The Colonial Currency, Prices, and Exchange Rates

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with Introductory Comments by

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THE FOLLOWING article, "The Colonial Currency, Prices, and Exchange Rates," was written, and is being published, under unusual circumstances. Its author, Leslie Brock, died in 1985. The manuscript version of the article he left behind lacked the polish, terseness, and careful footnoting usually found in first-rate historical research. Nonetheless, the article represents the final judgement of one of the few universally acknowledged experts on American colonial currency, and it addresses matters of current controversy. As such, it ought to be available to historians and economists.

Explaining the significance of the article requires placing it in the context of Brock's life and work. Leslie Brock was born in 1903 in Pittsburgh and grew up in Waynesburg, Pennsylvania. After graduating from Waynesburg College in the summer of 1928, he joined the faculty of the College, where he taught history, economics, and government. In 1938 he married Frances Sutherland. While teaching at Waynesburg, Brock completed a Ph.D. in history at the University of Michigan, where he was trained by such distinguished scholars as Verner W. Crane and Dwight L. Dumond. His doctoral dissertation, *The Currency of the American Colonies, 1700-1764*, remains to this day an undisputed classic. John McCusker and Russell R. Menard, in *The Economy of British America, 1607-1789*, describe it as one of two "basic treatises on currency in early British America." Joseph Ernst—the author of the second basic treatise—praised it as "the best description and analysis of American paper money practices for the period it covers."

In 1947, Brock joined the faculty of the College of Idaho as professor and chairman of the department of history, where he served until his retirement in 1969. In 1966, the college honored Brock by naming him as the first holder of the

college's Weyerhaeuser chair. Brock set high standards, both for himself and his students. He originally had conceived his dissertation as covering the entire period up to 1776. On his adviser's recommendation, he stopped at 1764, but immediately after receiving his degree began work on extending the study to the Revolution. For the later period Brock relied far more on original sources than he had in his dissertation, and by the mid-1950s, he had completed a draft of the sequel. Now, however, he felt it necessary to return to the earlier period, to write a more accurate account based on original sources. Describing these events in a 1969 letter, he wrote that he had "spent perhaps three times as much time and labor as I did on my dissertation. At the beginning I never thought it would take half so long, but I can truthfully say, `I have not been idle.'"

Brock continued working on the currency project after his retirement, putting most of his effort into gathering the source documents needed to write the comprehensive history he had in mind. In 1975, he reluctantly permitted Arno Press to publish his 1941 doctoral dissertation, writing in the preface that "Only the realization that time may not be given me to finish [the comprehesive history] induced me to publish the disseration."

By the late 1970s, Brock's health began to fail as he fell prey to a degenerative nerve disease that took away his ability first to write, and then to walk. Completing a book that would surpass his dissertation now became impossible. In the spring of 1977, he told Stuart Bruchey of his plans to write an article instead. "Such an article needs to be written to redeem the subject from the misconceptions (as I conceive them) of Joseph Albert Ernst. Apart from Ernst, I have developed some statistical data that introduce a new dimension into the behavior of exchange rates in New York and Pennsylvania, for example, in the period after the mid-forties, as these rates are influenced by the fluctuations of the price of Spanish silver in London."

Unfortunately, Brock's failing health made even the article an ambitious and perhaps unrealistic undertaking. Under his supervision, Brock's wife, Frances, took over the job of typing, calculating, and drafting tables and figures. But despite their best efforts, the draft manuscript bore the marks of the difficult circumstances under which it was written. When the *William and Mary Quarterly* rejected it in 1980, the author's deteriorating health forced Frances and Leslie to abandon the project.

As to the essay itself, Brock, in his response to Ernst's *Money and Politics,* addressed a controversy that was about to break with full force. The controversy concerns how the quantity theory of money can be reconciled with colonial experience (if at all). Before Ernst's book, many historians and economists simply had assumed that colonial price levels varied in proportion to the quantity of paper

money in circulation. While perhaps true in New England before 1750, and in the Carolinas early in the eighteenth century, Ernst correctly argued that these cases were exceptional. Colonial currency usually held its value even when its quantity increased by several hundred per cent. How could this be explained? Robert Craig West made the point even more emphatically by methodically correlating price indices and currency supplies in several colonies; he found that in most colonies there was no correlation whatsoever.

This touched off a vigorous controversy among economists. In a series of articles, Bruce Smith took up the attack on the quantity theory of money and argued that the colonial experience showed the over-riding importance of fiscal policy in determining the value of currency. Currency did not depreciate in colonies that, in Smith's language, "backed their currency" by faithfully collecting taxes and outstanding public loans. After reviewing the experience of individual colonies, Smith concluded that the absence of backing was the critical factor in explaining why some colonial currencies depreciated, while others did not. Wicker and Calomiris also contributed to the controversy, emphasizing, as Smith did, the importance of fiscal policy.

I have argued that backing, in this sense of the word, did not play an important role, and have defended the quantity theory. Colonial currency was far from being the only component of the money supply. Specie coins were an important, even predominate, part of the money supply in some colonies, and there were important substitutes for money as well. The custom of rating specie coins in the colonies at a fixed value in colonial currency—a Spanish dollar, for example, was 8s. in colonial New York—linked the value of currency to the value of silver in international markets. So long as silver circulated as a medium of exchange, and specie coins maintained their fixed rating, the currency would not depreciate. Paper money emissions would increase the demand for goods, but this would result not in higher prices, but in the export of specie. Only when the disappearance of specie caused the fixed rating to break down would depreciation commence. According to this explanation, depreciation occurred in those colonies which issued so much paper money that they displaced their stock of circulating specie. Michael D. Bordo and Ivan A. Marcotte, and Bennett T. McCallum have participated in the debate on this side of the issue.[1] Brock also argued that the circulation of specie coins and their customary rating was the key factor, although his position varies in many particulars from that of these economists. The lively controversy on this topic at this time makes Brock's manuscript of particular interest.

Also, Brock's estimates of the quantity of currency outstanding in the colonies have become the standard used by all historians and economists. While some of

the tables in the essay simply repeat material from his dissertation, several are new: the estimates of Pennsylvania currency in circulation 1750-1775; Virginia currency outstanding 1755-1774; and the implicit estimates of New Jersey currency outstanding 1750-1774.[2] The tables showing New England and New York currency outstanding include minor corrections and revisions.

Historians with a general interest in the subject should know that the paper published here is only a small part of the material on colonial currency Brock left behind. The draft chapters for the sequel to his dissertation, picking up the story in 1764 and carrying it to the Revolution, plus a very detailed history of the Massachusetts currency during the 1730s, still exist, as do Brock's research notes, an extensive collection of primary and secondary source material relating to colonial currency. Perhaps the most useful portion of the collection are the xerox and microfilm copies of original documents collected by Brock from around the country and from Great Britain. Professor Joseph Ernst has already made substantial use of the collection for a book in progress on the currency of colonial Massachusetts.[3]

Finally, I should explain what I have done, and not done, in preparing the manuscript for publication. The original manuscript contained typographical and transcription errors as well as some numbers and statements that ought to have been footnoted but were not. While I have tried to eliminate the first kind of error, and provide footnotes where sources were self-evident, the reader should understand that the manuscript is being published essentially "as is." Most of the missing documentation can be found in Brock's research notes; after examining these notes I know that the answer to "where did this number come from?" is often not an easy one. Brock did not rely always upon published data series. For example, he merged his data on exchange rates with the data in McCusker's *Money and Exchange*, and used these revised figures in the paper. He also developed his own estimates of population in the colonies, and figures on trade balances per capita are generally deflated with his own population estimates. I abandoned the idea of providing complete footnotes because of the difficulty of finding, understanding, and describing all the calculations. When I could locate Brock's worksheets, I checked the numbers in the paper against those in the worksheets, and corrected transcription errors upon discovery. After checking all the money supply figures against the worksheets they were based on I am fairly confident of their accuracy. I am most uncertain about the trade statistics.

One portion of the paper, Table VII and Figure V, required revision because it is a particularly important calculation. The table and figure show the deviations of the exchange rate in Pennsylvania, New York, and Massachusetts from a par of exchange calculated using the market price of silver in London. Brock took his

silver price data from McCusker's *Money and Exchange*. McCusker's prices, though, are for standard (sterling) silver bullion. Since the silver coins circulating in British America were Spanish, they were of a different alloy, and being coined, they might be of more or less value than the equivalent bullion. From Brock's letters, I know he was aware of these problems, but had no better data. Recently, I discovered the London price of pieces of eight (per ounce) in Castaing's *The Course of Exchange*, a contemporary newspaper, and constructed a table of the London price of silver based on these figures. The table is published here for the first time. Knowing Brock would have used these figures if they had been available, I felt it was appropriate to redo the table. The difference in the two price series is small, but important. Independent evidence suggests a peacetime cost of shipping specie from the colonies to London of about 6%.[4] Using McCusker's data, it appears that specie points were regularly violated, sometimes significantly. Using the correct data, however, largely eliminates these violations.

The Colonial Currency, Prices, and Exchange Rates

> That the exchanges will be lowered, and the price of Bullion raised, by an issue of . . . paper [currency] to excess, is not only established as a principle by the most eminent authorities upon commerce and finance; but its practical truth has been illustrated by the history of almost every state in modern times which has used a paper currency; and in all those countries, this principle has finally been resorted to by their statesman, as the best criterion to judge by, whether such currency was or was not excessive.
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> "The Bullion Report," 1810[5]

> The experience of past times, both of war and peace, leads us to suppose, that the exchange between Great Britain and foreign countries is not likely to remain for any long period unfavorable to Great Britain.
>
> That the quantity of circulating paper must be limited, in order to the due maintenance of its value, is a principle on which it is of especial consequence to insist. . . .
>
> It . . . appears, that "the coming and going of gold" does not . . . "depend wholly on the balance of trade." It depends on the quantity of circulating medium issued; or it depends, as I will allow, on the balance of trade, if that balance is admitted to depend on the quantity of circulating medium issued.
>
> To limit the total amount of paper issued, and to resort for this purpose, whenever the temptation to borrow is strong, to some

> effectual principle of restriction; in no case, however, materially to diminish the sum in circulation, but to let it vibrate only within certain limits; to afford a slow and cautious extension of it, as the general trade of the kingdom enlarges itself; . . . this seems to be the true policy . .
> Henry Thornton, 1801[6]

THE UTILITY of the quantity theory of money in explaining the behavior of colonial prices and exchange rates has lately been called in question. Joseph Albert Ernst acknowledges that the quantity theory provides a sufficient explanation in the case of runaway inflation, but he denies that it provides an explanation in the case of general price equilibrium. In such a case, he contends, the explanation is to be found in the interplay of demand and supply within the framework of the balance of payments.[7] To contend that this is so is to admit that gravity operates when a man falls to his death over a precipice, but to deny that it operates when a man falls from a curbstone and breaks an arm. Ernst's explanation leaves in limbo much, perhaps most, of colonial monetary history which fell between the extremes of runaway inflation, of more moderate price disturbances, and of general price equilibrium, if, indeed, such a case can be isolated.

Since a clear understanding of the nature of both the circulating specie and the paper currency of the colonies is necessary to achieve an understanding of the problems involved in the determination of prices and exchange rates, perhaps a few words concerning each may not be amiss. There was no colonial coinage nor did the sterling coin of Great Britain circulate in the colonies. Consequently, it was necessary for the colonies to amass a supply of coin through the medium of trade.

The money metal of the eighteenth century was silver, not gold. The chief coin of the colonies was the Spanish milled dollar (piece of eight), worth 4s. 6d. sterling. There were supplementary gold coins in circulation: the Johannes of Portugal, which circulated after 1722 and was worth 36s. sterling, and the Spanish Pistole, which was worth 12s. 2.8d. sterling, and had a substantial circulation in Virginia prior to the French and Indian War. The silver was chiefly derived from the West Indies trade. It was a saying in New England in the early eighteenth century that the "Fishery was then the N.E. Silver Mine."[8] The gold came in as a result of trade with the south of Europe. The colonies retained the British monetary units: pounds, shillings, pence (£1 = 20s.; 1s. = 12d.). The foreign coins in circulation in the colonies had values placed upon them by the several colonial legislatures. They did not, however, long circulate at their sterling values. Either to retain their coin or to draw it from their neighbors, colonies raised the value at which it circulated within their boundaries. An upper limit to these values was set by the Proclamation of Queen Anne of 1704, which placed a maximum of six

shillings on the Spanish milled dollar. Gold coins, however, were not within the scope of the proclamation. Throughout the colonial period, specie in the colonies tended to be in short supply.

Colonial paper currency, generally called bills of credit, was issued on two bases: on the credit of the colony supported by tax funds, and on loan. Massachusetts in 1690 was the first colony to issue bills on the credit of the colony, and South Carolina in 1712, if the abortive attempt by Barbados in 1706 be neglected, was the first colony to put out bills on loan.[9] As the first method evolved it became customary to strike off the bills of credit, declare them a legal tender in both public and private transactions, and pay them out to the public creditors. At the time of issue, provision was usually made for calling in the bills. For example, a tax would be levied for the five years next ensuing, from the proceeds of which one-fifth of the bills were retired annually. The tax was made payable in the bills; when the bills were paid into the treasury, they were burned. By the second method, the legislature established a "loan office" and struck off a sum in bills, likewise making them a legal tender. It was the duty of the commissioners of the loan office to place the bills out on loan in limited sums on adequate security, which was usually in the form of a mortgage on landed property. It was customary to require the property to be of double the value of the loan. Interest on the loan was payable annually, and, beginning immediately or after a period of years, the principal was repaid in equal annual installments running over eight or ten years. When payments on the principal were received, the bills were retired by burning. Such issues served three purposes: (1) in an age when private banks were unknown they supplied individuals with the credit necessary for acquiring and improving land; (2) interest payments contributed to the public revenue; and (3) the bills, while outstanding, supplied a medium of exchange.

Perhaps it should be noted, for the matter is much misunderstood, that the bills were not redeemable in specie. When paid into the treasury in taxes or to the commissioners of the loan office in payments on the principal, at least at the end of the lending period, the bills were destroyed. As long as the quantity of bills was not excessive, they retained their value. It was only when the original issue was excessive, or when repeated issues, as in time of war, greatly increased the circulation that the bills depreciated.

We are interested in the effect of currency issues upon the general price level. The changes in the price of individual commodities in response to changes in supply and demand or in the seasonal or cyclical movement of individual prices are not our primary concern. The existing colonial price indices based upon the prices of a few commodities bought or sold in foreign commerce are in no way indicative of the general price level.[10] The colonial prices of such commodities

depend predominantly upon the conditions of supply and demand in foreign markets and on the rate of exchange. Only as monetary factors influence colonial demand or the rate of exchange do they exert an influence upon such prices. Evidence of the effect of currency expansion upon the general price level must be sought elsewhere than in the existing price indices.

The colonists imported their manufactured goods from Britain, payment for which had to be made in sterling funds. The colonists gained control over sterling funds as the result of their exports. In the Southern colonies trade between the colonies and Great Britain was direct. A Virginia planter might export his tobacco to Britain, consigning it to a commission merchant who would sell it and place the proceeds to the Virginia planter's account. The proceeds produced a fund of sterling money upon which the Virginia planter might draw. Perhaps he accompanied the shipment of his tobacco with an order for goods. His correspondent in Britain would buy the goods and debit his account for the cost. The goods would then be shipped to the colony when the tobacco ships again returned to Virginia. Here no more than a bookkeeping transaction was necessary. If, however, the Virginia planter wished to transfer some of his balance with his London correspondent to Virginia for use in the colony, he might draw a bill of exchange on his correspondent for, say, £100 sterling. The bill was in the nature of an order to his correspondent to pay £100 sterling. The planter then sold the bill at the going rate of exchange to a fellow Virginian who had need of sterling funds to pay an obligation in Britain. The purchaser forwarded the bill to his creditor in Britain, who presented it to the correspondent of the Virginia planter for acceptance—for the custom was to draw bills of exchange payable thirty days after sight. If the correspondent accepted the bill, the creditor then held it for thirty days, at the end of which time he presented it for payment. The rate at which sterling bills were sold in the colonies was determined at any one time by the effective supply of, and demand for, sterling bills.[11] The basic question, however, concerning the effect of currency issues upon exchange rates revolves around the effect of such issues upon the demand for, or, to a lesser degree, the supply of, bills of exchange. In the case of New England and the Middle colonies, where direct trade between the colonies and Britain was at a minimum, it was necessary for the colonies to have recourse to a roundabout trade to procure the necessary bills of exchange and specie to pay their adverse balances with Britain.

