatist than the political scientist or economist. His information could not have easily inspired Western hyperinflationary currency. Some eighteenth-century accounts of Westerners visiting China briefly describe failed attempts to pay troops in paper in previous centuries, but they give no clue as to the nature, duration, and inflationary consequences of those experiments⁶. Their information is so limited that Adam Smith, who repeatedly cites the Chinese economy, never even mentions Chinese paper currency, though he does discuss Western paper currency extensively⁷. It would be too speculative to presume causality from China to the West simply because many other Chinese inventions were imitated in the West⁸. In the seventeenth century, as hyperinflationary currency made its permanent appearance in the West, it was already extinct in China. At the same time it was independently reinvented in Japan but remained local⁹.

In Europe there were isolated episodes of wartime paper currencies (e.g., Spain in 1250 and 1483 and Holland in 1574)¹⁰. The issues were not continued in peacetime and they did

⁵ Compare Polo (1920), vol. I, ch. 24, with von Glahn, pp. 56-70. He was probably unaware of the changing nature of the currency, or thought it to be a temporary, negligible aberration. Other Westerners also reported the system to be perfectly sound while one Westerner denied that it ever existed (Polo, Note 1).

⁶ Du Halde (1736), pp. 292-3, Green (1745-47), p. 135.

⁷ Jevons (1875), ch. XVI, may be the first important economist to cite Chinese hyperinflation.

⁸ Mokyr (1990), pp. 31-2, 47, 48, n9, Usher, pp. 49-50.

⁹ Bank of Japan (2008).

¹⁰ Weatherford (1997), p. 129, Sargent and Velde (2002), pp. 220-1.

not inspire other contemporaries to print currency¹¹. There is no positive evidence that they influenced later currency issuers¹². I will discuss circumstantial evidence later.

Some European governments established banks of specie deposits. Starting in Venice in the twelfth century, they slowly spread to other parts of Europe. Funds were transferred between accounts at the bank, or with checks, or by assigning the deposit receipts. The coin itself was often lent to the government, leaving the bank with only a fractional reserve. Some of the paper instruments functioned as currency. Generally, these banks did not simply print quantities of paper currency for the government's use, without having first received deposits from someone. In the few cases in which this happened, it was considered fraud and it was outlawed¹³. The semi-private Stockholms Banco is an exception in that its notes were designed to be a convenient currency, functioned as such, and quickly collapsed due to over-issue. Even if some of that over-issue was for the government, the latter covered it up by almost executing the private manager for his supposed recklessness¹⁴. To an outsider this could not have been seen as an example of a government continuously and willfully operating the printing press.

Tradable bonds issued by the French and English governments in the seventeenth century are sometimes claimed to have been money. In France they were called *mandement, rescription* or *billes de l'Epargne*. Although they were tradable they were not

¹¹ For the dismissive attitude of the king of Spain in 1580 see Shell (1993), p. 3.

¹² For forgotten technological inventions see Usher, pp. 184-5, 281-2, Mokyr, pp. 27, 29, n14, 248, 291.

¹³ Macleod (1896a), vol. II, p. 196, des Essars (1896), vol. III, pp. 153-4, van der Borgh (1896), vol. IV, pp. 198-201, Wirth (1896), vol. IV, p. 1, De Rosa (2001).

¹⁴ Jensen (1896), vol. IV, pp. 393-6, Fritz (2003).

a medium of exchange because they were only given in exchange for coin.¹⁵ The English Exchequer orders, issued from 1667-1672, were originally also given only in exchange for coin lent to the Exchequer. A loophole allowed their use in government purchases so they were issued to suppliers of goods¹⁶. However, they were not a *general* medium of exchange and were rejected in shops when offered by their original recipients¹⁷. The orders were indeed unsuitable for that purpose: almost all of them were worth hundreds of pounds or more and had non-round denominations. They were assignable by signature at the Exchequer and were not anonymous. The London Gazette published the serial numbers of those about to be redeemed due to the arrival of tax revenues¹⁸. Most of the original recipients immediately sold them to goldsmiths, who kept them until maturity¹⁹. Speaking of goldsmiths, their famous notes were not only convertible but also private and thus they do not qualify either²⁰.

A little known paper currency was issued in Antigua (1669-1675), backed by pre-deposited, locally grown tobacco. The government was responsible enough to abolish it when it discovered that notes were fraudulently issued without depositing of tobacco²¹.

¹⁵ Collins (1995), p. 169, Dent (1967), pp. 244-245.

¹⁶ Feavearyear, p. 111, Chandaman (1975), p. 216, Horsefield (1960), p. 96, Beresford (1925), p. 206, Nichols (1971), p. 99.

¹⁷ Feavearyear, p. 113.

¹⁸ Public Records Office (henceforth *PRO*), T 60/35.

¹⁹ PRO E 403/2768, 403/2801, Richards (1930), p. 51.

²⁰ Macleod (1896b), vol. II, p. 2, Feavearyear (1963), pp. 107-8.

²¹ Acts of Assembly Passed in the Charibbee Leeward Islands (1734), p. 53, PRO CO 1/25 #55, CO 1/34 #18. McCusker (1976), p. 95, rightly classifies it as commodity money.

4. The Canadian Card Currency

After rejecting the pre-1685 contenders it is time to consider two important contenders: Canada (1685) and Massachusetts (1690). Most scholars, especially ones based in the United States, have dismissed the Canadian currency by claiming that it was actually private or illegal or not real money. Others have limited it to a footnote or ignored it altogether. Thus, there is almost a consensus that the Massachusetts currency was the first in America and that it started the global diffusion of hyperinflatable currency²². Claims of Canadian primacy have been few and brief²³. To re-evaluate the controversy, I will begin with basic, undisputed facts about Canada and its paper currency before turning to explicate the Canadian currency.

In the seventeenth century Canada was French²⁴. Its real autocrat was the intendant, a bureaucrat educated in law, who was in charge of *all* local civil affairs, including treasury, legislation, and police²⁵. He chaired a council which included the governor-general who was only in charge of military and diplomacy. The council's roles included registration of ordinances. The intendant resided in Quebec City and reported to the French Secretary of Marine and Colony. French ships regularly arrived in the summer with goods, royal orders, new settlers, soldiers and specie. The specie was delivered to an agent of the Treasurer-General of Marine and Colony, who paid on the intendant's orders²⁶. In the fall the ships

²² Bogart and Kemmerer (1947), p. 133, Nettels (1934), p. 265, Rabushka (2008), p. 358, n7, Davies (2002), p. 462, Galbraith (1975), p. 51, n4, Nussbaum, pp. 16-7. The latter two authors were naturalized in the US.