SUSTAINED INFLATION: NEW ENGLAND, 1702-1750

THE OUTBREAK of Queen Anne's War (1702-1713) led to ever-increasing issues of bills of credit drawn on the credit of the colonies by Massachusetts and

to the introduction of bills of credit in Connecticut and New Hampshire in 1709 and in Rhode Island in 1710 to help those colonies to finance their exertions in the war. The nature of trade in New England was such that the bills of one colony were soon introduced into another and came to pass current there. In this way, since the bills of one colony enjoyed a "promiscuous circulation"[12] in the other colonies, they came to suffer a common depreciation. In 1709 the paper circulation of New England amounted to £69,364; when the war ended in 1713 it had grown to £219,448. "It has been estimated that there were £200,000 of silver in circulation in New England in 1700. By 1713 this sum had been reduced to £130,000, and by 1718 according to some statements, or by 1726 according to others, there was none remaining."[13] In 1700 silver passed current in New England at 7s. the ounce. It continued at this figure until 1705 when the value of silver was raised to 8s. the ounce. This increase was not the result of the emission of bills of credit, but rather of the reduction of the silver content of the Spanish milled dollar through the paring of the coin, an action that proceeded from a resolution of the merchants to receive silver at 8s. the ounce. At first the bills of credit circulated at parity with silver and manifested no tendency to depreciate. Later, however, it was a different story.

As the issues of bills of credit put out to finance the war increased from year to year, they created purchasing power. This added purchasing power increased demand. Part, at least, of the increased demand was for English goods. When there was a sufficient amount of silver in the colony to maintain a stable exchange rate, this increase in purchasing power caused increased importations and larger unfavorable balances of trade, which in turn increased the demand for silver to meet these adverse balances. The price of silver and exchange rose together; as exchange rose, the price of English goods measured in colonial currency likewise rose. The effect upon domestic prices of increases in purchasing power arising from issues of bills of credit was more direct. Here the increased purchasing power acted upon the market directly as receivers of the bills entered the market and bid up prices. It was otherwise in the case of commodities produced largely for export, here a rise in sterling exchange was soon translated into higher prices for these commodities measured in colonial currency.[14] The effect of the later issues, however, upon the price of silver differed from that of the earlier ones. Before 1710 the sum outstanding in bills of credit bore a small proportion to the sum of silver in circulation. In 1710 there was perhaps as much silver in circulation as there were bills. As long as this was true, silver sufficient to make remittances to England came into the hands of merchants in the ordinary course of trade. After 1710, however, the situation altered. Bills were emitted in larger quantities. Moreover, the outflow of silver accelerated, for these were years in which the

balance of trade with England was extremely unfavorable. As the demand for silver for making payments abroad grew and as the supply of the metal within the colony dwindled and fewer and fewer silver coins came into the hands of the merchants in the ordinary course of trade, the merchants began to bid one against the other for it in order to make remittances to England, and thus its price rose. The existence of a stock of silver in a colony served to retard the rise in the price of the metal even in the face of a substantial increase in the sum outstanding in bills of credit. As soon, however, as the stock became scarce, the rise became more rapid. Then only the silver that was imported in the course of trade with Southern Europe and the West Indies became available for export.[15]

Peace brought problems no less severe than had the war. The occasion for issuing sizable sums in bills of credit ended and whatever stimulus to business activity generated by the constant emission of ever larger sums in bills disappeared. Moreover, retirement of the bills of credit outstanding by the annual tax levied for that purpose added to the complexities facing the New Englanders. In these factors—the end of wartime activity and expenditures, and the prospect of a contracting circulating medium—were the elements of impending depression.

> It is not remarkable, therefore, that during the next year (1714) 'a cry of scarcity of money' was heard. A cry in which the commercial element in the province joined, for as Cotton Mather, writing at the time, reported, the 'Gentlemen of Business' of the province considered the number and value of the bills of credit remaining in circulation as 'no more than a *Spratt in a Whale Belly.*' The amount bore 'little Proportion to the Business of the Country, and [the] People [were] plunged into inexpressible Difficulties.'[16]

The bills of credit in circulation in the several New England colonies, 1703-1751, may be followed in Table I and, for New England, graphically in Figure I. The effect of these issues upon the price of silver may be followed in Table II, which gives the annual price of silver at Boston, and graphically in Figure I. The per capita figures of imports from England point out the influence of the wartime issues of credit upon trade with the mother country. During the period, 1702-1706, the annual imports from England averaged £0.71 sterling; in the period, 1707-1715, they averaged £1.15 sterling; and in the period, 1716-1722, they averaged £0.87 sterling.[17] The per capita imports from 1707-1715 were greater than those of any similar period throughout the colonial history of New England. During the period, 1706-1715, the average annual rate of increase in the price of silver was 1.70 per cent, while during the subsequent period, 1715-1722, the average annual rate of increase rose to 6.79 per cent. These figures of per capita imports and of

the average annual increase in the price of silver clearly demonstrate the fact that during the period, 1706-1715, when silver was available for export to pay the adverse balances occasioned by the increase in imports from England, the effect upon the price of silver was but moderate. During the period, 1715-1722, however, the demand for silver continued strong and silver having grown quite scarce, the merchants were forced to bid one against another for it to meet their adverse balances, and the price rose much more rapidly.

With the bills of credit annually declining, the Massachusetts gentlemen of business cast about to find ways of replenishing the circulating medium. One group, taking its cue from the proposal of Captain John Blackwell circulated in the colony in 1688 and now reprinted,[18] proposed that a group of individuals join together for the purpose of issuing their notes in an amount not to exceed £300,000, which they would covenant to receive in trade, and which were to be lent out "upon good security," real or personal.[19] The five directors of the proposed bank were all Boston merchants. The projectors sought the countenance of the legislature, hoping to obtain an act of incorporation, and to this end applied to the Assembly in February 1714. The Assembly recognized the need for an addition to the circulating medium but decided a public rather than a private project was called for. Since no action was taken at the February session the private projectors continued to formulate their plans throughout the spring and summer. On 20 August, however, in response to a memorial from the Attorney General of the province, the Council restrained the projectors from printing their scheme, putting it on public record, or emitting any notes or bills until they had laid their proposal before the General Assembly. This they did at the October session but the Assembly adhered to its earlier preference for a public issue, and on 4 November authorized a public loan issue of £50,000; the following day it prohibited any company or partnership from emitting bills of credit as a medium of exchange or trade without the consent of the legislature. The private projectors, unwilling to give up the struggle, petitioned the King to incorporate them by charter. But despite the support of the British merchants trading to New England and of an initially favorable reception by the Board of Trade, for reasons that do not appear, they allowed their efforts to languish, and no action was taken by the British authorities.

The struggle between the supporters of a private bank and of a public loan issue has sometimes been viewed as a struggle between the trading interest, on the one hand, and agrarian debtors who supported a public issue, on the other. Both projects, however, appear to have belonged to the trading part of the colony. "A Country-Man" wrote in the *Boston News-Letter* in 1720, "that the General Assembly, especially the Country part[,] had never thought of or consented to it

[the public loan], had it not been upon the great Sollicitation & pressing Importunity of the Trading part."[20]

The £50,000 issued in 1714 were lent out on landed security to individuals for five years at an annual interest of five per cent. During the period one-fifth of the principal was to be repaid annually. The loan issue temporarily restored the circulation and revived trade. Per capita imports, which had stood at a high of £1.27 in 1711, had dropped to £1.00 in 1714. The next year, however, they rose again to £1.30. By 1716 the circulation had dwindled again and, since the loan issue of 1714 had appeared so beneficial, a new issue of £100,000 was thought desirable. The £100,000 in bills of credit in 1716 were to be let out to borrowers at five per cent annual interest for a period of ten years. The interest was payable annually and the principal in a lump sum at the end of the period. This time, however, trade failed to respond to the replenished circulating medium. Per capita imports had fallen in 1716 to £0.92 and in 1717 they revived to only £0.96. Moreover, when the increased imports of 1715 came to be paid for a year later, the demand for returns caused the price of silver to rise from 9 to 10s. the ounce. Henceforth, increasing the circulation by putting out bills of credit on loan no longer fostered restoration of trade but only caused the price of silver to rise still further.

Massachusetts' neighbor Rhode Island was a small colony "of not a much larger extent of territory than about thirty miles square . . . of this, a great part is a barren soil, not worth the expense of cultivation."

> The colony hath no staple commodity for exportation, and does not raise provisions sufficient for its own consumption; yet, the goodness of its harbors [of Newport and Providence], and its convenient situation for trade, agreeing with the spirit and industry of the people, hath in some measure supplied the deficiency of its natural produce, and provided the means of subsistance to its inhabitants.[21]

By a roundabout trade carried on chiefly with the West Indies, Rhode Island provided itself with the produce, bills of exchange, and specie necessary to pay for its imports from England. Few of these imports came from England directly, rather they were imported through Boston, New York, or Philadelphia. By trade with these several colonies Rhode Island provided itself with the means of paying for its imports through them.

Rhode Island soon followed Massachusetts' example in issuing bills of credit on loan, putting out its first loan issue in 1715. From that date until 1751 Rhode Island established nine "land banks" (as her loan offices were called), issuing in excess of £820,000 in bills of credit. Since, as mentioned above, the bills of one

New England colony enjoyed a circulation in the other New England colonies, Rhode Island's bills of credit soon flowed to Massachusetts in the course of trade. In order to provide commodities for her West Indian trade, Rhode Island bought up the produce of Massachusetts, paying for it with Rhode Island bills of credit. In this way Rhode Island, so to speak, levied tribute upon Massachusetts, a fact that did not escape the attention of the keener observers in the latter colony. In fact, John B. MacInnes has written: "The key to understanding Rhode Island's currency policy up to 1750, is that it was in fact a parasitical device."[22]

Unlike Massachusetts, Rhode Island because of her charter was not subject to royal control through the instrumentality of the royal instructions. As a result, she was free to multiply her loan issues after Massachusetts had been restrained. In 1720 Rhode Island, with an eighth of the population of Massachusetts, circulated paper amounting to one-fourth that of Massachusetts. By 1730, her bills of credit equaled thirty-eight per cent of those circulating in Massachusetts, although the relative population of the two colonies had remained unchanged. By 1740, Rhode Island's circulation had grown to one hundred thirteen per cent of that of Massachusetts, again the relative populations remaining the same. The outpouring of bills by Rhode Island greatly accelerated the depreciation of the New England currency.

The depreciating effect of the Rhode Island loan issues upon Massachusetts' bills of credit was such that, when in 1733 Rhode Island emitted £104,000 on loan, a group of merchants in Boston, fearing that a large part of the issue would gravitate to that city and depreciate the currency, agreed not to receive the Rhode Island bills and, to meet the need for a medium, issued their notes on a silver basis. In all £110,000 were issued; "The Sum put to Interest," it was said, was "very small . . . as the Undertakers put the Notes away in common Payments, at 22s. per Ounce."[23] The notes were redeemable in silver at 19s. the ounce (which was the price at which silver had passed at the end of 1731), three-tenths at the end of three years, three-tenths at the end of six years, and the remaining four-tenths at the end of ten years.[24]

In 1733, the present value of the merchants' notes, calculated at 6% per annum compounded annually, was such that an ounce of silver should have traded for 27s. 8d. of the notes. Yet the merchants' notes, because they initially passed as a medium of exchange at par with province bills, were put off at a higher value. Even when silver rose to 23s. the ounce at the end of 1733, their present value was 17% less than the value at which they circulated. The merchants soon broke through their resolve not to receive the Rhode Island bills and by the end of 1734 silver had risen to 27s. at Boston. "As soon as silver rose to 27s.," Thomas Hutchinson has written, "the notes issued by the merchants payable at 19s. were

hoarded up and no longer answered the purposes of money."[25] By the end of 1734 the value of the notes exceeded that of province bills by 3.5%; whether this premium was sufficient to cause the notes to be hoarded, as Hutchinson says, may be questioned. However, when silver reached 27.5s. the ounce at the end of 1735, the premium rose to 11.7%.[26] This was doubtless sufficient to cause at least a majority of the notes to be hoarded. There are numerous references in the newspapers and pamphlets of the time to the hoarding of the notes. It appears, however, that not all the notes were hoarded, but that some were left to circulate at a premium. The Land and Silver Banks of 1740 need not engage our attention as they soon were suppressed by act of Parliament and had little economic effect.

Prices. The price of silver, for which quotations exist, serves not only as a measure of the rise in sterling exchange rates, but also as a rather effective measure of inflation in New England, as can be empirically demonstrated. In 1707, the price of an ounce of silver at Boston was 8s.; by 1747, it had risen to 56.8s. Using the 1707 price as the base, the index number of the price of silver in 1747 is 710. In 1747 two Massachusetts ministers provided comparisons of a market basket of prices: the first of 1707, the second of 1717, comparing them with the prices of the same articles in 1747. The market baskets in each case consisted of the provisions necessary to supply the table of a family for a week. The first basket included a chicken, a goose, a turkey, butter, cheese, eggs, beef, mutton, pork, veal, corn, rye, wheat, milk, and beer; in addition one finds candles, a pair of men's shoes, and a pair of women's shoes. If the cost of the goods in the market basket in 1707 be taken as the base, the index number of the 1747 prices stands at 741. The second basket included milk, mutton, salt pork, beef, flour, eggs, beer, corn, rye, turnips, peas and beans, sugar, butter, cheese, candles, and wood. If in this case the cost of the articles contained in the basket in 1717 be used as the base, the index number of the 1747 prices stands at 515. The prices of the several commodities in the baskets did not rise uniformly. In the first basket the 1747 index number for the price of eggs is 1800, while that of the price of beer, is 450. In the second basket, the 1747 index number for the price of cheese is 741, while that for both eggs and beer is 300.[27] In the first basket the 1707 price of a bushel of wheat is 5s., the 1747 price is 25s. If the 1707 price be used as the base, the 1747 index number of the price of wheat stands at 500. The 1747 index of the Boston price of wheat similarly computed stands at 473.[28]

Eleven commodities were common to both lists: butter, cheese, candles, eggs, beef, mutton, pork, corn, rye, milk, and, beer. Using 1707 prices as the base, the index number of these eleven commodities was: 1707, 100; 1717, 245; and 1747, 881. It was said that the price of butter rose "the most uniformly of all Provisions."

Again using the 1707 price as the base, the index of the butter price was: 1707, 100; 1717, 167; 1733, 450; 1739, 500; and 1747, 1042. Prices rose faster than wages. The laborers on the Boston Townhouse in 1712 received 5s. a day. By 1739, wages had risen to 12s. a day.[29] Using 1712 as the base, the 1739 index of wages is 240. The 1739 index of the price of butter, however, was 500.

Perhaps the Massachusetts sterling wheat price ratio gives the best indication of the rise of commodity prices during this period. The Massachusetts sterling wheat price ratio is calculated by dividing the price of a bushel of wheat Old Tenor in Massachusetts by the Pennsylvania sterling price. The effect of such a calculation is to smooth out the annual fluctuations in the price of wheat that derive from the changes in the supply and demand for wheat during any one year. Massachusetts was a wheat importing colony and Pennsylvania was a wheat exporting colony. The calculation can be made for the years, 1720-1749. The wheat price ratio rose from 3.15 in 1720 to 16.53 in 1747, thus the latter figure was 5.42 times the former. The rise in the ratio may be followed in Figure I.[30]

STERLING EXCHANGE RATES. In discussing the behavior of sterling exchange rates in New England during the period, 1703-1750, our inquiry will be centered on the relationship between the ever-increasing paper circulation and the sustained increase in the sterling exchange rate. The balance of trade with England was always adverse. Consequently, silver flowed from New England to the mother country each year. In times of a stable currency, however, the outflow to England was matched by the inflow from New England's trade with the West Indies. With the increase of purchasing power that resulted from the increase in the annual issues of New England's bills of credit, imports from England increased and the adverse balance increased. As a result, more and more silver flowed each year to the mother country. At first, when the increases of the bills of credit were relatively moderate, and when the silver supply remained sizable, the price of silver was not affected, and the currency retained its value. When the supply of silver became diminished, however, and not enough silver coins came into the hands of the merchants in the ordinary course of trade to supply them with the necessary silver for redressing the adverse balance, they began to bid one against another for it. Thus the price of silver was bid up and the currency began to depreciate. As the supply of silver in New England diminished still further, the annual rise in the price of silver increased. By 1720, or in any event by 1725 or 1726, when the stock became exhausted, the rise in the silver price became more precipitate. The rise may be followed in Table II, or graphically in Figure I. By consulting Figure I, one will see that the slope of the currency curve, between 1720 and 1740, is somewhat greater than the slope of the silver price curve during the

same period. In neither case, however, is the curve smooth, although in each case the general slope remains fairly constant. Without question the chief cause of the rise in the silver price during this period was the annual increase in the amount of paper currency in circulation. Since, however, the two curves do not correspond, either in their slopes or in their fluctuations, other causal elements must be taken into consideration.