²³ Eccles (1959), p. 216, Ederer (1964), pp. 93-4.

²⁴ Classic references are Parkman (1874) and Eccles (1959).

²⁵ "He had the most sweeping powers in the colony's government" (Canadian Encyclopedia [2000]).

²⁶ Shortt (1925), p. 49, n2.

returned to France with furs and officials' reports. Due to the long winter freezing of the St. Lawrence River, there was no more communication until the following summer.

Very few facts about the card currency are undisputed. One summer, an intendant, Jacques de Meulles, ran out of specie. He had to pay troops but the French ships were late. He turned playing cards into “money” by writing on them and he paid them to the troops²⁷. He promised redemption in specie after the arrival of the ships. Recall that according to my definition of hyperinflatable currency, promises that are not based on the stock at hand do not count. I now turn to the literature's objections about this currency.

4.1. Timing and Duration

Galbraith states that it happened “at [the] same time” as the Massachusetts currency of 1690. Others only mention this single episode involving de Meulles²⁸, implying that it was a temporary expedient with no long-run consequences, just like the earlier European wartime paper currencies. In fact, the de Meulles episode happened in 1685, five years before the Massachusetts currency. It was repeated by his deputy in 1686. From 1690 until the British occupation “card money” was in almost constant circulation, repeatedly issued, and dominated the local money supply²⁹.

4.2. Could Playing Cards be Money?

The role of playing cards makes it hard for scholars to treat the Canadian currency seriously (see Figure 1)³⁰. Why cards? Scholars blame it on lack of writing paper coupled

²⁷ See Mokyr, pp. 183-5, for examples of warfare-induced technological inventions.

²⁸ Galbraith, p. 51, n4, Nussbaum, pp. 16-7.

²⁹ Shortt (1925), *passim*.

³⁰ Angell (1929), p. 257. The earliest exact description is from 1711 (Breckenridge [1893], p. 411).

with abundance of playing cards made of durable paper³¹. The pictures printed on the cards could help illiterates identify denominations or prevent counterfeiting³². The cards also had the right size: cut in four in the first issue, they were rectangular coins³³. Their blank back sides could be used to write denominations, signatures, etc. (Figure 1).

The use of cards as raw material until 1718 attests to their suitability³⁴. The next generation of Canadian notes (1729-1763) started out as a peacetime issue. The intendant ordered packs of blank cards from France with 52 cards in each (as in playing card packs). Apparently he remembered how well cards functioned as currency. When most of the new cards were damaged in shipment, he temporarily used local playing cards³⁵.

Cards may very well have inspired the invention; for in the history of technology famous inventions arose when the inventor was thinking about the problem while physically handling what turned out to be the solution³⁶. Perhaps during a card game de Meulles noticed that cards, much like coins, were durable hand-to-hand objects with royal portraits³⁷. This similarity may not be a coincidence, as playing cards may have originated in China *from* paper currency³⁸. Perhaps paper currency came full circle.

³¹ Angell, p. 258, Nussbaum, p. 16. Cards were abundant because they were critical in the long idle winters, but they were not so critical in the summer (Parkman, p. 348).

³² Angell, p. 258, Nussbaum, p. 16.

³³ The aforementioned Dutch currency of 1574 was round paper coins (Sargent and Velde, pp. 220-2).

³⁴ Apparently there were no good reasons for a change, much like the green color on Federal Reserve notes which lasted for many years (Bureau of Engraving and Printing, 2008).

³⁵ Shortt (1987), pp. 153-6.

³⁶ E.g., Archimedes' Eureka moment and Edison's light bulb (Usher, pp. 62-4, 76).

³⁷ On the technical relation between printing, playing cards, and coinage, see Usher, p. 240, and Mokyr, p. 49. De Meulles wrote "je me suis imagine," or "it occurred to me" (Shortt, 1925, pp. 74-5). "Occurred" is

Improvising an invention from an existing product is not unusual. The 1574 Dutch currency was improvised from books³⁹. The Wright brothers, bicycle repairmen in trade, used bicycle parts in their Flyer⁴⁰, and yet their invention has not been derisively called a “bicycle airplane”⁴¹. It is the *function* of the final product that is of significance. The cards functioned as media of exchange as well as, if not better than, the Wright Flyer flew, and thus they deserve to be recognized as currency.

4.3. Was it Private Currency?

In September 1685 de Meulles wrote to his minister: “I have issued an ordinance ... at the same time pledging myself, in my own name, to redeem the said notes⁴²”. Hence the nineteenth century claim that it was private currency⁴³. However, the ordinance itself was found later, properly signed by the council’s clerk⁴⁴. In the ordinance de Meulles promises redemption in his capacity as intendant: “they shall be paid from the first funds, which His Majesty will surely send us.” He notes on the ordinance’s margin: “And even that we are answerable for them in our personal and private name.” Thus, in his personal capacity he was merely a co-signer, a guarantor. The currency, however, was still public currency, just

also used in the references of the previous footnote. De Meulles could not admit watching or taking part in a card game because it was officially frowned upon (Parkman, p. 348).

³⁸ Wilkinson (1895), p. 68.

³⁹ Sargent and Velde, pp. 220-2. Watt improvised a piston and cylinder with a syringe (Usher, pp. 353-4).

⁴⁰ American Institute of Aeronautics and Astronautics (2008), #92.

⁴¹ De Meulles called his money “billets de cartes” (“card notes”). His deputy, who issued the second generation in 1686, called it then “monnoye de cartes” (“card money”) (Shortt [1925], pp. 72-77).

⁴² Translations in Breckenridge, p. 410, and Shortt (1925), pp. 73-5, are very similar.

⁴³ Shortt (1987 [originally 1898]), pp. 128-9, Breckenridge (1893), p. 411.

⁴⁴ Shortt (1925), p. 71.

as a modern US bank deposit is not considered an FDIC deposit. The ordinance continues: “we forbid all persons of whatsoever quality and condition to refuse any of them, or to sell their supplies for them dearer than customary, under penalty.” Such strong legal support disqualifies it from being private currency.

Why did de Meulles mention his personal pledge? Unlike the colony’s pledge it was not obvious from the context. It was also typical of de Meulles’ style – as in his report about a 1686 mission to Acadia, which makes much of his sacrifices and has a strong self-pitying tone⁴⁵. He emphasized his personal pledge to show how much he was willing to sacrifice for the job. While he was away, his deputy issued more card money⁴⁶. There was nothing personal about either issue: whoever was in charge did it in his official capacity.