The trend in the silver price line in Figure I represents the effects of the increase in the circulating medium upon the price of sterling exchange. The fluctuations around the trend represent the effect of accidental changes in the balance of payments from year to year. As William Douglass wrote:

> In *New England*, as in all other trading Countries, from some particular Accident and Circumstances, there happened at Times, some small fluctuations in Exchange, without any Regard to Emissions of Paper Money. At all Times, when Returns in Ship Building, Whale Oil and Fins, Naval Stores &c. turn out well at Home; Silver and Exchange here suffer a small fall: at other Times when these prove bad Returns, Silver and Exchange rise a small Matter; the most noted Instance was in A. 1729, when the usual Returns to *Great Britain* turned to bad Account; the Merchants from Home directed their Factors here, to make Remittances in Silver or Exchange only, and at any Rate . . . Silver rose very considerably, but after a few Months fell again to the former Price.[31]

Such accidents account for the fluctuations around the trend. The difference in slope between the currency curve and the silver price curve must be accounted for otherwise. To that we now turn attention.

In the absence of the operation of other factors, one might expect the slope of the silver price trend curve to be the same as that of the currency trend curve. When they diverge, however, one is forced to look for the cause. Although the increase was not uniform, trade with England (imports plus exports) tended to rise over the years. If one calculates a two-year moving average, for trade with England during the two years preceding the year in question, one has a useful tool for determining the cause of the difference in the slopes of the currency and silver price curves. Some divergence is easily accounted for, since some of the increase in currency was absorbed by the growing volume of trade. To judge whether this explanation alone is sufficient, hypothetical silver prices were calculated taking both the growth in the money supply and trade into account.[32] The calculated silver prices are derived from the quantity theory, using growth in trade with England as a proxy for growth in trade generally. When the calculated silver prices have been ascertained, they are then plotted on the silver curve in Figure I.

It will then be seen that the calculated prices fluctuate irregularly about the actual prices. When the calculated prices are compared with the contemporary evidence respecting fluctuations in the balance of payments, one will see that they correspond to a marked degree. In the case of 1729, the year in which, as we have seen, the ordinary returns to England turned to bad account, the actual price of silver was 20.3s. the ounce, while the calculated price was 17.87s. the ounce.

The year 1734 provides another example. In that year the act of Parliament that levied a duty of 6d. per gallon on foreign molasses imported into the colonies first took place. The act

> abridg'd the Trade of the Province in one of its most considerable Branches for a short Time . . . there happen'd also some Failure of its Cod and Whale Fishery, both which occasion'd a great Deficiency in its Returns that Year, and there was the usual Importation of *English* Goods, and no Increase of the Silver and Gold generally imported into the Province, and of the Bills of Exchange to be purchas'd there, and about the same Time there happen'd a large Increase of the Paper Currency by a new Emission of *Rhode-Island* Bills . . . this Conjunction of Circumstances caus'd Silver to rise from *twenty Shillings to twenty seven Shillings and six pence* per Ounce, and consequently the Bills of Credit to depreciate above one third Part of their former Value.[33]

On this occasion both the increase in the currency circulation and the deficiency in returns operated together to raise the price of silver, both the calculated price and the actual price. In 1733 the actual price of silver had been 22s. the ounce, while the calculated price had been 23.50s.; in 1734, both prices had risen, the former to 25.70s., the latter to 24.90s.; by 1735, however, the actual price had risen to 27.50s., while the calculated price had risen to only 27s.

Inspection of the currency curve and the silver price curve in Figure I will indicate that the disparity in the slopes of the two curves increases in the years after 1740, the slope of the currency curve becoming relatively steeper. The formula no longer suffices to provide an explanation. Consequently, the explanation must be found elsewhere. The annual rate of increase in the currency curve for the successive periods, 1720-1729, 1730-1739, and 1740-1749 will serve to emphasize this change in the relationship of the slopes of the two curves. During 1720-1729, the average annual percentage increase in the currency curve was 6.2%, that in the silver price curve, 4.8%; during 1730-1739, the figures are: 5.1% for the currency curve, 3.8% for the silver price curve; during 1740-1749, the figures are, 16.4% for the currency curve, 7.3% for the silver price curve. The ratios of the currency curve to the silver price curve in these successive periods are: 1.29, 1.34,

and 2.25. How is this increased divergence of the two curves to be explained?

The decade of the 1740's found both England and her colonies engaged in war, at first with Spain, later with France. In 1739 the War of Jenkins' Ear broke out—a war that continued until 1742. It was fought in the Caribbean. In 1740 a colonial expedition against Cartagena in Panama was launched. It proved a costly failure. Then in 1744 war broke out between Britain and France. Soon New England was involved in a life and death struggle with the French in Canada, a struggle not concluded until 1748. In the summer of 1745 a New England expedition, aided by the British fleet, captured the French stronghold of Louisbourg on Cape Breton Island. The expedition was a major effort and from the monetary point of view a costly one. The martial activities during the war accounted for the great outpouring of bills of credit of the 1740's and the resulting rise in the price of silver and consequent depreciation of the New England currency. During the 1740's, New England's imports from England rather diminished than increased. The average imports for the five years, 1735-1739, were £245,980; for 1740-1744, £195,007; and for 1745-1749, £199,599. Nonetheless, the balance continued adverse. New England, however, was much aided in meeting her adverse balance by bills of exchange drawn by the several colonial governors and by military officers in the colony upon the British government. A partial list of these aids, particulars of which are set forth in Table III, amounts to £634,567 sterling. This sum is equal to 47.2% of New England's unfavorable balance of trade with England for the years, 1740-1749. These aids, which were ordinarily drawn by bills of exchange sold to the colonists, provided the funds for easing the strain on the adverse balance upon New England and, consequently, the price of silver was not bid up to the point that it otherwise would have been. In this way the increasing disparity in the slopes of the New England currency curve and the silver price curve is to be explained.

Ordinarily when the balance is unfavorable and it is found necessary to export specie, the price of exchange rises above the equivalent in silver. In New England during the period under discussion, however, the silver equivalent was usually higher than the exchange rate. The exceptions to this were the years, 1700-1710, at the beginning of the period, and the three years, 1740-1742, towards the close of the period. For the years, 1720-1729, the sterling equivalent averaged 8.9% higher than the exchange rate; for the years 1730-1739, 13.6% higher; and for the years, 1740-1749, 5.5% higher. Perhaps an explanation of this reversal in the relationship of the silver equivalent and the exchange rate is to be found in the following statement of J. Wright:

> The Trade of the Northern Colonies continuing for many Years in a bad

State, the Balance with *Britain* always against them, occasioned the ready Money they had amongst them to be picked up by the Merchants and Factors residing in *America*, acting for their Corespondents or Employers in *Britain*, and Cash or Bullion, being a *certain* Remittance preferable to Bills of Exchange or Produce, which were very precarious, the Bills being often sent back protested, and the Goods coming to a bad Market; this made the Merchants and Factors *rival each other* in purchasing Gold and Silver, and from Time to Time, raised the Price; and in Proportion as the nominal Value of the same advanced, the Price of Bills, and the Rates of their Currencies, kept Pace with it, and proportionally *depreciated* as the nominal Value of the *Specie* advanced, compared with the Value of Money in *Britain*.[34]

NEW YORK AND PENNSYLVANIA

Bills of credit before 1750. The currency history of New York and Pennsylvania offers a sharp contrast to that of New England. Although there was a mild depreciation in the early years in both colonies as measured by the exchange rate, by the early 1740's the currency of both colonies had stabilized. The Spanish milled dollar had achieved a customary value in trade of 8s. in New York and 7s. 6d. in Pennsylvania. Its value was to remain unchanged throughout the remainder of the colonial period.

The reasons that called forth the first issues of bills of credit in the two colonies differed. New York, situated on the northern frontier, was more involved in the struggle with the French in Canada than was Pennsylvania to the southward. In 1709, New York, as a measure of war finance, emitted her first bills of credit in the sum of £5,000, to be called in by taxes levied for the purpose. Between 1709 and 1747, New York issued a total of £206,228 on tax funds. In the year 1737, she also issued £40,000 on loan, making the total issue through 1747 £246,228. From 1702 to 1743 the price of an ounce of silver had risen from 6s. 10 1/2d. to 9s. 2d. The par of exchange had risen from 125 to 177.77 and the average annual rate from 133.33 to 174.67. Both the silver price and the exchange rate indicate a 33 1/3% rise in prices.

The occasion for Pennsylvania's recourse to bills of credit was the depression that enveloped the colony in the early 1720's. The price of the colony's produce had fallen on the international market and the resulting unfavorable balance of trade with the mother country had swept off the silver to England, leaving the colony bereft of a currency. Trade bade fair to come to a stop. Debtors could not pay their debts and what little business was left was carried on chiefly by discount, which was essentially barter. The legislature, after considering recourse to a commodity currency, finally decided, rather reluctantly, to issue £15,000 in bills

of credit on loan. The issue restored economic activity in the colony but was deemed inadequate, and the next year, 1724, an additional £30,000 was issued on loan. The index of wheat prices (1720 = 100) had fallen to 88.6 in 1724, and during the same period, flour had fallen from 100.0 to 95.0. Immediately following the issues of 1723 and 1724, both the price of wheat and of flour revived, the index of wheat to 100.1 in 1724, 125.6 in 1725, and 124.0 in 1726; that of flour to 107.7 in 1724, 129.6 in 1725, and 110.6 in 1726. Although the improvement in the price of wheat and of flour was widely attributed to the issues of paper currency, it seems to have resulted entirely from the improvement in the international market, for the index of the sterling exchange rate (1720 = 100), which had stood at 101.2 in 1723, in 1724 stood at 100.4. Thus it appears, that no part of the colonial rise in price could be attributed to an increase in the exchange rate. Trade again subsided in 1729 and a further loan issue of £30,000 was emitted. An issue of £11,110 in 1739 to replace the loan bills of previous issues that had been retired rounds out Pennsylvania's loan issues. In 1746 she issued £5,000 on tax funds to finance her wartime activities. These were the only Pennsylvania issues before the French and Indian War. Pennsylvania's issues and the sums in bills of credit outstanding in each year may be followed in Table IV and graphically in Figure II. From 1723 to 1743 silver rose from 7s. 5d. to 8s. 6d. the ounce. Exchange likewise rose from 140.37 to 159.79. The rise in prices that may be attributed to the paper currency is mild. Measured by the rise in the silver price it was no more than 10.1%; measured by the rise in exchange, it was 13.8%.

Bills of credit, 1750-1775. The determining event in the currency history of New York and Pennsylvania in the period after 1750 was the French and Indian War, 1755-1763. Both colonies found it necessary to emit large sums in bills of credit to finance their wartime activities. In New York the bills of credit outstanding in November, 1754, amounted to £126,081; by November, 1759, the sum had increased to £489,355, an increase of 288%. In Pennsylvania the bills outstanding in 1754 amounted to £81,500; by 1760, the sum had increased to £446,158, an increase of 447%. The sum outstanding annually in New York may be followed in Table V and graphically in Figure III; those in circulation annually in Pennsylvania (1750-1775) may likewise be followed in Table VI and graphically in Figure IV.

The foreign commerce of New Jersey was carried on through the ports of its neighbors, New York and Pennsylvania. East Jersey imported and exported through the port of New York and West Jersey through the port of Philadelphia. The demand for imported goods in New York or Pennsylvania was the New York or Pennsylvania demand plus a portion of the New Jersey demand. It thus may be

that the combined paper circulation of New York plus that of East Jersey and Pennsylvania plus that of West Jersey may have had more to do with prices and exchange rates than the circulation of New York and Pennsylvania alone. The population of East Jersey equaled 46% of the total population of the colony and that of West Jersey, 54%. The paper circulation of New Jersey was divided between New York and Pennsylvania in these proportions. The combined circulation may be followed in Table VI and graphically in Figure IV.

In New York, the New York bills of credit in circulation increased by 288% between 1754 and 1759 while the imports increased by 403%. The combined paper circulation of New York and New Jersey, however, increased by 310% between 1754 and 1759. This figure corresponds somewhat more closely to the figure for the increase in imports. The remainder of the increase in imports is perhaps to be explained by the fact that the circulating specie of the colony had, as a result of funds flowing in to finance the war, increased during the same period, for as Benjamin Franklin wrote in mid-1756, "New York is growing immensely rich, by Money brought into it from all Quarters for the Pay and Subsistence of the Troops."[35] In Pennsylvania, the Pennsylvania circulation increased by 447% between 1754 and 1760, while imports increased by 189%.[36] The combined circulation of Pennsylvania and New Jersey increased by 497%. The fact that the circulation, either joint or that of Pennsylvania alone, rose by a greater percentage than did imports from Great Britain suggests that specie also played a role in stimulating imports. On March 8, 1763, Benjamin Franklin wrote, "The Crown, I am Inform'd, has paid £800,000 Sterling in this Province only, for Provisions[,] Carriages, and other Necessaries in the Service."[37]

Prices. Despite the great increase in the paper circulation in the two colonies, the rise in the indices of wholesale prices was but modest. In New York the index (1765-1766 = 100) stood at 77.3 in 1754; by 1762 it had risen to 106.0, a rise of 37%. In Pennsylvania the index (1741-1745 = 100) stood at 95.0 in 1754; by 1762 it had risen to 140.1, a rise of 47%. These modest rises in the wholesale price indices are to be accounted for by the fact that the commodities that entered into the computation of the indices were commodities that were traded on the international market, either being imported or exported. Consequently, their prices were chiefly determined by the conditions that prevailed on the international market; given the international price, the colonial price was determined by the exchange rates.

In the foregoing account no mention has been made of the effects, or supposed effects, of "bookkeeping barter" upon prices and exchange rates. Much of the retail trade of the colonies, particularly in the country and smaller towns, was

carried on by what William T. Baxter has called "bookkeeping barter."[38] Storekeepers priced their goods in monetary terms, but their customers paid for them in commodities, upon which prices were likewise placed. When credit was expanding, the demand for the storekeepers' goods was increased. This increased demand might be expected to raise prices. The supply of English goods, however, was almost perfectly elastic. Consequently, there was little pressure on prices from the supply side. The net effect, however, of this increased demand for English goods was to increase the importation and, consequently, the unfavorable balance of trade. The expansion of credit doubtless increased the price of domestic commodities whose supply was not perfectly elastic.

Bills of exchange were always bought and sold for money. The increase in imports that resulted from the expansion of credit increased the demand for bills of exchange to meet the increased adverse balance.

Prices generally, however, responded much more to the increase in the currency circulation. An insight into their behavior is to be found in a letter written by Benjamin Franklin after his return to Pennsylvania in November, 1762, after a six-year sojourn in England:

> The Expence of Living is greatly advanc'd in my Absence; it is more than double in most Articles; and in some 'tis treble. This is by some ascrib'd to the scarcity of Labourers and thence the Dearness of Labour; but I think the [Dearness] of Labour, as well as of other Things the Labour of which was long since perform'd, or in which Labour is not concern'd; such as Rent of old Houses, and Value of Lands, which are trebled in the last Six Years, is in great measure owing to the enormous Plenty of Money among us . . . [There is now] such an over Proportion of Money to the Demand for a Medium of Trade in these Countries, that it seems from Plenty to have lost much of its Value.[39]

Prices rose similarly in New Jersey. In the spring of 1763 Governor William Franklin of New Jersey wrote the Board of Trade: "All the Necessaries of Life in this Country are encreas'd in Price near Three fold to what they were Seven Years ago."[40] Although direct evidence is lacking, it seems altogether logical that the experience of New York was similar to that of Pennsylvania and New Jersey.

Sterling exchange rates. The bounds within which sterling exchange rates fluctuated in New York and Pennsylvania were determined by the fact that in each of the colonies paper currency, in effect was tied to silver at a given rate. In New York, as has been pointed out previously, the Spanish milled dollar was rated by custom at 8s.; in Pennsylvania, at 7s. 6d. In England the Spanish milled dollar was

worth 4s. 6d. sterling. The ratio between the sterling valuation and the colonial valuations established the par of exchange in the colonies. In New York, the par was 177.78; in Pennsylvania, 166.67. This was the colonial par, and was so viewed in the colonies. In England, however, Spanish silver was a commodity that was exchanged as other merchandise. Consequently, the price of Spanish silver varied with the demand and supply. When a colonial merchant exported silver, he shipped it to a broker in London, who sold it for the best price obtainable. Since this price varied, the "London" or "effective par" as it may be called for want of a better name, fluctuated. The par was calculated by dividing the colonial value of an ounce of Spanish silver by the sterling price of an ounce of silver on the London market. For example, if, as in New York, the price of silver was 110.625d. the ounce and the London price was 65d. sterling the London, or the effective par, equaled 170.19. If, however, the London price was 67d. the ounce, the effective par was 165.11. Thus it was that, strictly speaking, there was no fixed par of exchange for the currency of New York and Pennsylvania.