As a legal scholar, Arthur Nussbaum’s main concern is that the cards “were subsequently disavowed by the French government ... stripped of their legal force through the rejection by the home government⁴⁷.” Legality per se is irrelevant to our purposes, for what is of issue is that the cards were designed as currency and circulated as such (see Section 2). The real problem is that if France disapproved then it may have been private currency. But Nussbaum’s argument is based on a factual error. The cards were redeemed as promised and destroyed when the specie arrived⁴⁸. Only *later* did de Meulles write his letter. Any subsequent French action was irrelevant because the cards were already gone. De Meulles did not exceed his authority. As “the king present in the province⁴⁹,” he was

⁴⁵ Morse (1935), vol. I, pp. 91-124.

⁴⁶ Shortt (1925), pp. 75-7.

⁴⁷ Nussbaum, pp. 16-7.

⁴⁸ Shortt (1925), p. 73.

⁴⁹ Morse, p. 28.

chief legislator and responsible for paying troops. He acted within his full authority as long as he was not prohibited from issuing paper currency⁵⁰. While coining metal was a royal prerogative, this substitute was too ingenious to be expected and prohibited ex ante.

4.4. Other objections

Another objection is that these were promissory notes rather than money⁵¹. Giving soldiers paper rather than specie was not new. England and its colonies used to give each discharged soldier a single debenture which acknowledged the government's debt to him. That debt was typically not a round number and the debentures were sometimes tradable. The Canadian cards were different: they had only three denominations (on purpose), sellers had to accept them, and they did circulate.

Nussbaum also complains that the cards were imposed by a dictator rather than a democratic government, and that the writing on the cards did not mention "how they would be redeemed or otherwise discharged⁵²." Again, these legalistic deficiencies are irrelevant for the definition of currency (hyperinflatable or not). Most currencies in history were issued by dictators, had no legal status (e.g., many commodity moneys), or their legal status was not written on them (e.g., modern United States coins).

4.5. Was it Imitation?

There is no evidence that de Meulles copied the idea of paper currency from an earlier inventor. His currency was completely different from the treasury orders and the letters of exchange issued by tax farmers back in France⁵³. His statement that it simply "occurred to

⁵⁰ He was recalled to France a year later for another reason. The prohibition affected only later issues.

⁵¹ Rabushka (2008), p. 358, n7.

⁵² Nussbaum, pp. 16-7.

⁵³ Collins (1995), p. 169.

me to issue” is believable because admitting creativity in monetary affairs could have been fatal. When paper currency appeared for the first time in a given country it was usually suspected – and rightly so. The best way to encourage trust was to cite its successful circulation elsewhere⁵⁴. In 1691, the Canadian currency was cited in Massachusetts for that very purpose. Failing to do so when giving paper currency to *armed and hungry* troops as their only pay, could be risky. Moreover, de Meulles was a subject of Louis XIV, the epitome of absolutist monarchism. Royals cherished their coinage prerogative. It would have been better for de Meulles to claim that he copied an old known device that was not prohibited than to claim original thinking⁵⁵. And yet, no precedent is mentioned in either the ordinance or the letter. The king’s letter of rebuke mentioned the risk of counterfeiting but did not cite examples⁵⁶. Apparently, they were both unaware of precedents.

5. Transmission to Massachusetts

After establishing that the Canadian currency qualifies as hyperinflatable currency I will now turn to examine whether the Massachusetts legislature knew about it when creating its own paper currency in 1690. There is no evidence on the deliberations leading to the Massachusetts issue because this currency was elaborately disguised from the Crown as a simple, private-like IOU.⁵⁷ The closest thing to a “smoking gun” is a pamphlet published in Boston shortly *after* the Massachusetts issue, which cites the Canadian currency.

5.1. The Boston Pamphlet

⁵⁴ John Law (1705 [1966]) discusses the importance of precedence (pp. 109-110).

⁵⁵ In general, Europeans had no cultural taboo against imitating foreign inventions (Mokyr, pp. 187-8).

⁵⁶ Shortt (1925), p. 79.

⁵⁷ Goldberg (2009).

The Massachusetts paper currency was approved on December 24th, 1690 in order to pay troops (Figure 2). It fell at once to a discount and some sellers rejected it. Two men wrote open letters trying to convince the public to accept the currency. In 1691, these undated, anonymous letters were published back to back in one pamphlet. Based on content and style, leading scholars of early Massachusetts currency identify the authors as Cotton Mather and John Blackwell⁵⁸.

The son of Harvard's President, young Mather was very influential. In 1690, as his father lobbied for the colony in London, he gave the esteemed Election Day sermon at the General Court. His letter was addressed to his father-in-law, Treasurer John Phillips. He writes:

The French (I hear) at Canada pass such paper money without the least scruple; whereby the government is greatly fortified, since they can at all times make what they need. Now if we account our selves to transcend from French in courage it is a shame for us to come so far short of them in wit and understanding⁵⁹.

John Blackwell arrived from England in 1685. As Cromwell's former Treasurer of Army he was the colony's leading financial expert and headed a committee on trade. He used his clout to promote a bank scheme in which he enlisted the colony's leaders, but it was aborted in 1688.⁶⁰ He governed Pennsylvania in 1689 and returned to Boston in

⁵⁸ Trumbull (1881), pp. 278-86, Davis, pp. 196, 206-7. Anonymity was the rule rather than the exception in political pamphlets of the time. More reasons for anonymity could be Mather's mentorship of the failed military leader (Sir William Phips) and Blackwell's recent banking failure (see below).

⁵⁹ Modernized spelling. Davis, p. 195.

⁶⁰ See Goldberg (2008) for a detailed analysis of the bank's rise and fall and biographical references.

1690.⁶¹ His letter was addressed to Elisha Hutchinson, head of the paper currency committee. He writes:

When Canada shall be better known to us, we shall find, it is a common thing for the government at Quebec to pay their men in such ways, & the inhabitants there are not so dishonest as to cheat the needy persons to whom the bills were first given, of half the worth of them⁶².

These paragraphs from two authors probably led Joseph Dorfman to conclude that Massachusetts knew about the Canadian currency when it issued its own currency⁶³. However, the paragraphs were written *after* the Massachusetts issue, and neither Blackwell nor Mather were legislators. Was the information already in Massachusetts *before* the Massachusetts issue? Did it *cause* the Massachusetts issue?