The upper limit of exchange was determined by the London silver price and by the cost of shipping the silver from the colonies to Britain, a cost that included freight, insurance, and broker's commission, as well as certain small costs of handling the silver in London. The lower limit to which exchange might fall was determined by the London silver price and by the cost of importing silver. The point at which it became profitable to export silver, or to import silver, was spoken of as the "specie point." At the outbreak of the French and Indian War, one of the representatives of the British army in America wrote (1754):

> The Ballance of Trade being mostly against our Colonies in favor of Britain, they are obliged to make a great part of their Remittances in Money or Bills, and *the Exchange or price they give for these Bills, is a good deal Regulated by the price of Silver in London of which they have Advice by every Ship.*[41] And when Silver is so dear in London as to bear the charge of Freight, Insurance, Commission, &c., Exchange falls in America or the Specie is remitted, but as this is not allwise the Case, they generally chuse good Bills & give the full Value for them rather than be at the trouble of Remitting the Cash.[42]

In New York, the cost of shipping specie ranged from 5.34% in peace to 11.20% in war; in Pennsylvania, from 5.51% in peace to 11.02% in war.[43] The range of the percentage differential between exchange and silver in New York and Pennsylvania for the various periods may be followed in Table VII. For the years, 1751-1775, the fluctuations in the exchange rates of New York, Pennsylvania, and Massachusetts, as well as in the market price of Spanish silver in London as it

relates to colonial exchange rates may be followed in Figure V.

The expanding paper circulation in both New York and Pennsylvania created additional purchasing power, which in turn stimulated imports from England as the demand for imported goods increased. In the five years following 1755 imports from England increased markedly in both New York and Pennsylvania. In New York, imports in 1755 stood at £151,071; in 1759, they had risen to £630,785, an increase of 318%. In Pennsylvania, imports in 1755 stood at £144,456; in 1760, they had risen to £707,998, an increase of 390%.[44] Both increases roughly paralleled the increase in currency during the same period. The unfavorable balance of payments of the two colonies with England increased even more than did imports, as exports to England decreased at the same time that imports were increasing. As a result of the colonies' increased adverse balance with the mother country, the demand for bills of exchange also increased.

The rise in the demand for bills of exchange to pay for a surplus of imports was more than offset, however, by the increase in the supply that resulted from the transfer of British funds to the colonies to aid in the prosecution of the war against France. Despite the unfavorable balance of trade, the balance of payments was in favor of the colonies. The result was, that while imports from England were increasing, the exchange rate was falling. In New York, between December, 1757, and June, 1760, the exchange rate fell from 176.55 to 166.32, a decrease of 9.3%. In Pennsylvania, the exchange rate fell similarly from 173.33 in June, 1756, to 152.52, a decrease of 12.0%.

By any reckoning the aid provided by British payments in America was substantial in aiding the colonies to meet their adverse balance of payments. From 1755 to 1760, the unfavorable balance of New York and Pennsylvania, reckoned at the current values of the commodities, was £3,412,380,[45] while British payments amounted to £2,463,296. This latter figure is arrived at by adding the payments of the New York deputy for the money contractors in Britain, the New York and Pennsylvania portion of the cost of victualing the forces in America during the same years, and the Parliamentary Reimbursements.[46] The British payments equaled 72.2% of the unfavorable balance of trade during the period.

With the fall of Canada that followed the capture of Quebec on September 18, 1759, and of Montreal on September 8, 1760, the war on the continent came to an end. Thence forward, British payments in America were drastically curtailed, a fact that was reflected in the rise in exchange rates in the latter half of 1760. In New York, the exchange rate stood at 166.50 in May, 1760; by December, it had risen to 172.00, and by July, 1761, it had reached 185.00. There was a similar rise in Pennsylvania. In June, 1760, exchange stood at 155.50; by December, it had risen to 169.50, and by August, 1761, it reached 177.50.

When during 1761 and 1762 the heavy imports of the preceding years had to be paid for, exchange rose even though the paper circulation of both New York and Pennsylvania was declining. In New York, between June, 1760, and November, 1762, the paper currency outstanding fell from £489,355 to £330,807, a fall of 32.4%; in Pennsylvania, the paper circulation fell from £446,158 in 1760 to £320,676 in 1762, a fall of 28.1%. At the same time exchange rose in New York from 166.32 to 191.67, a rise of 15.2%; in Pennsylvania the rise was from 154.46 to 176.07, a rise of 8.5%. This rise in the exchange rate took place despite the fact that New York and Pennsylvania received continued aid in the form of British payments, although in a smaller amount as compared with the unfavorable balance (20.8% as opposed to 72.2% for the preceding period). This fact bears eloquent testimony to the increased colonial indebtedness resulting from the large imports of late years.[47]

During these years the silver in both New York and Pennsylvania began to be drained off to England to aid in the payment of the unfavorable balance. During the period of low exchange rates, silver remittances to Britain appear to have ceased. The *Beekman Mercantile Papers*, which are our principal source for New York, indicate that from 1756 until at least the latter part of 1761, James Beekman shipped no silver to Britain, although both before and after this period he made frequent shipments.[48] In both colonies the mercantile correspondence of the day complained of the dearth of silver and of its flight to the mother country. So severe had the drain become by the end of 1763 that on 2 December John Watts, a New York Merchant, wrote to a business associate: "Exchange on London [at] [1]90 per Ct: the Trade has swept off all Gold & Silver for remittances, & even given 2 1/2 per Ct: Advance, so that we have nothing remaining but Paper Currancy."[49] Thus when New York and Pennsylvania (as well as the other colonies) entered the period after 1764 with their currency restricted by the provisions of the Currency Act of 1764, they found themselves with their silver swept off and with a diminishing paper currency. Moreover, the colonies found their chief source of silver, trade with the West Indies, curtailed by the new trade laws.

MASSACHUSETTS, 1750-1775: A COLONY ON A SPECIE STANDARD

UNDER THE leadership of Thomas Hutchinson, the able speaker of the House of Representatives, Massachusetts took advantage of the Parliamentary reimbursement of her expenses in the Louisbourg expedition to retire her bills of credit and return to a specie standard. By Act of January 26, 1749, it was provided that the Parliamentary money should be brought over to the colony in Spanish silver

coin, which, supplemented by tax funds, should be used to retire the outstanding bills of credit.[50] During the year following March 31, 1750, the Provincial Treasurer was authorized and directed to pay out the silver "at the rate of one piece of eight for every 45s. in old tenor and for every 11s. 3d. in new or middle tenor." To supplement the parliamentary grant a tax of £75,000, new tenor, was levied to bring in funds sufficient to retire all the outstanding bills of credit. For the future, the colony was to be on a silver basis. All debts due after March 31, 1750, were to be deemed "payable in coin'd silver only," at rates for the various tenors in which the debts might be discharged equivalent to those at which the bills of such tenor might be exchanged for silver at the treasury. New contracts entered into after March 31, 1750, were understood "to be in silver, at six shillings and eight pence per ounce" and all pieces of eight of full weight were to be taken at 6s., which, it will be remembered, was the value established by the Proclamation of Queen Anne.[51] The act also provided for the exclusion from circulation in Massachusetts of the bills of credit of the neighboring New England colonies.

Immediately after the passage of the act, it was transmitted to the provincial agent, William Bollan, who pressed for its immediate confirmation. This was secured on 28 June 1749. Two weeks earlier, on 16 June, the Parliamentary grant had been paid over to Bollan and Sir Peter Warren, who, after the act's passage, began to buy silver on behalf of the province. From the Bank of England and on the open market they purchased 650,000 ounces of Spanish silver at a net cost of £173,129 sterling. They also purchased nine tons of copper half-pence and two-farthing pieces at a cost of £2,111 sterling. The remainder of the Parliamentary grant of £183,649 was consumed by expenses. The money was sacked and boxed and shipped to New England on H.M.S. *Mermaid,* Captain Montague, arriving at Boston on September 18, 1749.[52]

The redemption of the bills was completed substantially by 12 June 1751. The stragglers, however, which were received in taxes, were not completely drawn in until 1754. After 1 June of that year Massachusetts was on a specie standard and "to receive or pay" any of the bills of credit was made an offense subject to a penalty of £10.[53]

Massachusetts' return to silver and the restraints of the Currency Act of 1751 forced the colony to rely on another mode of financing her exertions in the French and Indian War. As a result, the method employed was different from that used in any other colony. The treasurer was authorized to borrow the sums necessary, at first to finance the ordinary expenses of government, later to finance the war effort. People initially were reluctant to lend; but when it was found that the colony redeemed its notes promptly all reluctance vanished and, as Thomas Hutchinson stated, "the publick security was preferred to private, and the

treasurer's notes more sought for than those of any other person whomsoever."[54]

"Between 1750 and 1764 there were some fifty odd acts authorizing the treasurer to issue his certificates. These were issued either to those who would lend or to the public creditors. They bore interest at six per cent, and no certificate was issued for a sum less than six pounds."[55] The sums issued in each year and the amount outstanding annually may be followed in Table VIII and graphically in Figure VI. Only a small portion of the notes were issued in emergencies to the public creditors; the vast proportion were issued to those who had lent specie to the government. On 1 August 1764 Governor Francis Bernard wrote to the Board of Trade:

> At present [the notes] are allmost wholly in large Sums & kept up as Securities: and as they're more Valuable than cash, & the rule is in issuing new Notes to prefer the Creditors upon former Notes, Treasurers Notes are hard to be got & are not at all circulated. So that the present Currency is wholly Specie, & neither wants nor receives any assistance from Treasurers Notes.[56]

So good was the colony's credit that in 1765 it proved possible to refinance at 5% interest its outstanding indebtedness which carried 6% interest. Thence forward the outstanding sum in Treasury Notes decreased from year to year until 1774 it stood at £56,170.

Prices. One is left in the dark concerning the effect on the general price level of the Massachusetts method of financing the French and Indian War. As to wholesale prices, the only index available is composed of the prices of only three commodities, molasses, rum, and fish. The index (1765-1766 = 100) rose from 94 in April, 1755, to 155 in January, 1760, a rise of 64.9%. Between January, 1760, and October, 1764, the index fell from 155 to 94, a fall of 39.4%. In the absence of direct evidence one can only conjecture that the rise in the general price level was much greater, as was also the postwar fall.[57]

Sterling exchange rates. The sterling exchange rate in Massachusetts fluctuated in harmony with the rates in New York and Pennsylvania, although the fluctuations were milder. From June, 1755, to June, 1759, exchange fell from 133.33 to 125.76, a fall of 5.7%. From June, 1759, to December, 1762, exchange rose from 125.76 to 139.50, a rise of 10.9%. The comparable movements in the New York exchange rate were a fall of 9.3% and a rise of 15.2%; those in Pennsylvania were a fall of 12.0% and a rise of 8.5%. The sympathetic movement of the exchange rate in Massachusetts, New York, and Pennsylvania may be

followed in Figure V.[58]

In the absence of the increase in purchasing power resulting from increased emissions of paper currency, imports in New England did not rise as rapidly in New England as in New York and Pennsylvania. In 1755 New England's imports from England amounted, in official values, to £341,796; by 1760 they had risen to £599,647, a rise of 75.4%; by 1762, however, they had fallen to £247,385, a fall of 58.7%. The corresponding rises and falls in New York and Pennsylvania are a rise of 317.5% in New York, followed by a fall of 62.2%; in Pennsylvania, a rise of 390.1%, followed by a fall of 70.9%.[59]

From 1755 to 1760, New England's unfavorable balance with England and Scotland amounted in current values to £8,566,128. It was offset by British payments in America amounting to £1,024,547, payments that amounted to 12.0% of the unfavorable balance. During 1761-1766, New England's unfavorable balance amounted in current values to £1,016,537.[60] It was in turn offset by British payments amounting to £321,972, payments that amounted to 31.7% of the unfavorable balance.[61]

During both periods British payments aided New England materially in meeting her unfavorable balance, and thus exercised a moderating influence upon exchange rates.

VIRGINIA'S BILLS OF CREDIT: AN EXAMPLE OF LIMITED INFLATION

VIRGINIA was the last of the continental colonies to have recourse to bills of credit, being forced thereto by the demands of the French and Indian War. The war, which broke out in territory claimed by Virginia in western Pennsylvania, began disastrously for the colonists. Beginning in the spring of 1755, Virginia emitted successive issues of bills of credit that by 1757 had amounted to £207,000. The bills of these issues were made receivable in the treasury at 5% advance. Early in 1757, however, the colony replaced the outstanding issues of the preceding years with bills that were made receivable in the treasury at their face value. The amount of the exchange issue was £99,962. From 1757 to 1762 successive issues totaling £233,000 were emitted, making the total exclusive of the reissue of 1757, £440,000. Virginia's issues of bills of credit and the amount of bills outstanding in each year may be followed in Table IX; the amounts outstanding are also presented graphically in Figure VII.

The fact that the colony was drained of specie in 1755 was impelling cause of the recourse to bills of credit. Since there was no stock of circulating specie to be supplanted by the accumulating bills, the potential for depreciation was great.[62]

The par of exchange in Virginia was reckoned in the colony at 125. This par seems to have derived from the fact that the sterling silver crown (worth 5s.) was rated at 6s. 3d. by the Virginia act of 1727.[63] The actual par, however, appears to have been somewhat higher. By the foregoing act silver was rated at 4d. the pennyweight. The Spanish milled dollar of 17 1/2 pennyweight was worth 5s. 6d. This would indicate a par of 129.6.

The effect of Virginia's issues of bills of credit upon her imports from Great Britain is hard to estimate, for to a great extent her imports depended upon the state of the tobacco trade. The poor tobacco crops of 1755 and 1758 greatly reduced the tobacco exports during 1756 and 1759. During the latter years, however, the increased price of tobacco occasioned by the bad crop made some amends for the crop failure. Despite the decreased exports of 1756 and 1759, the imports of these years did not suffer. In 1755, the estimated official value of Virginia's imports was £269,742; by 1760, imports had risen to £542,467, an increase of 101%. This was but a modest increase compared with those of Pennsylvania and New York, where during the same period imports of the former colony rose by 385% and those of the latter by 223%.[64] From this comparison we can perhaps conclude that the role of bills of credit in Virginia in stimulating increased imports was not as great as in Pennsylvania and New York.

STERLING EXCHANGE RATES. While in New York exchange rates fell by 9.3% between 1756 and 1760 and in Pennsylvania fell by 12% between 1756 and 1759, in Virginia exchange rose from an annual average of 130.42 in 1755 to an annual average of 163.41 in 1764, a rise of 25.3%. As we have seen the rise in exchange in New York and Pennsylvania came after the secession of the war on the continent in 1760. In New York between 1760 and 1764 exchange rose 15.3%, while in Pennsylvania during the same period, it rose 8.5%. Although exchange in Virginia suffered a sustained rise between 1755 and 1764, the major rise came in the period between 1759 and 1764, the rise during that period amounting to 16%, as against a rise of only 8% between 1755 and 1760.

The rise in the sterling exchange rate was accompanied by an increase in the rate at which the Spanish milled dollar circulated in the colony. The dollar was legally rated at 5s. 10d. and customarily passed in trade at this figure; however, by 1764 the rate had increased to 6s. 8d., an increase of 14.3%, over the legal price, a figure nearly as great as the 16% rise in the exchange rate during the same period.[65]

Virginia, like the other colonies, was aided in meeting her adverse balance by the British payments in America. Between 1757 and 1762, these payments in Virginia amounted to £320,271 sterling. The adverse balance between 1755 and

1761 amounted to £110,647; thus the British payments amounted to 289.5% of the unfavorable balance.[66]

The fact that the major rise in the Virginia exchange rate occurred after the cessation of British aid payments suggests that the aids played a material part in damping the rise in the exchange rate between 1755 and 1760.

Joseph Albert Ernst places great emphasis upon the ebb and flow of British credit sales in the colonies to explain the fluctuations in the exchange rate. British exports to colonies were usually sold on a year's credit, although frequently it was two, or even three, years before they were paid for. Obviously, until colonial importers paid for their importations they little influenced the demand for bills of exchange. In Virginia, particularly, some planters habitually drew upon their London correspondent bills of exchange in anticipation of future tobacco consignments. Shipments frequently failed to materialize as expected and thus the planter became in arrears to his British correspondent and sometimes the arrears grew from year to year. Thus during the period British credit financed colonial importations. Ernst argues that in times of financial crisis in Britain, such as those that developed in 1763 and again in 1772, British merchants dunned their American debtors in an effort to call in their outstanding American credits. Assuming that they were successful in collecting their outstanding debts, the result was that the demand for bills of exchange was increased and the rate of exchange bid up.[67]

For many reasons, the validity of this explanation appears doubtful. It was one thing to dun the Virginia planter, it was quite another to collect what was due from him. The planter's assets were in land and slaves, and only when he sold his tobacco crop did his assets become liquid. Thus he could not raise money to pay his debts unless he sold his tobacco and, more important, had tobacco to sell. Again, even if the planter were in a position to pay his debts, there was the matter of effecting the transfer of the money to Britain. Bills of exchange were in limited supply, particularly during the period of high exchange in the early 1760's. As the Pennsylvania provincial secretary, James Logan, once wrote to William Penn, when the proprietor was pressing him to transmit the proprietary revenues, "We cannot coin bills [of exchange]."[68]

Even if the debtor was prepared to make a remittance, he often faced difficulty in finding a good bill of exchange, or, indeed, in finding any bill at all. This is illustrated by the New York merchant John Watts who on 6 November 1764 wrote to General Moncton, "I did intend to send a Bill of Exchange but we cannot draw & the Money Agents say they do not."[69] If the planter entered the market, he would, of course, even when silver was unavailable, tend to bid up the price of exchange. But there were limits to the rate of exchange that he would pay for bills,

thus his demand was effectively limited. Moreover, Maryland's economic fortunes ran with those of her neighbor, Virginia. Maryland also produced tobacco and sold it in Britain. It seems altogether likely that when Virginia experienced an unseasonable year, Maryland's crop suffered as well. During and after 1763 there was no disturbance of Maryland exchange such as occurred in Virginia. Moreover, during the financial crisis of 1772, which was even more severe than that of 1763, although the Virginia exchange rate rose by a modest amount, no immoderate rise occurred such as in the early 1760's. Again, disturbances in the other colonies' exchange rates did not compare to Virginia. All of this strongly supports the view that the Virginia issues of bills of credit mainly caused the French and Indian War rise of Virginia exchange rates.

It has sometimes been urged that Virginia's accumulating indebtedness to Britain, which by 1755 amounted to £1,356,123 sterling, supports this view. At first blush, the indebtedness of Virginia looks formidable; however, when it is reduced to a per capita basis using the white population for the purpose, it appears less so. The per capita indebtedness was £4.98 sterling. In Maryland, where the white population was less than half that of Virginia, the debt of £304,385 was less than a quarter that of Virginia; the per capita indebtedness was £2.27. Virginia's per capita indebtedness was below that of South Carolina, which amounted to £5.64. The highest per capita indebtedness was that of Georgia, which amounted to £6.83. Neither in Maryland nor in South Carolina nor in Georgia were there disturbances in the exchange rate following the financial panic of 1763 that by any measure equaled those in Virginia. Of course the accumulating indebtedness, as long as it remained outstanding, took pressure from the exchange market and effectively canceled out an equivalent in imports. In the Middle and Northern colonies the per capita indebtedness was small, ranging from £.0042 in New Jersey to £.49 in New York. Here it could scarcely have had a significant effect upon exchange rates.

All things considered, Virginia's paper issues appear to have played the dominant role in the determination of exchange rates. Without the paper circulation exchange would not have risen to the height that it did. Only when the bills of credit slipped the tether that bound them to the customary value of silver, was exchange free to rise to the height that it did.

SUMMARY

In our survey we have seen that accumulating issues of bills of credit created purchasing power. Where, as was the case in the colonies, manufactured goods were imported from England, part of this purchasing power was spent for

manufactured goods; this in turn increased imports and accentuated the unfavorable balance of trade with England. Part of the increased purchasing power was spent for colonial products and tended to bid up their price directly. When it came time to meet the increased adverse balance with the mother country, silver began to be exported to supplement the bills of exchange that were available. As long as sufficient silver came into the hands of the merchants in the ordinary course of trade to enable them to meet their needs for silver to make remittances, the price of silver and the price of exchange did not rise. As soon, however, as the accumulated stock of silver was reduced to the point that merchants who needed silver to make remittances to another country were forced to bid for it one against another, the price of both silver and exchange rose. As the silver supply was exhausted, increases in the bills of credit in circulation caused proportional increases in the price of silver and bills of exchange, unless the increased volume of trade, by absorbing the circulating medium, retarded the rise.

In New York and Pennsylvania, where custom had rated the Spanish milled dollar at 8s. and 7s. 6d., respectively, the ratio of the colonial value of the dollar to the sterling value determined the colonial par of exchange. The effective par, however, fluctuated with the London price of silver, being determined by the London price and the silver content of the dollar. Under such conditions, fluctuations in the exchange rate were confined to the distance between the specie points, which, in turn, varied with the cost of shipping silver. Since these costs, particularly insurance, were greater in time of war, the exchange rate fluctuated considerably.

The basic cause of this fluctuation was the same as that in New England during the early years of the century. An increased circulation of bills of credit created purchasing power and led to increased imports from Britain. When these imports were paid for, the demand for bills of exchange increased and the price was bid up. If, however, Britain at the same time was transferring funds to America to finance the war, the additional supply of bills of credit arising from this source might not only keep the exchange rate from rising, but induce it to fall. But when the transfer of British funds ceased and the full force of the demand for bills of exchange occasioned by the increased imports was released, exchange rose.

The internal price level, however, bore no relation to the increase in the exchange rate, or to the increases of the price of those commodities that were imported or exported. Internal prices rose to two or three times their prewar level.

In a colony where a specie standard prevailed and bills of credit were not issued as war finance measures, as was the case in Massachusetts between 1750 and 1775, the price of exchange fluctuated in harmony with that in New York and Pennsylvania, but the fluctuations were not so great. In all probability internal

prices rose to a considerable degree, although in the absence of direct evidence one cannot say how they compared with internal prices in New York and Pennsylvania.

Virginia presents a complex and difficult case. Her trade with the mother country was direct and her economic fortunes were linked to the prosperity of the tobacco trade. Although fluctuations in the value of the colony's imports and exports from year to year influenced the exchange rate, it is probable that, all things considered, it was the substantial issues of bills of credit to finance the colony's contribution to the French and Indian War, that played the dominant role in causing Virginia's exchange to break loose from silver and fluctuate more widely than that of either Massachusetts, New York, or Pennsylvania.

The exchange rate of Massachusetts, New York, and Pennsylvania fluctuated in harmony as is evident from Figure V. That of Virginia also, to a degree at least, fluctuated in harmony. During the French and Indian War the agents of the money contractors sold bills of exchange in all of the above colonies as long as they could be sold for silver or gold. When Virginia's specie supply was exhausted, contractors' bills were no longer sold there; as a result, exchange rose more than in the other colonies.

One final conclusion emerges clearly: the quantity theory of money is, indeed, useful in analyzing currency practices, prices, and sterling exchange rates, not only where runaway inflation is the issue, as Ernst contends, but where it is not.

LONDON PRICE OF PILLAR PIECES OF EIGHT, PENCE PER OUNCE

TABLE IA

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Ave
1718		67.00	67.50	65.00	65.25	65.38	66.13	65.75	65.00	64.75	66.00	65.75	65.77
1719	65.25	65.13	64.75	63.00	62.75	64.25	64.75	64.75	65.88	66.31	68.50	65.75	65.09
1720	66.25	65.50	65.25	64.75	64.50	64.50	64.75	67.50	68.00	65.00	68.00	66.50	65.88
1721	68.00		67.00	67.25	67.25	66.00	65.00	64.50	64.50	64.50	64.50	65.00	65.77
1722	65.00	64.50	64.25	63.75	63.75	63.75	63.75	63.75	63.75	63.75	65.25	65.00	64.19
1723	64.50	64.00	64.00	64.00	64.00	64.00	64.00	64.00	64.00	64.25	64.25	64.25	64.10
1724	64.25	64.00	64.00	64.00	64.13	64.00	64.25	64.38	64.38	64.38	64.88	64.50	64.26
1725	64.44	64.50	64.38	64.63	64.69	64.75	64.38	64.69	65.25	65.25	65.50	66.50	64.19
1726	67.00	65.13	64.75	65.13	64.50	64.00	64.50	64.31	64.44	65.00	65.50	65.00	64.94
1727	64.88	65.00	65.06	65.00	64.56	64.00	64.25	64.50	64.75	65.25	66.00	66.00	64.94
1728	66.00	65.50	65.00	65.56	65.63	65.81	66.00	66.13	66.13	66.38	66.38	66.38	65.91
1729	66.38	66.25	65.50	65.50	65.75	65.75	66.00	66.00	65.75	65.94	66.13	66.00	65.91
1730	66.00	65.88	66.00	65.69	65.56	65.94	65.50	65.50	65.38	65.50	65.50	65.25	65.64
1731	65.25	65.25	64.75	64.50	65.00	65.38	65.38	65.38	64.88	64.88	64.50	64.19	64.95
1732	64.44	64.56	64.63	64.63	64.63	64.63	64.69	64.63	64.63	64.81	65.44	65.44	64.76
1733	65.44	65.44	65.44	64.81	64.56	64.38	64.38	64.25	64.25	64.31	64.50	63.88	64.64
1734	62.50	62.25	62.75	62.56	62.63	62.63	62.44	62.50	62.25	62.25	62.25	62.25	62.44
1735	62.19	62.25	62.00	62.13	62.31	62.38	62.38	62.44	62.50	62.44	62.44	62.44	62.33
1736	62.44	62.56	62.63	62.88	62.88	62.88	63.00	63.56	63.56	63.50	63.44	63.25	63.05

LONDON PRICE OF PILLAR PIECES OF EIGHT, PENCE PER OUNCE													
Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Ave
1737	63.00	63.19	63.25	63.25	63.75	64.13	64.44	64.63	64.75	63.88	63.81	63.50	63.80
1738	63.25	63.44	63.50	63.56	63.56	63.56	63.56	63.56	63.56	63.63	64.25	64.44	63.66
1739	64.31	64.00	64.00	64.00	64.00	64.06	64.13	64.13	64.25	64.38	64.50	64.50	64.19
1740	65.13	65.50	66.50	65.00	64.50	65.00	66.25	66.50	66.25	66.25	66.50	67.00	65.87
1741	67.75	67.50	67.50	67.50	67.50	67.50	67.50	67.00	67.25	67.50	67.50	67.50	67.46
1742	68.00	67.50	67.56	67.56	66.25	66.31	66.25	66.25	66.25	66.25	66.25	67.13	66.80
1743	66.75	66.75	66.75	66.63	66.56	66.00	65.75	65.75	65.75	65.75	66.50	66.50	66.29
1744	67.13	67.50	67.50	66.75	66.44	65.88	65.50	65.63	65.13	66.13	68.00	67.25	66.57
1745	67.63	66.81	67.06	66.13	66.00	66.00	66.13	65.25	64.50	64.00	62.00	60.00	65.13
1746	60.50	60.75	63.63	62.25	62.63	62.88	62.88	63.25	63.00	63.50	64.00	65.00	62.86
1747	65.00	65.00	64.13	63.75	64.00	64.00	63.75	63.75	64.25	64.25	64.00	64.00	64.16
1748	63.50	63.50	63.75	63.50	63.63	63.81	63.75	63.75	63.88	63.88	64.50	64.88	63.86
1749	64.88	64.50	64.19	63.50	63.50	63.50	63.75	62.56	62.88	64.25	64.38	64.13	63.84
1750	63.75	64.00	64.25	64.50	64.50	64.50	63.75	63.75	64.31	64.50	65.06	65.63	64.38
1751	64.00	63.81	63.50	63.75	63.75	63.88	63.75	63.69	64.25	64.69	64.75	64.75	64.05
1752	64.75	64.75	64.75	64.88	65.13	65.00	65.13	65.44	65.44	65.50	65.63	65.75	65.18
1753	65.75	65.75	65.75	65.88	65.81	65.81	66.00	65.88	66.06	66.38	66.25	66.19	65.96
1754	65.75	65.88	65.31	65.44	64.88	64.75	65.06	65.63	65.38	64.75	64.69	64.50	65.17
1755	64.00	63.25	63.50	63.88	63.13	63.38	63.38	63.38	63.38	63.38	63.50	64.00	63.51
1756	64.00	63.50	63.50	63.63	63.63	63.50	63.25	63.00	62.75	62.75	62.50	62.50	63.21
1757	62.25	62.38	62.50	62.50	62.75	64.00	64.38	64.38	64.38	64.38	64.13	64.75	63.57

LONDON PRICE OF PILLAR PIECES OF EIGHT, PENCE PER OUNCE

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Ave
1758	64.31	64.25	66.00	66.25	67.00	67.25	67.50	67.50	67.50	66.75	66.63	66.88	66.49
1759	67.69	67.44	67.50	67.00	66.75	67.00	66.75	67.00	65.00	65.56	65.06	65.50	66.52
1760	65.75	65.38	65.75	65.50	65.38	65.25	65.50	66.00	66.25	66.63	67.00	68.00	66.03
1761	67.75	67.75	68.00	68.25	68.50	68.00	68.00	68.00	66.38	66.25	65.25	65.25	67.28
1762	66.00	66.50	67.25	67.00	66.00	65.00	65.00	65.00	63.50	63.50	63.75	64.00	65.21
1763	64.75	64.50	65.19	65.50	66.50	65.25	65.50	68.00	65.13	63.75	63.75	63.25	65.09
1764	62.75	62.13	62.00	62.25	62.25	62.13	62.13	62.13	62.25	62.25	62.25	62.13	62.22
1765	63.00	63.00	63.00	63.00	63.00	63.13	63.25	63.50	63.88	64.00	64.50	64.13	63.45
1766	64.75	65.25	65.00	65.00	65.50	65.50	65.50	65.00	65.00	65.25	65.25	65.13	65.18
1767	65.13	65.00	64.75	65.25	65.75	65.13	65.00	64.88	64.63	64.88	64.63	64.38	64.95
1768	64.13	64.13	64.38	66.38	65.50	65.75	64.13	64.50	64.63	65.00	65.50	65.50	64.96
1769	66.00	65.25	65.13	65.25	65.25	65.50	65.75	65.75	66.00	66.00	66.00	66.25	65.68
1770	66.25	66.25	66.25	66.38	66.25	66.25	66.50	66.50	66.50	66.25	66.13	66.00	66.29
1771	66.00	66.13	66.25	66.63	66.00	66.00	65.75	65.75	66.00	66.00	66.25	66.50	66.11
1772	66.75	66.25	66.25	66.75	66.75	66.75	65.00	64.25	64.25	64.50	64.25	64.00	65.48
1773	64.00	64.00	64.00	64.00	62.44	62.63	62.63	62.31	62.31	62.13	62.00	61.25	62.81
1774	61.50	61.50	61.56	61.75	63.00	61.50	61.63	62.00	62.75	63.19	63.19	63.13	62.23
1775	63.25	63.38	63.38	63.69	63.63	63.13	63.13	63.13	63.81	64.00	64.00	63.50	63.50

Source: John Castaing's *The Course of Exchange*, where observations are from the middle of the month, so as to be consistent with McCusker, *Money and Exchange in America, 1600-1775*.
For discussion see McCusker, pp. 29-30, and fn. 10, p. 30.