Before exploring all the scenarios it should be noted that in the pamphlet Mather's letter was titled "Some considerations on the bills of credit ..." while Blackwell's title read "Some additional considerations ... by a gentleman that had not seen the foregoing letter⁶⁴." Apparently Mather and Blackwell knew about the Canadian currency independently of each other. It also implies that the letters were written at the same time, because they were written for no other reason than to be distributed in public, and Mather and Blackwell knew each other well⁶⁵. The fact that they describe the Canadian currency in

⁶¹ PRO CO 5/855, #73, #94.

⁶² Modernized spelling. Davis, p. 201.

⁶³ Dorfman (1946), p. 106.

⁶⁴ *Ibid*, p. 189, 197.

⁶⁵ Blackwell was highly esteemed by Cotton's father and uncle (Mather's diary, September 15th, October 30th; MHS Collections [1868], pp. 60-1).

different terms reinforces the simultaneity conjecture. Why waste ink on a point that had already been made by a friend?

I consider four scenarios. One scenario is that they knew about the Canadian currency but did not tell the General Court about it. Yet this seems impossible. Blackwell must have been consulted due to his financial expertise and Mather was notorious for expressing his opinion – even when not asked. The financial crisis was no secret: a committee had tried to obtain private loans to repay the debt and taxes were hiked significantly.

A second scenario is that a local person told Mather and Blackwell about the Canadian currency after the General Court independently designed its own currency, either because that individual had no access to the leadership or because he forgot about the Canadian currency. This scenario is also unlikely; the crisis was common knowledge and everyone knew someone who needed pay. Anyone who knew about the Canadian currency in this limited-franchise democracy would have told it to the representative of his/her hometown. What's more, no one who knew about the Canadian currency could have forgotten it, because it was a war *with Canada* that caused the problem. Canada was on everyone's mind.

A third scenario is that someone in Massachusetts knew about the Canadian currency but did not want to help. Again, this is not viable because Mather and Blackwell provided the public with positive information about the potential of paper currency. If anything, someone who did not wish to help the colony, or did not want paper currency to be created, would have provided them with misleading, negative information.

A fourth scenario is that Mather and Blackwell learned about the Canadian currency from new information that arrived to the colony *after* Massachusetts had independently

designed its own currency. This is the only conceivable scenario in which Massachusetts issued currency without knowledge of the Canadian currency. In order to evaluate the likelihood of this scenario, both the inventions and the pamphlet must be dated.

De Meulles' ordinance is dated June 8th, 1685 (i.e., May 29th in Boston, which was still using Old Style calendar). On November 7th, 1690, Massachusetts appointed a committee in order to borrow funds to pay the troops. On November 27th-29th the Council met and may have started deliberations on paper currency, given the failure to secure loans. On December 10th the General Court (Council and representatives) convened. The same date appears on the first bills, even though they were only authorized on the last day of the session (December 24th)⁶⁶. I conclude that paper currency was probably not under consideration before November 15th.

Aiming to promote the currency, the two letters state that its original recipients – the troops – were victims of the public's mistrust in the currency⁶⁷. This means that both letters were written not long after the troops were paid, beginning right after December 24th. It is possible to be still more specific. Blackwell called upon the elite to convert notes into their own specie⁶⁸. Mather reports in his 1697 book that Phips did so but his 1691 letter does not mention it⁶⁹. Therefore, both letters must pre-date Phips's acts. Phips sailed

⁶⁶ Moody and Simmons (1988), pp. 284-5, 297, Massachusetts Historical Society (henceforth *MHS*) Proceedings (1901), pp. 301-3, Hutchinson (1765), vol. I, p. 467, Sewall, pp. 336-7, Massachusetts Archives (henceforth *MA*) 36:261.

⁶⁷ Davis, pp. 193-4, 201. Also see Mather (1697), pp. 44-5.

⁶⁸ Davis, p. 205.

⁶⁹ Mather (1697), pp. 44-5. Phips did so "at the very beginning" of this new monetary experiment.

to England and was there by March 4th.⁷⁰ With an average sailing time of four to six weeks⁷¹, he must have left before February 1st. Since the letters were written simultaneously, I conclude that they were both written before February 1st, 1691. If this argument is not convincing, it should be noted that Blackwell himself was back in England (for good) by April 19th, 1691,⁷² so he probably left in March.

The time line is thus the following: May 29th, 1685 (Canada's invention), November 15th, 1690 (earliest date of the Massachusetts invention), and February 1st, 1691 (latest date of pamphlet). This gives two and a half months for the scenario in which the information about the Canadian currency arrived too late, but sixty five months for the scenario in which the information arrived in time. The odds clearly favor the latter scenario, but in order to remove any reasonable doubt I will examine the information routes between Quebec and Massachusetts from 1685-1691.

5.2. Information Routes: Water

Acadia (Nova Scotia) controlled the ocean routes from England to Massachusetts and from France to Quebec, and was thus a target for many military expeditions. It changed hands frequently in the seventeenth century, all the while retaining a tiny French population. Due to its proximity to Massachusetts and France's neglect, Acadia depended on trade with Massachusetts even when under French rule⁷³. In the 1680s some English traders even

⁷⁰ Increase Mather's diary (copy at the MHS).

⁷¹ Steele (1986), pp. 58, 274, 285, 347, n53, Sewall (1878), vol. I, p. 295.

⁷² PRO CO 5/856 #148, 149.

⁷³ Rawlyk (1973), Johnson (1991).

lived there⁷⁴. A particular flow of information about the Canadian currency can be conjectured, relating three individuals from Quebec, Acadia and Boston.

The ship that brought de Meulles his specie also came with instructions for him to survey Acadia. He left there in October 1685 and reached the home of former Acadian governor La Valliere in November⁷⁵. He had to stay there for five months “bored to death,” noting that “the ground was continuously covered with snow all this time⁷⁶.” He must have realized that his monetary invention was one of the most important things he had done in Quebec⁷⁷. As a former governor, La Valliere would have been interested in such an important administrative invention. It is safe to assume that when de Meulles left La Valliere in April 1686, the latter knew about the card money.

Enter John Nelson, the most important foreigner in Acadia⁷⁸. Deputy governor of Acadia when under English rule, he maintained excellent contacts with the French. His warehouse was near the governor’s house. Even de Meulles was aware of his frequent visits. He was the chief inter-colonial merchant, diplomat and lawyer for both sides throughout the 1680s. La Valliere hired him to sell licenses to Massachusetts fishermen who frequented Acadian shores. When Massachusetts raided Acadia in 1690, he almost led the forces. Acadians surrendered peacefully because they thought he was in charge.