NEW ENGLAND BILLS OF CREDIT OUTSTANDING

TABLE I

Year	*Mass.	Rhode Island	Connecticut	New Hampshire	Total	Including Boston Merchants' Notes
	£	£	£	£	£	£
1703	6,431				6,431	
1704	17,675				17,675	
1705	29,455				29,455	
1706	31,124				31,124	
1707	40,825				40,825	
1708	57,003				57,003	
1709	66,364			3,000	69,364	
1710	86,648	7,000	13,739	5,500	112,887	
1711	103,426	13,330	18,687	7,500	142,913	
1712	169,022	13,300	23,637	8,000	213,959	
1713	173,970	13,300	24,178	8,000	219,448	
1714	152,126	12,198	22,876	9,200	196,400	
1715	171,760	51,948	22,490	8,335	254,533	
1716	157,062	51,948	23,681	8,335	241,026	
1717	231,875	50,225	20,433	8,335	310,868	
1718	217,510	48,837	20,080	22,435	308,862	
1719	200,660	47,685	19,822	22,345	290,512	
1720	189,906	46,826	17,828	22,299	276,859	
1721	182,194	86,541	17,487	21,381	307,603	
1722	235,100	85,854	17,499	24,993	363,446	
1723	260,087	85,211	16,832	24,635	386,765	
1724	289,984	84,726	14,663	26,314	415,687	
1725	325,188	84,403	12,198	24,611	446,400	
1726	358,140	84,247	7,975	27,567	477,929	
1727	338,658	82,387	10,274	28,353	459,672	
1728	356,388	129,370	9,220	27,375	522,353	
1729	344,423	128,861	6,738	27,308	507,330	

NEW ENGLAND BILLS OF CREDIT OUTSTANDING

Year	*Mass.	Rhode Island	Connecticut	New Hampshire	Total	Including Boston Merchants' Notes
	£	£	£	£	£	£
1730	‡ 335,323	128,063	‡ 4,381	27,155	494,922	
1731	327,786	186,065	4,667	27,155	545,673	
1732	310,520	192,729	2,554	26,200	532,003	
1733	290,640	292,197	52,024	25,207	660,068	
1734	352,588	289,669	52,459	24,840	719,556	829,556
1735	339,054	287,618	52,799	22,783	702,254	‡ 812,254
1736	359,211	285,021	51,228	21,783	717,243	‡ 827,243
1737	360,000	280,979	55,714	27,319	724,012	801,012
1738	375,815	280,979	54,226	24,989	736,049	813,049
1739	365,237	376,202	50,883	22,985	815,307	892,307
1740	326,412	370,035	• 168,137	23,677	• 888,261	• 932,261
1741	359,919	466,061	† 153,098	23,677	1,002,755	1,046,755
1742	383,118	455,435	149,450	38,760	1,026,763	1,070,763
1743	447,564	454,797	146,381	43,880	1,094,365	1,138,365
1744	456,427	609,082	204,405	142,277	1,412,191	
1745	818,143	642,258	322,623	250,277	2,033,301	
1746	1,581,910	684,295	511,943	488,879	3,267,027	
1747	2,142,725	723,053	507,917	480,439	3,854,134	
1748	2,323,225	736,047	500,128	475,480	4,034,880	
1749	2,456,678	620,600	480,855	475,480	4,033,613	
1750	2,304,394	579,891	476,672	475,480	3,836,437	
1751	160,144	795,811	379,844	475,480	1,811,279	

* In circulation at end of May

† From 1741 to 1751, the sum outstanding on the Loan of 1733 (49,975 O.T.) and of 1740 (£77,000 O.T. terms) was estimated, using the Massachusetts experience in drawing in the £100,000 O.T. Loan of 1716 as a guide with some alterations in the case of the two installments of the Loan of 1740.

‡ Incorrectly stated in original typewritten MSS, corrected by editor.

• The number for Connecticut was transcribed incorrectly in preparing the tables for *Currency of the American Colonies*, and the error repeated in the MSS of this paper.

Sources: See Brock, *Currency of the American Colonies,* pp. 592-3.

PRICE OF SILVER AT BOSTON

TABLE II

YEAR	PRICE OF SILVER s. (O.T.)	YEAR	PRICE OF SILVER s. (O.T.)	YEAR	PRICE OF SILVER s. (O.T.)
1700	7.00	1718	11.00	1736	26.75
1701	7.00	1719	12.00	1737	26.75
1702	7.00	1720	12.33	1738	27.75
1703	7.00	1721	12.94	1739	29.17
1704	7.00	1722	14.25	1740	28.62
1705	8.00	1723	15.00	1741	28.25
1706	8.00	1724	16.25	1742	28.25
1707	8.00	1725	15.50	1743	31.00
1708	8.00	1726	16.00	1744	33.00
1709	8.00	1727	16.00	1745	36.00
1710	8.00	1728	17.17	1746	43.00
1711	8.33	1729	20.30	1747	56.80
1712	8.50	1730	20.00	1748	56.38
1713	8.50	1731	18.75	1749	58.00
1714	9.00	1732	20.00	1750	53.75
1715	9.00	1733	22.00	1751	50.00
1716	10.00	1734	25.70	1752	50.00
1717	10.00	1735	27.50	1753	50.00

Source: Frank B. Dexter, ed., *Extracts from the Itineraries and other Miscellanies of Ezra Stiles . . . 1755-1794*, , 7-8. Data taken from the books of Jacob Hurd and Thomas Edwards, goldsmiths.

BRITISH AIDS TO NEW ENGLAND, 1740-1750.

TABLE III

DATE	SOURCE	£ STERLING	£ STERLING
1746	CAPE BRETON	70,542	
	PROVISIONS	17,876	
1747	CAPE BRETON	70,735	
	PROVISIONS	24,000	
1747	GOV. SHIRLEY'S BILLS	22,632	
1748	GOV. SHIRLEY'S BILLS	281	£206,066
1744-48	BILLS OF EXCHANGE:		
	GOV. SHIRLEY'S	24,845	
	GOV. SHIRLEY'S & WARREN'S	619	
	GOV. WANTON'S	10,144	
	GOV. HOPSON'S	22,307	£57,915
1748	LOUISBOURG REIMBURSEMENTS:		
	NEW HAMPSHIRE	16,356	
	MASSACHUSETTS	183,649	
	CONNECTICUT	28,864	
	RHODE ISLAND	6,333	£235,202
1750	INTENDED CANADA EXPEDITION REIMBURSEMENTS:		
	NEW HAMPSHIRE	23,250	
	MASSACHUSETTS	87,435	
	CONNECTICUT	17,192	
	RHODE ISLAND	7,507	£135,384
	TOTAL		£634,567

Sources: T.52/45; Leo F. Stock, ed., *Proceedings and Debates of the British Parliaments respecting North America.* (Washington, 1941), V (1739-1754), 240, 254, 264, 267, 300, 414-418.

PENNSYLVANIA:
BILLS OF CREDIT OUTSTANDING

TABLE IV

YEAR	ISSUED £	OUTSTANDING £
1723	15,000	15,000
1724	30,000	44,915
1725		38,915
1726		38,890
1727		38,890
1728		38,890
1729	30,000	68,890
1730		68,890
1731		68,890
1732		68,890
1733		68,890
1734		68,890
1735		68,890
1736		68,890
1737		68,890
1738		68,890
1739	11,110	80,000
1740		80,000
1741		80,000
1742		80,000
1743		80,000
1744		80,000
1745		80,000
1746	5,000	85,000
1747		85,000
1748		85,000
1749		85,000
1750		84,500
1751		84,000

Source: Issuing Acts, *Penns.. Statutes*; Redemptions, *Penna.. Votes*

NEW YORK: BILLS OF CREDIT OUTSTANDING

TABLE V

YEAR	EMITTED £	CANCELLED £	OUTSTANDING £	NEW YORK + 46% OF NEW JERSEY
1747 N†	28,000		189,495	
1748 J		4,119	185,375	
1748 N		13,374	172,001	
1749 J		4,981	167,020	
1749 N		4,003	163,016	
1750 J		7,078	155,938	
1750 N		2,000	153,938	171,042
1751 J		2,496	151,442	
1751 N		3,227	148,214	162,962
1752 J		3,603	144,611	
1752 N		3,651	140,960	153,351
1753 J		4,400	136,560	
1753 N		4,028	132,531	142,564
1754 J		4,054	128,481	
1754 N		2,400	126,081	135,809
1755 J	55,000	6,003	175,078	
1755 N	8,000	4,001	179,076	188,176
1756 J	62,000	5,211	235,865	
1756 N		5,092	230,773	257,521
1757 J		6,387	224,386	
1757 N		5,105	219,281	253,177
1758 J	100,000	6,338	312,943	
1758 N		5,745	307,198	358,868
1759 J	100,000	18,002	389,196	
1759 N	150,000	58,010	481,186	556,615
1760 J	60,000	51,832	489,355	
1760 N		78,968	410,387	502,897
1761 J		24,618	385,768	

NEW YORK: BILLS OF CREDIT OUTSTANDING

YEAR	EMITTED	CANCELLED	OUTSTANDING	NY + 46% OF NJ
1761 N		19,610	366,158	471,051
1762 J		23,062	343,096	
1762 N		12,289	330,807	439,589
1763 J		20,444	310,363	
1763 N		23,200	287,163	400,744
1764 J		19,384	267,779	
1764 N		23,895	243,885	355,861
1765 J		54,281	189,604	
1765 N		23,102	166,502	283,854
1766 J		20,037	146,465	
1766 N		12,433	134,032	246,362
1767 J		14,567	119,465	
1767 N		9,703	109,762	215,995
1768 J		15,744	94,018	
1768 N		6,707	87,311	188,497
1769 J		1,610	85,701	
1769 N		2,879	82,822	187,490
1770 J&N		1,267	81,555	182,239
1771 J&N	120,000	3,020	198,535	293,991
1772 J&N		4,131	‡ 194,404	‡ 285,105
1773 J&N		4,040	‡ 190,384	‡ 275,391
1774 J&N		2,686	‡ 187,678	‡ 268,915

† J, June; N, November

‡ Errors in original typewritten manuscript corrected by editor.

Sources: For New York, Brock, *Currency of the American Colonies*, Table XVI and errata, p. 600. For New Jersey, issues in ibid, Tables VI and XXI. Cancellations are from the annual reports of the Eastern and Western Treasurers, "Journal of the Governor and Council," in *Documents Relating to the Colonial History of New Jersey* (1st Series), supplemented by reference to the *Votes and Proceedings of the New Jersey Assembly.*

PENNSYLVANIA: BILLS OF CREDIT IN CIRCULATION††

TABLE VI

YEAR†	ON LOAN £	TOTAL ON TAXES £	1759 LOAN TO COL. JOHN HUNTER, £	PENNSYLVANIA TOTAL £	PENNSYLVANIA +54% OF NEW JERSEY £
1750	80,000	4,500		84,500	104,579
1751	80,000	4,000		84,000	101,312
1752	80,000	3,500		83,500	98,046
1753	80,000	2,500		82,500	94,278
1754	80,000	1,500		81,500	92,919
1755	80,000	16,000		96,000	106,683
1756	80,000	67,510		147,510	178,909
1757	80,000	167,013		247,013	286,805
1758	78,350	‡ 234,509		‡ 312,859	‡ 373,515
1759	80,000	307,911	35,000	422,911	511,458
1760	80,000	353,205	12,953	‡ 446,158	554,757
1761	61,496	334,523	12,953	408,972	532,107
1762	46,008	261,715	12,953	320,676	448,376
1763	23,760	240,700		264,460	397,795
1764	21,113	294,969		316,082	447,532
1765	19,130	285,965		305,095	442,855
1766	19,130	262,301		281,431	413,296
1767	17,745	240,675		258,420	401,129
1768	16,878	‡ 217,056		‡ 233,934	‡ 352,717
1769	12,080	208,831		220,911	343,783
1770	10,024	191,149		201,173	319,367
1771	4,607	167,264		171,871	283,927
1772	3,751	145,364		149,115	255,590
1773	3,217	131,789		135,006	234,820
1774	97,844	‡ 119,789		217,633	312,999
1775	151,563	167,050		318,613	409,513
1776	151,169	338,046		489,215	

†Fiscal Year ending September 30.

††Calculated according to the years in which bills were paid out.

‡ Minor errors in the typewritten manuscript corrected by editor.

PERCENTAGE OF EXCHANGE RATE OVER LONDON SILVER PRICE

TABLE VII

YEARS	NEW YORK	PENNSYLVANIA
1753-1756	5.34	5.51
1757-1760	1.30	0.33
1761-1763	11.20	11.02
1764-1768	4.64	5.65

MASSACHUSETTS TREASURER'S CERTIFICATES

(LAWFUL MONEY)

TABLE VIII

YEAR ENDING LAST OF MAY	ISSUED (SUMS BORROWED)	CANCELLED (BURNED)	OUTSTANDING	REDEEMED AND IN TREASURY END OF YEAR	HELD BY LENDERS
	£	£	£	£	£
1750	18,400		18,400		
1751	9,000		27,400		
1752	18,614		46,014		
1753	956	‡ 24,828	22,142		
1754	9,332	13,946	17,528	4,606	12,922
1755	36,508	5,181	48,855	13,068	35,787
1756	121,194	14,076	155,973	20,598	135,375
1757	94,181	24,121	226,033	88,186	137,847
1758	118,644	132,187	212,490	+(35,726)	176,764
1759	150,106	77,554	285,042	+(26,013)	259,029
1760	211,346	44,882	451,506	87,539	363,967
1761	210,597	156,838	505,265	52,837	452,428
1762	209,866	†233,799	481,332	†27,015	454,317
1763	124,873	†116,024	490,181	†45,065	445,116
1764	72,334	175,506	387,009	56,862	330,147
1765	131,063	181,654	336,418	57,129	‡ 279,289
1766	12,385	87,774	261,029	70,535	190,494
1767	197,000	247,029	211,000	41,307	169,693
1768	157,000	203,123	164,877	17,991	146,886
1769	125,850	160,978	129,749	18,094	111,655
1770	100,000	129,468	100,281	6,020	94,261
1771	88,158	102,543	85,896		
1772	75,091	84,648	76,339		
1773	909		77,248		
1774	16,000	††37,078	56,170		

+ Treasury balance not indicated as Treasury Certificates as preceeding and succeeding ones, but presumed to be.

†New Form Notes less Old Form Notes exchanged for New.

††Burning Committee Report, Jan. 31, 1774, *Massachusetts Acts and Resolves*, XVIII, 744.

‡ Errors in typewritten MSS corrected by editor.

Sources: See Brock, *Currency of the American Colonies*, p. 596.