⁷⁴ Weeden (1890), vol. I, p. 241.

⁷⁵ Morse, pp. 91-124.

⁷⁶ *Ibid*, p. 104.

⁷⁷ For his other, minor achievements see Parkman, pp. 272-3, Shortt (1925), pp. 73-5.

⁷⁸ Johnson (1991) provides a detailed biography. Unless otherwise indicated, all the facts regarding Nelson are based on Johnson, chapters II-IV.

Nelson was first and foremost a merchant. His report on his 1682 diplomatic mission to Quebec focuses on minute trade details, such as customs rates⁷⁹. He would have been very interested in a new type of currency, since the chronic specie shortage concerned merchants on both sides. Mather, in the aforementioned 1691 letter, writes about the successful circulation in Acadia of “one gentleman’s bills ... for diverse years, and that among foreigners.” The leading candidate is Nelson who was effectively Acadia’s banker. Given his close connections to Acadians, including La Valliere, and his interest in trade and finance, by November 1690 Nelson probably knew about the Canadian currency even though it did not circulate in Acadia.

As a Francophile and an Anglican, Nelson was an outsider in Massachusetts, but he did lead the 1689 revolution and had access to the leadership through his wife’s uncle, William Stoughton. Stoughton was one of the colony’s two commissioners (i.e., diplomats) in 1690, a former deputy president and a future lieutenant governor. Nelson was in the top decile of the wealth distribution in Boston and belonged to the elite social club known as the Artillery Company. His relations with the government were complex. Although he signed two petitions against it in 1690 and 1691 and was refused command of the Acadia raid, he successfully represented the captured Acadian governor at a special Council meeting on November 29th, 1690. He could have used the opportunity to inform the desperate Council about the Canadian monetary solution to the problem they faced. In spite of their differences, he was too patriotic to withhold such crucial information. His loyalty was

⁷⁹ Buffinton (1926), pp. 434-6. All envoys were expected to spy on their hosts (MA 126:421a, 422, 127:3, MHS Collections [1889], p. 481). Nelson was far less interested in political and cultural aspects of Quebec.

proven by a heroic 1692 espionage act that cost him dearly⁸⁰. Nelson had no “pride” issue with imitating the French: he wholeheartedly recommended imitating their entire Indian policy⁸¹. Since Nelson probably knew about the Canadian currency, and he had the right attitude, motive, and means to tell the General Court about it, information could have flown from de Meulles through La Valliere and Nelson to the Massachusetts leadership.

There are other marine information routes to consider. As de Meulles was making his way to Acadia and his letter was making its way to France, the Edict of Nantes was revoked. It was open season on millions of French Huguenots. During the following years hundreds of thousands escaped France. Some of them reached Massachusetts, which had been hospitable to them for decades (while at the same time it was hostile to English Anglicans). Many refugees were merchants from La Rochelle, a conduit for most of the communication between France and Canada⁸². Many maintained contacts with relatives in France who converted or pretended to convert, and these contacts formed new trade routes⁸³. John Nelson hired a Huguenot captain. Thus, there was an incidental, large flow of information about anything French right after 1685.

Massachusetts raised money for the refugees who fled there. The donations were handled by Elisha Hutchinson and Samuel Sewall, who would be magistrates in 1690. While the former would head the Massachusetts paper currency committee in 1690, the

⁸⁰ Hutchinson (1936 [1765]), pp. 321-322n.

⁸¹ PRO CO 323/2 #10.

⁸² MHS Proceedings (1919), pp. 121-32, MHS Collections (1830), pp. 1-83, MA 127:154.

⁸³ Boshier (1995).

latter owned the closed Boston mint. Some refugees even settled on Hutchinson's land⁸⁴. Mather, who would cite the Canadian currency in 1691, had a close professional association with the minister of the French church in Boston⁸⁵. Thus, three of the Massachusetts leaders had an interest in both currency and Huguenot refugees. The refugees were not isolated but rather interacted with the locals (as in border disputes), petitioned for more land, and sought naturalization⁸⁶.

French officials, including de Meulles, planned to send their children to Boston before the war to learn English⁸⁷. However, Massachusetts trade with France and its colonies was illegal according to the Navigation Acts, which were enforced more seriously during the Dominion of New England (1686-89). In 1686 a ship from France was caught. It was hired by Penn Townsend, who in 1690 would be Speaker of the House and member of the paper currency committee⁸⁸. In the years 1686-90 there were more complaints of trade with the French through Newfoundland and today's New Brunswick⁸⁹. Perhaps Nelson alone could legally trade both with French colonies and with France itself⁹⁰.

⁸⁴ MHS Proceedings (1919), p. 125, Toppan (1899), pp. 251, 265, 280, Sewall Diary and Commonplace Book at MHS, October 24th, 1688, Prince Papers #8 at MHS. For the critical role of one Huguenot refugee in the development of the steam engine in England see Mokyr, pp. 76, n14, 84.

⁸⁵ MHS Proceedings (1919), pp. 125-30.

⁸⁶ MA 126:128, 363, 389, 410, 419, 127:200.

⁸⁷ A 1684 letter from Massachusetts governor to de Meulles is cited in Johnson, p. 155, note 30.

⁸⁸ MA 126:25-6, 32-3, Toppan (1899), p. 254, Moody and Simmons (1988), pp. 290-1.

⁸⁹ MA 126:329-331, 336, PRO CO 5/1358, pp. 31-2, Whitmore (1868), p. 216.

⁹⁰ Johnson, p. 57, MA 128:121, 129:120-1.

The May 1690 raid on Acadia brought many prisoners to Boston. Others were taken aboard captured French ships while French privateers retaliated⁹¹. As was customary, they were treated well. Senior prisoners were treated as noble guests, with an honor code preventing their escape. An Acadian prisoner named “Lavalier⁹²” was perhaps son of the former Acadian governor who had spent the entire 1685-86 winter with de Meulles. He was quickly delivered to Deputy Joseph Lynde, presumably to work and live under Lynde’s supervision until the next prisoner exchange. Similarly, the captured Acadian governor was released to Nelson’s house. In August, Massachusetts sent a huge fleet to occupy Quebec City. It captured ships, raided the countryside and fought French forces below the city. In all these events prisoners were taken and interrogated. The retreat involved a prisoner exchange, which included Englishmen taken in the land frontier earlier who had been held in Quebec City. The fleet took more prisoners on the way back⁹³. Since paper currency was created to pay troops, it would have been an obvious topic for discussion between captive troops and their guards. The invasion could have directly and physically exposed the English to the Canadian currency⁹⁴. A recent issue of card money was made in Quebec City sometime in 1690 and some of it was still outstanding (and perhaps circulating) during the battle⁹⁵.

5.3. Information Routes: Land

⁹¹ PRO CO 5/1358, p. 32, Johnson, p. 55, respectively.

⁹² MA 40:616.

⁹³ PRO CO 5/856 #138, 139, CO 5/1306, pp. 388-9, MHS Proceedings (1901), pp. 285-90, 310-5, Hutchinson, pp. 460-2, 466.

⁹⁴ This is argued by Davis, p. 26, and Nussbaum, p. 16.

⁹⁵ Shortt, pp. 84-85, 90-93.

The land area between the colonies was difficult to pass and populated by Natives. Canada primarily interacted with Albany. Nevertheless, Massachusetts and New York always remained in contact. The Maine frontier belonged to New York until 1687, when it was given to the Massachusetts-based Dominion of New England. In 1688 New York was added to the Dominion. In 1689 New York followed the Boston revolution that dissolved the Dominion. In 1690 New York and Massachusetts planned a joint attack on Canada, raiding Montreal and Quebec City, respectively.

While New York and Canada fought over the western fur trade, there was clandestine inter-colonial trade⁹⁶. Though formally against it, local governments failed to put an end to the trade and officials accused each other of being involved. Many traders were Frenchmen, *courier de bois* who adopted the Natives' lifestyle. They sold fur to the English who paid more than the French. They often went on vacation in a Canadian city and returned to the woods after running out of money. They would have been a continuous source of Canadian information to the English. Card money was likely to be subject of talk around the camp fire, not merely due to its practical value for trade but also for anecdotal reasons – it was funny. Huguenot merchants and soldiers who fled Canada also traveled the same forests⁹⁷.

As hostilities intensified, many prisoners of war – both military and civilian – were taken in French-Indian raids on the frontier in New York and Maine⁹⁸. French troops and priests were in turn captured by the English and their Native allies. Both European sides

⁹⁶ Eccles, *passim*, Shortt (1987), p. 122.

⁹⁷ Whitmore (1868), p. 202.

⁹⁸ Parkman, *passim*.

tried to get the other side's prisoners from the Natives for bargaining purposes⁹⁹. In March 1690, the abovementioned Elisha Hutchinson reported an examination of a Frenchman captured in Maine¹⁰⁰. Some prisoners disclosed a lot of information, especially the deserters¹⁰¹. The prisoners in turn used their relative freedom to spy, and they delivered information back home upon release or escape¹⁰². Some of the Englishmen caught on the frontier were sent to Quebec City, where they probably saw the 1690 card money. Most of them were released in the October 1690 prisoner exchange with the Massachusetts fleet.

There may have been organized spying. The Massachusetts defeat in Quebec is attributed to the fact that Montreal found out about the invasion plan or the progress of the fleet, and managed to send reinforcements to Quebec in time¹⁰³. Thus, it is evident that news traveled fast, at least in one direction. Massachusetts could just as well have had spies in Quebec. Both sides tried to recruit as their spy an Acadian who visited Boston¹⁰⁴.

There was another enemy, common to all. As smallpox spread from the Boston harbor (1689) to the rest of New England, New York, the Native tribes, and Canada (1690)¹⁰⁵, it proved a flow of the worst kind of information: the DNA of a deadly virus.

5.4. Timing and Contribution of Information

⁹⁹ E.g., PRO CO 5/855 #68, CO 5/856 #145.

¹⁰⁰ PRO CO 5/855 #75. See also MHS Collections (1819), p. 239.

¹⁰¹ PRO CO 5/855 #94, MA 129:125.

¹⁰² PRO CO 5/856 #209, CO 5/905 #268, MHS Collections (1882), p. 493.

¹⁰³ PRO CO 5/856 #139.

¹⁰⁴ Johnson, p. 66, note 46 in pp. 159-160.

¹⁰⁵ Steele (1986), pp. 254-5.

It is unlikely that the monetary information arrived in Massachusetts after November 1690, as there were no relations of either commerce or war between the colonies in the aftermath of the Quebec raid. The raid failed because the St. Lawrence River started its long winter freezing in October 1690. No new prisoners were taken after the fleet left the river. The colonies were physically and financially exhausted. In November, Massachusetts redeemed prisoners of war from the Natives north of Maine and signed a six months cease-fire with them. Renewed trade with Acadia was only authorized in March 1691.¹⁰⁶ Overall, it seems almost certain that the Massachusetts legislature knew about the Canadian currency when it contemplated issuing its own currency.

Monetary imitation was not new in America. Some of Massachusetts' monetary laws were imitated by Canada, such as the use of commodity money¹⁰⁷. The two colonies had similar problems, so these could have been independent inventions. However, Massachusetts' persistent lead over Canada in monetary legislation until 1685, points to probable imitation. Imitation of French ideas by the English in the Old World was routine and famous in the early modern period¹⁰⁸, but *knowing* about the Canadian currency does not necessarily imply *causality*. Could Massachusetts have thought about it anyway, based on its own monetary experience? Andrew McFarland Davis, the leading scholar of Massachusetts currency, argues that the idea of paper currency already existed in Massachusetts since the aforementioned John Blackwell tried to launch a note-issuing bank in 1686. Thus, their knowing about the Canadian currency "is of little consequence¹⁰⁹."

¹⁰⁶ MA 36:219, 225-6, 229, 429, Sewall, p. 333.

¹⁰⁷ Compare Felt (1839) with Shortt (1925).

¹⁰⁸ Mokyr, pp. 107, 240, 297.

¹⁰⁹ Davis, p. 26.

The flaw in Davis's argument is that Blackwell's currency was very different. He proposed a private bank with land-backed notes to solve a chronic peacetime specie shortage. The novelty of the Canadian paper currency was that a government issued it by discretion and supported it legally without sound backing. The Massachusetts currency of 1690 shares these features. Both currencies were issued as a fiscal wartime emergency.

Mather and Blackwell probably did not know about earlier paper currencies. They seemed to have mentioned every useful example to support their arguments. Blackwell even mentioned European banks that did not really issue hand-to-hand currency. Both may have regretted citing the French example, but could find nothing better. In 1697, no longer required to promote the paper currency, Mather argued the paper currency to be a purely local invention. It was no longer necessary to mention the French.