VIRGINIA: BILLS OF CREDIT OUTSTANDING

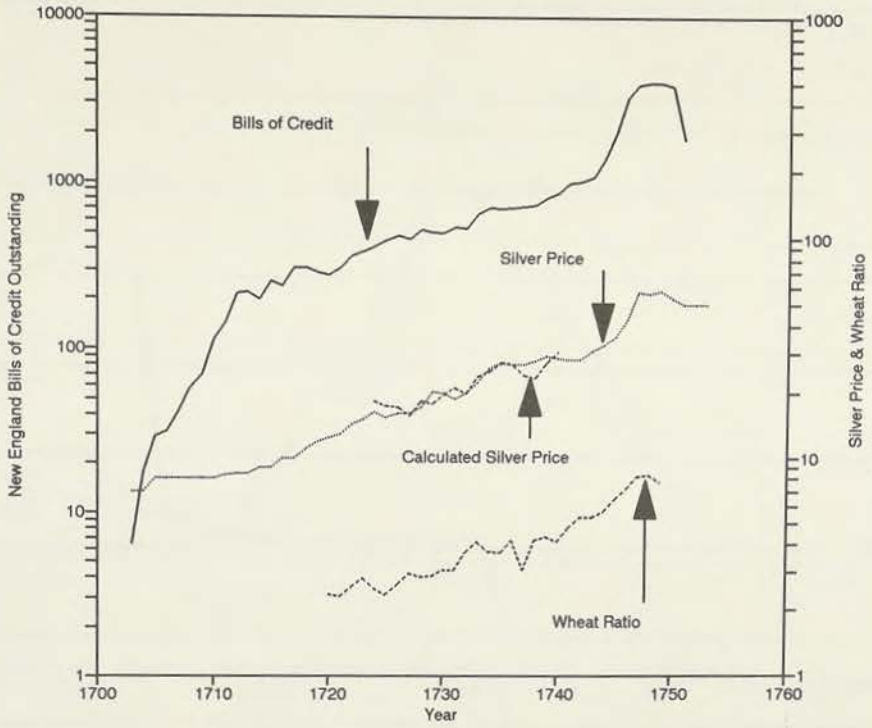
TABLE IX

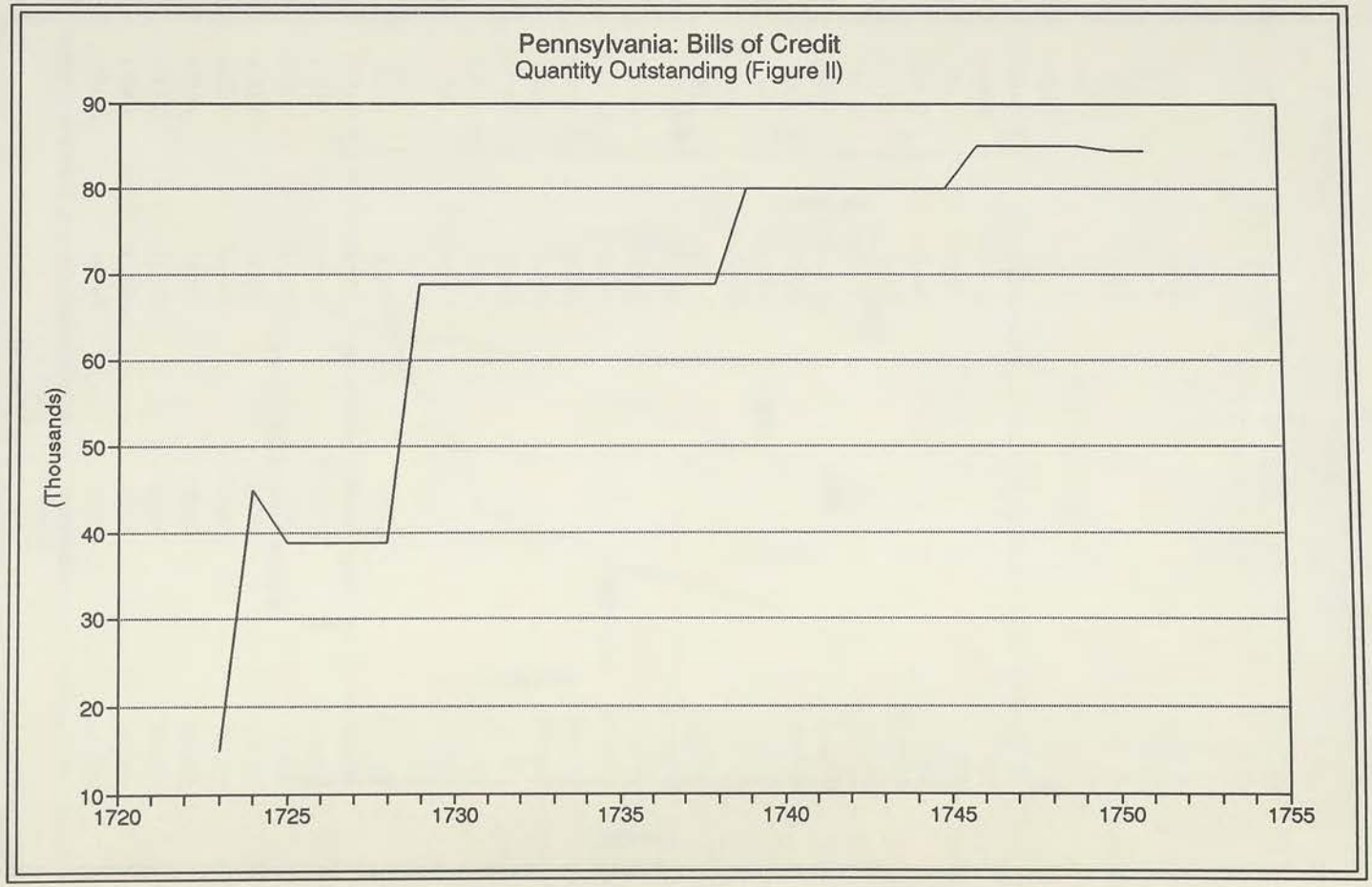
YEAR	WAR ISSUES	ISSUES OF 1769 -1770	TOTAL
	£	£	£
1755	60,000		60,000
1756	99,963		99,963
1757	179,962		179,962
1758	261,523		261,523
1759	308,789		308,789
1760 J†	316,230		316,230
1760 D	325,044		325,044
1761 J	312,903		312,903
1761 D	303,360		303,360
1762 J	317,500		317,500
1762 D	291,107		291,107
1763 J	[251, 935]		[251,935]
1763 D	[238,439]		[238,439]
1764 J	220,942		220,942
1764 D	[219,508]		[219,508]
1765 J	[218,074]		[218,074]
1765 D	[216,640]		[216,640]
1766 J	[215,206]		[215,206]
1766 D	213,771		213,771
1767 J	206,727		206,727
1767 D	170,420		170,420
1768 J	161,362		161,362
1768 D	151,408		151,408
1769 J	140,517		140,517
1769 D	129,875		129,875
1770 J	122,075	10,000	132,075
1770 D	115,426	10,000	125,426
1771 J	103,000	10,000	113,000
1771 D	[95,595]	39,710	[135,305]
1772 J	88,190	39,035	127,225
1772 D	60,426	37,910	98,336
1773 J	54,391	28,455	82,846
1773 D	48,356	22,339	70,695
1774 J	41,856	17,639	59,495
1774 D	36,005	7,372	43,377

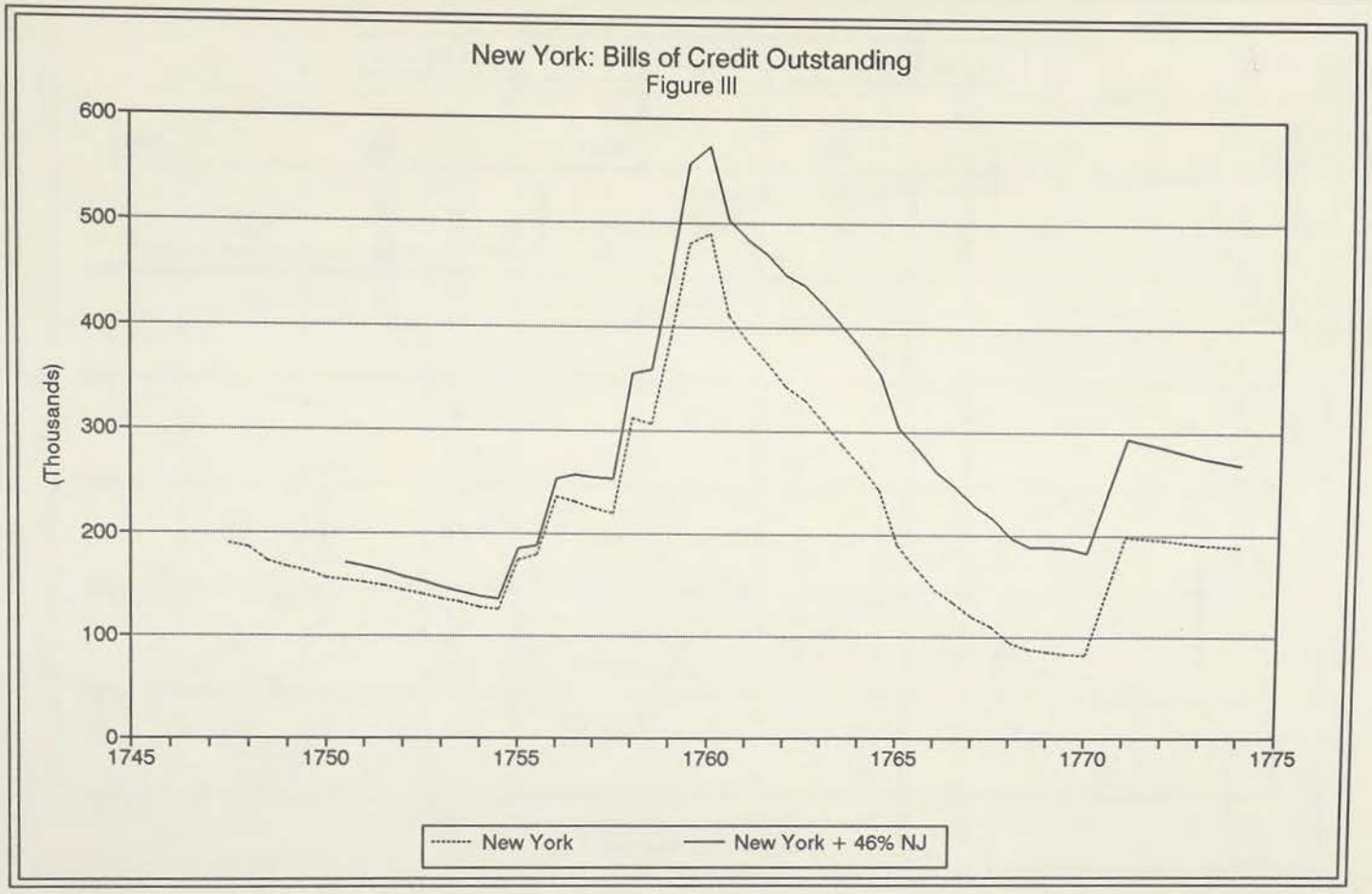
† J, June; D, December

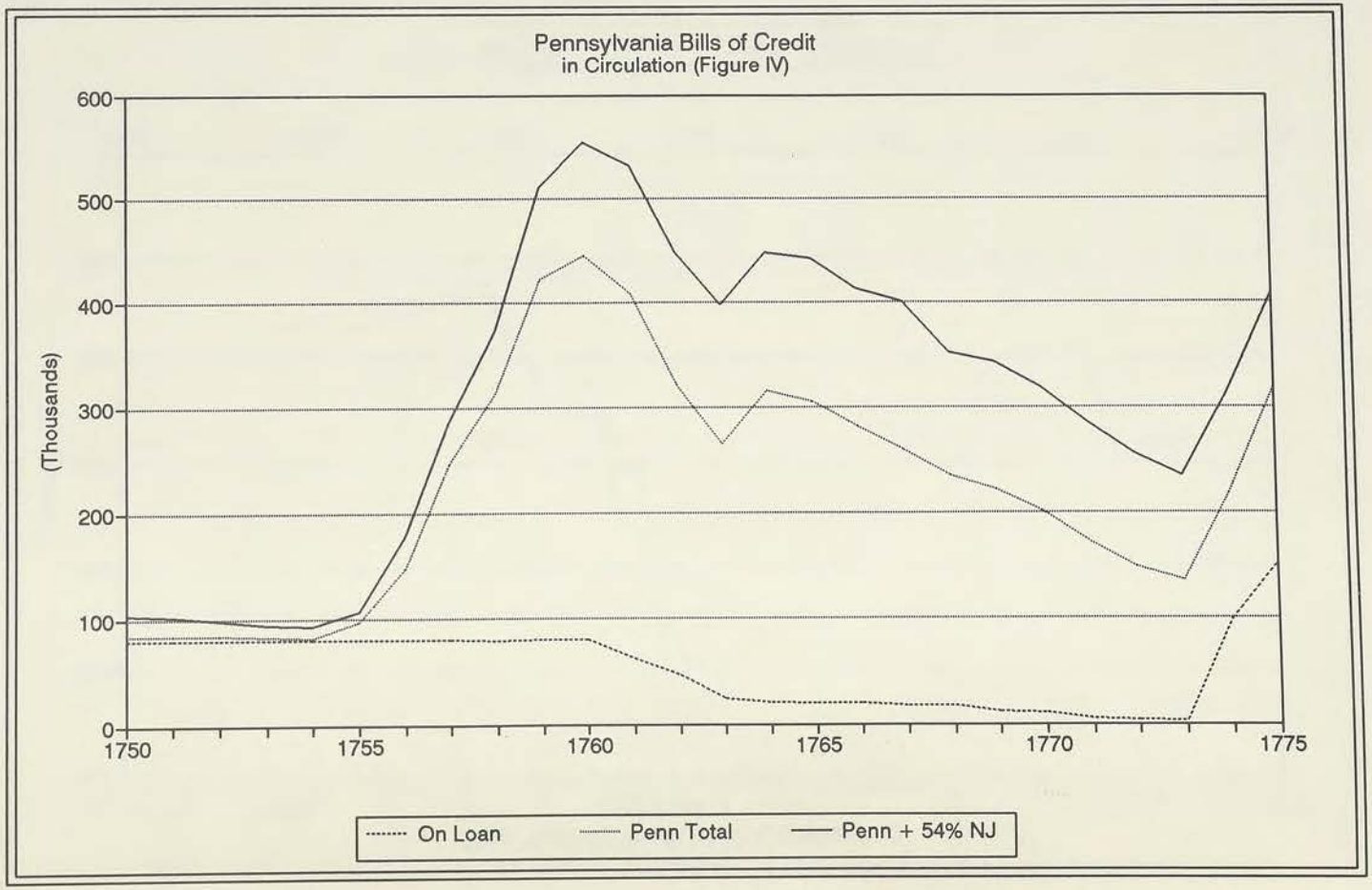
Sources: See endnotes [67]

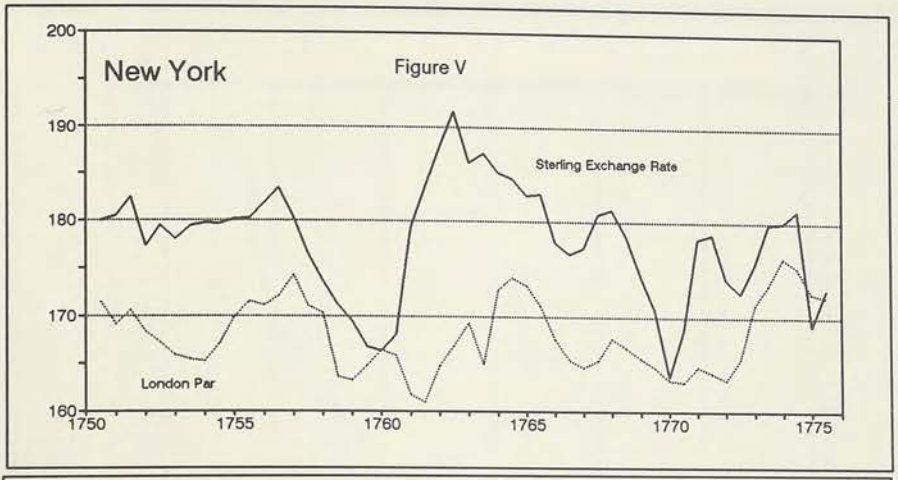
Figure I

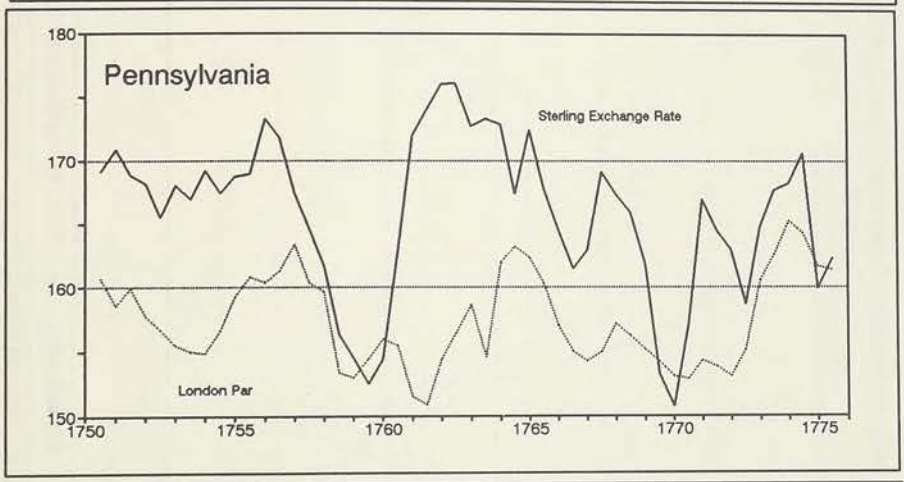

10000
1000
100
10
1
New England Bills of Credit Outstanding
1000
100
10
1
Silver Price & Wheat Ratio
Bills of Credit
Silver Price
Calculated Silver Price
Wheat Ratio
1700
1710
1720
1730
1740
1750
1760
Year