6. Conclusion

Intendant Jacques de Meulles of Canada acted within full authority when he issued paper currency in the name of the colony. However seemingly awkward, the currency had clear legal status and performed its role as a medium of exchange. Given the plethora of information routes between Canada and Massachusetts, it is virtually certain that the Canadian paper currency inspired the Massachusetts legislature in 1690.

Unlike older European paper currencies, these American paper currencies became a permanent part of the economy. Why? First, specie shortage was more severe than in Europe, and thus the incentive to use a substitute was stronger¹¹⁰. Second, the colonies were too far away to ensure effective supervision by kings who tried to maintain their

¹¹⁰ This is analogous to the invention of labor-saving mills in areas with labor scarcity (Usher, p. 182).

coinage prerogative. Third, the immigrant societies were generally more open to new, risky ideas, as evident by their very decision to immigrate to a New World¹¹¹.

Massachusetts made a “critical revision”¹¹² to the Canadian invention, adapting it to circumstances in which a promise of future backing and convertibility was not credible and sellers could not be forced to accept the currency in trade. Massachusetts thus invented the legal tender variant of currency that we use today¹¹³. However, both currencies fit my definition of hyperinflatable currency: at the moment of issue, there were no real assets at hand to back the currency and the quantity issued was entirely discretionary.

All of the English American colonies followed Massachusetts. Beginning in 1709-1710, some even copied the design and text of the Massachusetts currency¹¹⁴. This was long before notes of the Bank of England (established 1694) became hand-to-hand currency. Even as the English colonies used paper currency that was more modern in terms of legal status and material than the card money, the latter continued in Canada for decades but lost on publicity¹¹⁵. The English colonial currencies inspired the continental currency of the American Revolution. Canada’s currency may have inspired Louis XIV’s suspension (1704-1714) and John Law, but only the latter was cited by French revolutionaries at the end of the century. The American and French revolutions shook the Western political system to its core. Their use of unbacked paper currency publicized it so much that every

¹¹¹ See Mokyr, pp. 292, 298-9, on determinants of adoption of technological inventions.

¹¹² Usher, *passim*, Mokyr, p. 292.

¹¹³ See Goldberg (2009) for a detailed analysis of the political reasons for this invention.

¹¹⁴ Connecticut, New Hampshire, New York and Rhode Island (Newman [1997], pp. 86, 220, 266, 368).

¹¹⁵ For analogy with pre-Gutenberg Dutch printing see Usher, pp. 242-4. Improvers won more fame than inventors in additional cases (Mokyr, p. 13).

educated person and government official in the West became aware of this tool. Great Britain itself imitated it in its 1797 suspension of convertibility. In 1801, a German scholar called the eighteenth century “the paper money century¹¹⁶.” Hyperinflatable currency then diffused to the rest of the world, wreaking havoc when used by irresponsible governments.

¹¹⁶ Quoted and translated in McCusker (1976), p. 94.

References

- Acts of Assembly, Passed in the Charibbee Leeward Islands*. London: John Baskett, 1734.
- American Institute of Aeronautics and Astronautics. "Kid's Place." 2008. Available at <http://www.aiaa.org/content.cfm?pageid=474>
- Angell, Norman. *The Story of Money*. Garden City: Garden City Publishing, 1929.
- Bank of Japan. "Paper Money in Japan." Available at http://www.imes.boj.or.jp/cm/english_htmls/feature_gra2-1.htm
- Beresford, John. *The Godfather of Downing Street: Sir George Downing*. London: Richard Cobden-Anderson, 1925.
- Bogart, Ernest L. and Donald L. Kemmerer. *Economic History of the American People*. New York: Longmans, Green, 1947.
- Bosher, J. F. "Huguenot Merchants and the Protestant International in the Seventeenth Century." *William and Mary Quarterly* 52 (1995): 77-102.
- Breckenridge, Roeliff M. "The Paper Currencies of New France." *Journal of Political Economy* 1 (1893): 406-431.
- Buffinton, Arthur H. "John Nelson's Voyage to Quebec in 1682: A Chapter in the Fisheries Controversy." *Transactions of the Colonial Society of Massachusetts* 26 (1926): 427-437.
- Bureau of Engraving and Printing. "Ink Used to Print Currency." 2008. Available at <http://www.bep.treas.gov/document.cfm/18/108>
- Chandaman, C.D. *The English Public Revenue: 1660-1688*. Oxford: Clarendon, 1975.
- Clark, Andrew H. *Acadia: The Geography of Early Nova Scotia to 1760*. University of Wisconsin Press: Madison, 1968.

- Collins, James B. *The State in Early Modern France*. Cambridge: Cambridge University Press, 1995.
- Davis, Andrew M. (ed.). *Colonial Currency Reprints, 1682-1751*. Boston: Prince Society, 1910.
- Davies, Glyn. *A History of Money: From Ancient Times to the Present Day*. 3rd edition. Cardiff: University of Wales Press, 2002.
- De Rosa, Luigi. "The Beginnings of Paper Money Circulation and Neapolitan Public Banks (1540-1650)." *Journal of European Economic History* 30 (2001): 497-532.
- Dent, Julian. "An Aspect of the Crisis of the Seventeenth Century: The Collapse of the Financial Administration of the French Monarchy (1653-61)." *Economic History Review* 20 (1967): 241-256.
- des Essars, Pierre. "A History of Banking in the Latin Nations." In Sumner, William G., ed., *A History of Banking in All the Leading Nations*. New York: Journal of Commerce and Commercial Bulletin, 1896.
- Dorfman, Joseph. *The Economic Mind in American Civilization, 1606-1865*. New York: Augustus M. Kelley, 1946.
- Du Halde, Jean Baptiste. *The General History of China*. London: J. Watts, 1736.
- Eccles, William J. *Frontenac: The Courtier Governor*. Toronto: McClelland and Stewart, 1959.
- Ederer, Rupert J. *The Evolution of Money*. Washington: Public Affairs Press, 1964.
- Feavearyear, Albert. *The Pound Sterling: A History of English Money*, 2nd ed., revised by E. Victor Morgan. Oxford: Clarendon, 1963.

- Felt, Joseph B. *Historical Account of Massachusetts Currency*. Boston: Perkins & Marvin, 1839.
- Fritz, Sven. "Stockholms Banco." Sveriges Riksbank. 2003. Available at <http://www.riksbank.com/templates/Page.aspx?id=8183> .
- Galbraith, John K. *Money: Whence It Came, Where It Went*. Boston: Houghton Mifflin, 1975.
- Goldberg, Dror. "The Massachusetts Paper Currency of 1690." *Journal of Economic History*, 2009: 1091-1105. Available at <http://www.drorgoldberg.com/MA.pdf> .
- Goldberg, Dror. "The Rise and Fall of America's First Bank." Working paper, Bar Ilan University, 2008. Available at <http://www.drorgoldberg.com/blackwell.pdf> .
- Green, John. *A New General Collection of Voyages and Travels*. London: Thomas Astley, 1745-47.
- Horsefield, J. K. *British Monetary Experiments: 1650-1710*. Cambridge: Harvard University Press, 1960.
- Hutchinson, Thomas. *The History of the Colony of Massachusetts Bay*. Cambridge: Harvard University Press, 1936 [1765-8].
- Jensen, Adolph. "Banking in the Scandinavian Nations." In Sumner, William G., ed., *A History of Banking in All the Leading Nations*. New York: Journal of Commerce and Commercial Bulletin, 1896.
- Jevons, William S. *Money and the Mechanism of Exchange*. New York: D. Appleton, 1875.
- Johnson, Richard R. *John Nelson, Merchant Adventurer: A Life between Empires*. New York: Oxford University Press, 1991.

- Law, John. *Money and Trade Considered, with a Proposal for Supplying the Nation with Money*. New York: Augustus M. Kelly, 1966. Original published Edinburgh: Andrew Anderson, 1705.
- Macleod, Henry D. "The Theory and Mechanism of Banking." In Sumner, William G., ed., *A History of Banking in All the Leading Nations*. New York: Journal of Commerce and Commercial Bulletin, 1896.
- Macleod, Henry D. "A History of Banking in Great Britain." In Sumner, William G., ed., *A History of Banking in All the Leading Nations*. New York: Journal of Commerce and Commercial Bulletin, 1896.
- Marsh, James H. (ed.) *Canadian Encyclopedia*. Toronto: McClelland & Stewart, 2000.
- Mather, Cotton. *Pietas in Patriam: The Life of His Excellency Sir William Phips*. London: Samuel Bridge, 1697.
- McCusker, John J. "Colonial Paper Money" in *Studies on Money in Early America*, Eric P. Newman ed., New York: The American Numismatic Society, 1976.
- Mokyr, Joel. *The Lever of Riches: Technological Creativity and Economic Progress*. Oxford: Oxford University Press, 1990.
- Moody, Robert Earle and Simmons, Richard Clive. *The Glorious Revolution in Massachusetts, Selected Documents, 1689-1692*. Boston: The Colonial Society of Massachusetts, 1988.
- Morse, William I. *Acadiensia Nova (1598-1779)*. London: Bernard Quaritch, 1935.
- Nettels, Curtis P. *The Money Supply of the American Colonies Before 1720*. Madison: University of Wisconsin Press, 1934.

- Nichols, Glenn O. "English Government Borrowing, 1660-1688." *Journal of British Studies* 10 (1971): 83-104.
- Newman, Eric P. *The Early Paper Money of America*. 4th edition. Iola: Krause Publications, 1997.
- Nussbaum, Arthur. *A History of the Dollar*. New York: Columbia University Press, 1957.
- Parkman, Francis. *The Old Regime in Canada*. Boston: Little, Brown, and Co., 1874.
- Polo, Marco. *The Travels of Marco Polo*. 1920.
- <http://www.gutenberg.org/files/10636/10636-8.txt>
- Rabushka, Alvin. *Taxation in Colonial America*. Princeton: Princeton University Press, 2008.
- Rawlyk, George A. *Nova Scotia's Massachusetts*. Montreal: McGill-Queen's University Press: 1973.
- Richards, R. D. "The "Stop of the Exchequer."" *Economic History* 2 (1930): 45-62.
- Sargent, Thomas J., and François R. Velde. *The Big Problem of Small Change*. Princeton: Princeton University Press, 2002.
- Sewall, Samuel. *Diary of Samuel Sewall, 1674-1729*. Collections of the Massachusetts Historical Society. Vol. V-VII, 5th Series. Boston: John Wilson & Son, 1878.
- Shell, Marc. *Money, Language, and Thought*. Baltimore: Johns Hopkins University Press, 1993.
- Shortt, Adam. *Adam Shortt's History of Canadian Currency and Banking: 1600-1880*. Toronto: The Canadian Bankers' Association, 1987.
- Shortt, Adam. (ed.) *Documents relating to Canadian Currency, Exchange and Finance during the French Period*. Ottawa: Canadian Archives, 1925.

- Smith, Adam. *The Wealth of Nations*. Chicago: William Benton, 1952 [1776].
- Steele, Ian K. *The English Atlantic 1675-1740: An Exploration of Communication and Community*. Oxford: Oxford University Press, 1986.
- Toppan, Robert N. "The Dudley Records." *Massachusetts Historical Society Proceedings*, 2nd Series, vol. XIII (1899): 226-285.
- Trumbull, J. Hammond. "Report of the Council." *Proceedings of the American Antiquarian Society*, new series, vol. III (1885): 257-303.
- Usher, Abbott P. *A History of Mechanical Inventions*. 2nd edition. Cambridge: Harvard U. Press, 1954.
- van der Borcht, Richard. "Banking in the Netherlands." In Sumner, William Graham, ed., *A History of Banking in All the Leading Nations*. New York: Journal of Commerce and Commercial Bulletin, 1896.
- von Glahn, Richard. *Fountain of Fortune: Money and Monetary Policy in China, 1000-1700*. Berkeley: University of California Press, 1996.
- Weatherford, Jack. *The History of Money*. New York: Crown Publishers, 1997.
- Weeden, William B. *Economic and Social history of New England*. New York: Hillary House, 1890.
- Whitmore, William H., ed. *The Andros Tracts*. Boston: The Prince Society, 1868-1874.
- Wilkinson, W. H. "Chinese Origin of Playing Cards." *The American Anthropologist* 8 (1895): 61-78.
- Wirth, Max. "A History of Banking in Germany and Austria-Hungary." In Sumner, William G., ed., *A History of Banking in All the Leading Nations*. New York: Journal of Commerce and Commercial Bulletin, 1896.

Figure 1: Canadian Playing Card Currency of 1714



Figure 2: Massachusetts Currency of 1691 ¹¹⁷



¹¹⁷ "February the third 1690" is Old Style (Julian Calendar) name for February 13, 1691.