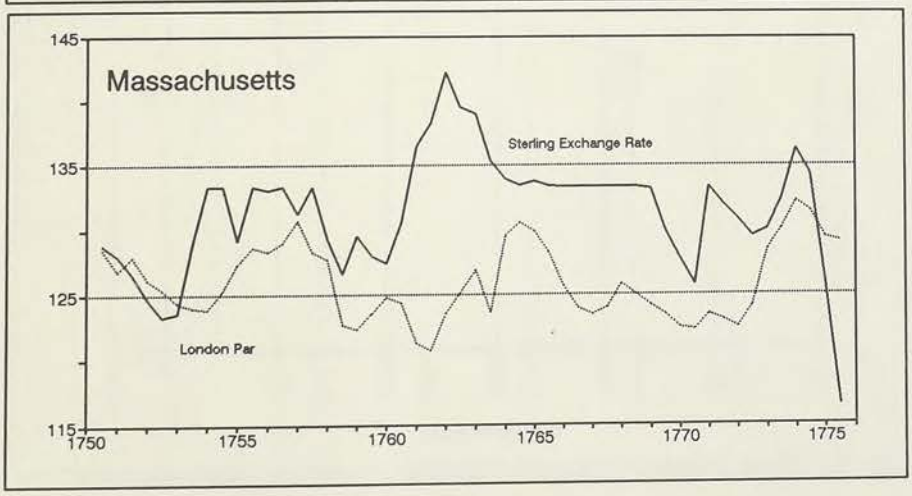


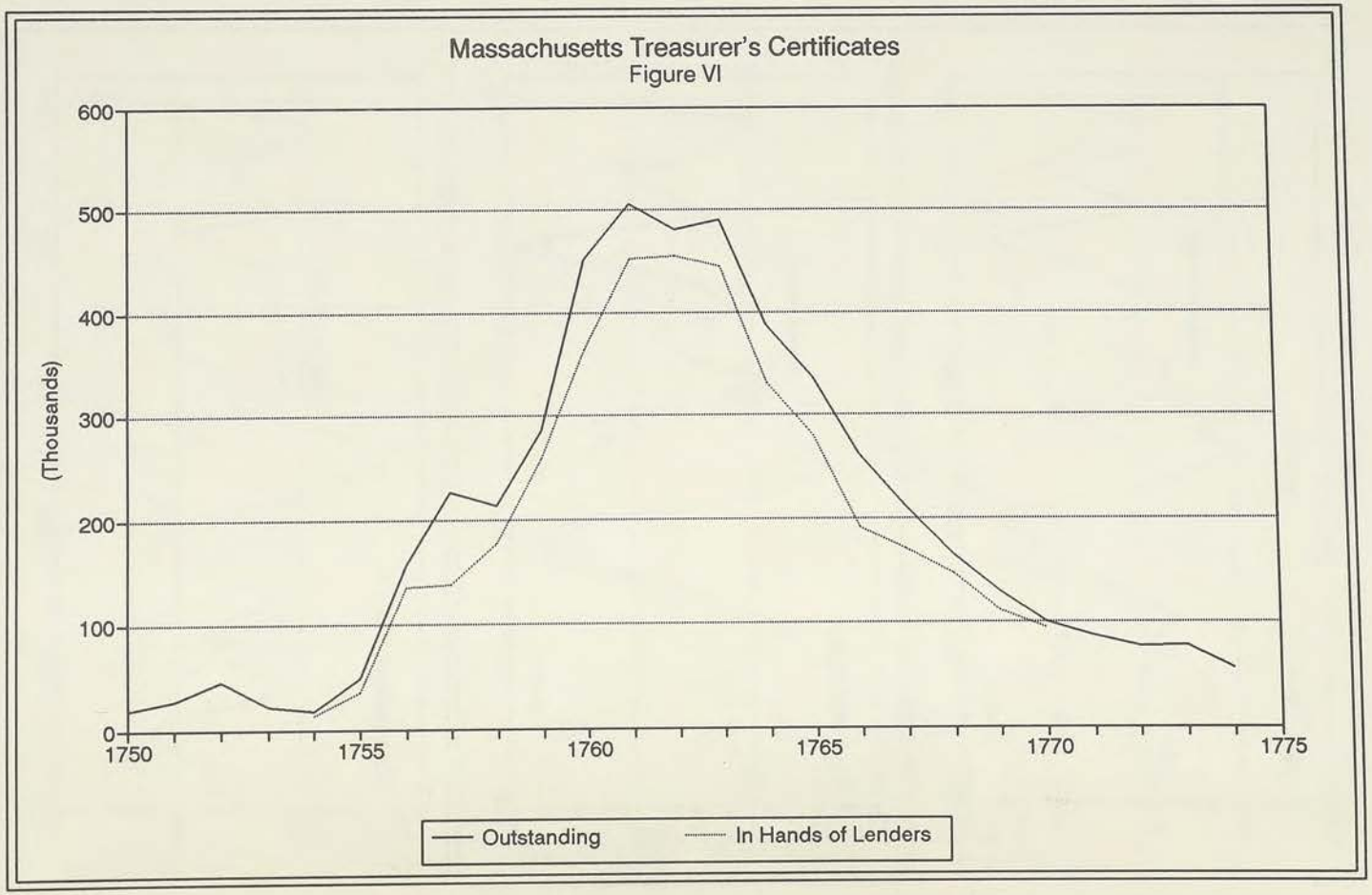

New York: Bills of Credit Outstanding
Figure III
600
500
400
300
200
100
0
(Thousands)
1745
1750
1755
1760
1765
1770
1775
New York
New York + 46% NJ

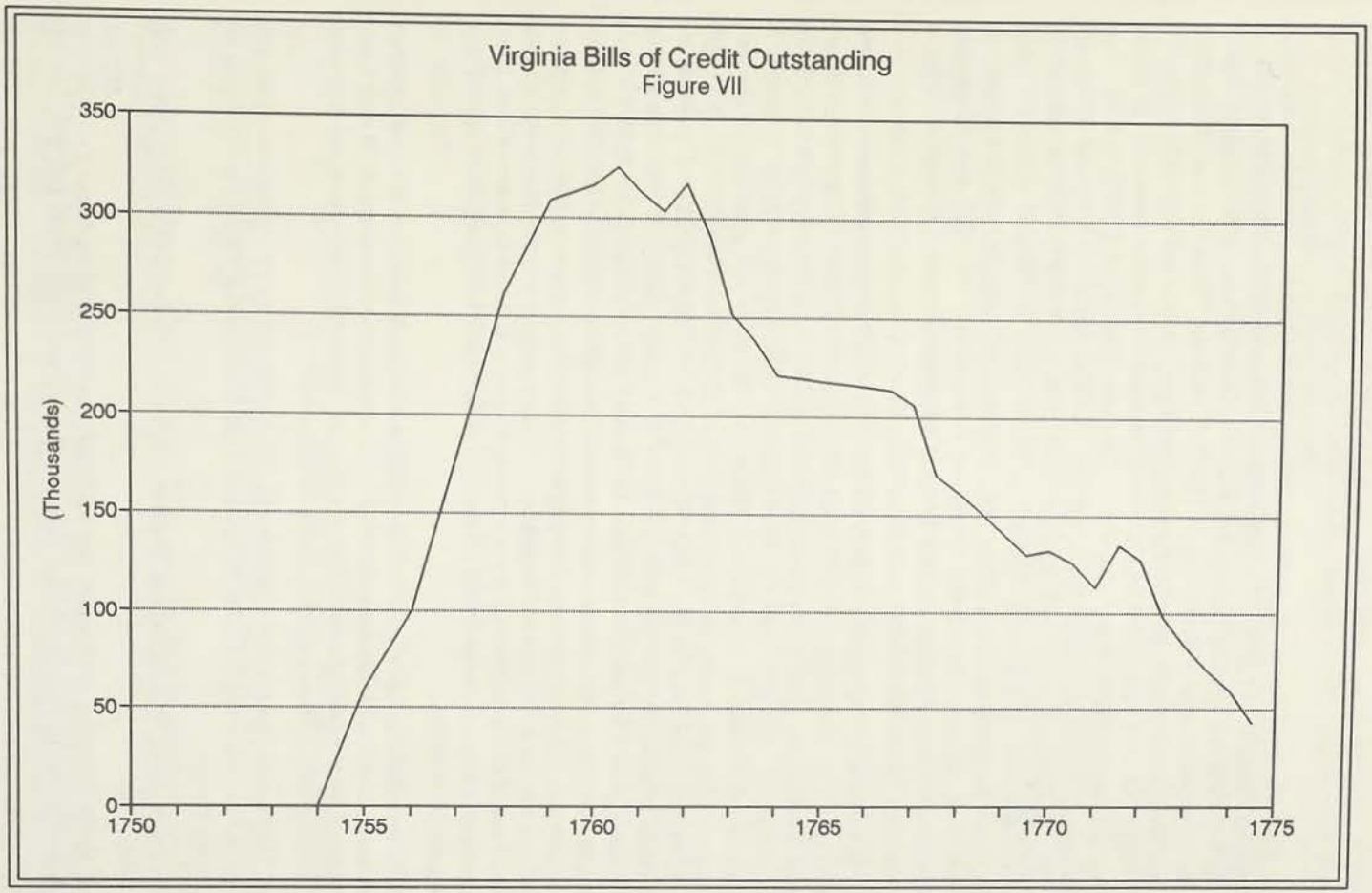



New York
Figure V
Sterling Exchange Rate
London Par
200
190
180
170
160
1750
1755
1760
1765
1770
1775


Pennsylvania
Sterling Exchange Rate
London Par
180
170
160
150
1750
1755
1760
1765
1770
1775


Massachusetts
Sterling Exchange Rate
London Par
145
135
125
115
1750
1755
1760
1765
1770
1775




Virginia Bills of Credit Outstanding
Figure VII
(Thousands)
350
300
250
200
150
100
50
0
1750
1755
1760
1765
1770
1775

ENDNOTES

1. [Editor's note] Robert Craig West, "Money in the Colonial American Economy," *Economic Inquiry*, 16 [1978] 1-15; Bruce Smith, "American Colonial Monetary Regimes: The Failure of the Quantity Theory and Some Evidence in Favor of an Alternate View," *The Canadian Journal of Economics*, 18 [1985] 531-64; and "Some Colonial Evidence on Two Theories of Money: Maryland and the Carolinas," *Journal of Political Economy*, 93 [1985] 1178-1211; Elmus Wicker, "Colonial Monetary Standards Contrasted: Evidence from the Seven Years' War," *Journal of Economic History*, 45 [1985] 869-84. Ron Michener, "Fixed Exchange Rates and the Quantity Theory in Colonial America," *Carnegie-Rochester Conference Series on Public Policy*, 27 [1987] 233-308; Michael D. Bordo and Ivan A. Marcotte, "Purchasing Power Parity in Colonial America: Some Evidence for South Carolina 1732-1774: A Comment," ibid., 311-23; and Bennett T. McCallum, *Monetary Economics, Theory and Policy*, New York, 1987; and "Money and Prices in Colonial America: A New Test of Competing Theories," *Journal of Political Economy*, 100 [1992] 143-61.

2. [Editor's note] The connection between the original and revised estimates for Pennsylvania is subtle, and involves a matter generally overlooked by those using colonial money supply estimates. Ideally, one would like to know how much currency was in the hands of the public. This is not known. What generally exists are the dates and quantities of currency authorized by colonial assemblies, and the dates and quantities of currency burned. Most data series are for the total authorized, minus the total burned, which only approximates currency in the hands of the public. A time lag existed between the authorization and the printing and expenditure of currency, and another between the time currency passed for the final time into the treasury and its destruction. Also, currency might pass through the colonial treasury several times between its initial issuance and final destruction. Whatever sum was being held by either the treasurer or land bank commissioners was out of the hands of the public. In Pennsylvania, the legislature noted the sums and dates of its expenditures of newly authorized money. In the table presented here, Brock used expenditures instead of authorizations to construct his estimates, better approximating the ideal series.

3. The Alderman Library at the University of Virginia houses Brock's draft chapters, research notes, and collection of primary and secondary source material. Brock's draft chapters are available on microfilm by writing the manuscript department and requesting "Brock #10715, Manuscript for a book on currency."

4. *The Boston Evening Post* of October 25, 1773 estimated the peacetime cost of shipping specie to London at 6% : 2.5% for insurance and brokerage, 2.5% for commissions, and 1% for freight.

5. Appendix to William Graham Sumner, *A History of American Currency*, (New York, 1968), 362.

6. Henry Thornton, *An Enquiry into the Nature and Effects of the Paper Credit of Great Britain*, edited by F.A. Hayek and Augustus Kelley (New York, 1978) 159, 244, 248, 259.

7. *Money and Politics in America, 1755-1775*, (Chapel Hill, 1973), 5-7; "Colonial

Currency: A Modest Inquiry into the Uses of the Easy Chair and the Meaning of the Colonial System of Freely Floating International Exchange," *Explorations in Entrepreneurial History*, 2nd Ser., 6 [1969] 187-197.

8. Andrew McFarland Davis, ed., "Some Considerations Upon the Several sorts of Banks Propos'd as a Medium of Trade," [1716] *Colonial Currency Reprints* (Boston, 1910, 1964), 1:336.

9. Leslie V. Brock, *The Currency of the American Colonies, 1700-1764*, (New York, 1975), 18.

10. Arthur H. Cole, *Wholesale Commodity Prices in the United States, 1700-1861*, (Cambridge, Mass., 1938), wherein the components of the several price indices are set forth. Their inadequacy as a measure of the general level of prices will be demonstrated below.

11. Despite Ernst's statement to the contrary, the author and Ernst have never been at variance on this point.

Ernst wrote: "In holding rigidly to the quantity theory [of money] and trying to show how monetary policy influenced overall price levels, historians have tended to ignore the other forces at work at the time and to overlook the seasonal, short-run, and cyclical nature of colonial prices. On the other hand they have also generally failed to take into account the effect on exchange rates of swings in the volume of British loans to America, shifts in British wartime expenditures in the colonies, and changes in the colonies' terms of trade and volume of trade. The most important example [of this] is Brock, *Currency of the American Colonies,"* Ernst, *Money and Politics*, 6-7.

Ernst, in the paragraph quoted, scarcely does justice to the views expressed by in *Currency of the American Colonies*, where many of the forces that Ernst mentions that affect the price of foreign exchange are discussed by Brock in his *Colonial Currency*. One may consult pages 58, 62-63, and 352.

12. William Douglass, "A Discourse Concerning the Currencies of the British Plantations in America," [1740] *Colonial Currency Reprints*, 3:320.

13. Brock, *Colonial Currency of the American Colonies*, 23.

14. Ibid., 30.

15. Ibid., 29-30; Jonathan Belcher, "A brief Account of the Rise, Progress and present State of the Bills of Credit in New England," 1740, CO 5/ 881 part 2, ff. 199-204.

16. Ibid., 25-26. The Mather quotation is from Mather to Sir Peter King, December 22, 1714.

17. The corresponding per capita unfavorable balances of trade (imports minus exports) were: £0.38; £0.78; £0.48.

18. "A Model For Erecting a Bank of Credit: With a Discourse in Explanation thereof," [London, 1688] *Colonial Currency Reprints*, 1:153-187; [Reprinted at Boston, 1714] ibid., 209-237.

19. "A Projection for Erecting a Bank of Credit in Boston. Founded on Land Security," [Boston, 1714] ibid., 319-333.20. 2 "The Country-Man's Answer, to a Letter Intitled, `The

20. Distressed State of the Town of Boston Considered'," [from the *Boston News-Letter*, 18 April 1720] ibid., 409-412.

21. *Records of the Colony of Rhode Island and Providence Plantation in New England, 1707-1740*, John Russell Bartlett, ed., (Providence, 1859) 4:379.

22. John B. MacInnes, "Rhode Island Bills of Public Credit, 1710-1755," (unpubl. Ph.D. diss., Brown University, 1952). MacInnes's is the most comprehensive study we have of the Rhode Island currency.

23. "Scheme or Articles upon which the Merchants and Others have Acted, who are now giving out their Notes of Hand," Andrew McFarland Davis, "The Merchants' Notes of 1733," Mass. Hist. Soc., *Proceedings*, 2nd Ser., 17 [1903] 204-8; *The New-England Weekly Journal*, 1 April 1734.

24. Thomas Hutchinson, *The History of the Colony and Province of Massahcusetts-Bay*, (Cambridge, Mass., [Mayo Edition] 1956) 2:289.

25. Ibid.

26. [Editor's note] This paragraph has been rewritten slightly for clarity. Brock's handwritten notes, and his discussion in *Draft of an Unfinished Manuscript for a Book on Currency in Colonial America*, "Massachusetts 1730-1741," (Alderman Library) 34-36, leave no doubt about Brock's intended meaning. The premia mentioned in the text are theoretical, based on Brock's present value calculations. No actual citations are available for the market value of merchants' notes for these dates. However, contemporaries remarked that once the merchants' notes ceased to circulate as a medium of exchange they were valued according to their present value. Brock compared the citations that have survived, from 1737-41, and found they correspond closely with the value predicted by his calculations. Sources: Hugh Vance, "Some Observations on the Scheme," [1738] *Colonial Currency Reprints*, 3:209; Richard Fry "Scheme for a Paper Currency," [1739] ibid., 3:270; William Douglass, "Discourse," [1740] ibid., 3:348; "Postscript to a Discourse," [1741] ibid., 4:50; "A Letter to a Merchant in London," [1741] ibid., 4:71.

27. *Boston Evening Post*, 13 June 1747; *Boston Gazette*, 8 December 1747.

28. Arthur H. Cole, ed., *Wholesale Commodity Prices in the United States*, 117.

29. William Douglass, "Discourse," *Colonial Currency Reprints*, 3:328-9.

30. Brock, *Colonial Currency of the American Colonies*, 595.

Wheat Price Ratio.

Wheat was a commodity, the price of which fluctuated greatly from year to year, even with a stable currency, because the crop coming to market varied as a result of the weather, infestations of "the fly" and "the rust," and plantings, and also because it was the staple export commodity in the chief producing colonies. Thus its domestic price was determined by the supply, the demand at home and abroad, and the prevailing exchange rate.

To relate changes in the price of wheat as a result of a sustained depreciation of the domestic currency (inflation), it is necessary to iron out fluctuations in price resulting from the factors indicated above.

Pennsylvania was the chief colonial producer and exporter of wheat, flour, and bread. New England, on net balance, imported wheat, Massachusetts being the chief importer.

One can correct the Pennsylvania price for the depreciation its currency underwent, as measured by the exchange rate, and also for the annual fluctuations in the exchange rate from non-monetary factors, by dividing the Philadelphia price by the sterling exchange rate, thus obtaining the sterling price. If the Boston price in Old Tenor is divided by the Philadelphia sterling price, the result is a ratio that reflects, rather accurately, the effect of the sustained depreciation of the Massachusetts (and New England) currency during the years for which the ratio can be computed, 1720-1749. Of course, the ratio does not iron out the effect upon the Massachusetts exchange rate and price of silver resulting from non-monetary causes, such as the sudden rise in 1729, and the fall in 1730, when "the usual Returns to Great Britain turned to bad Account" in 1729, but recovered in 1730.

One should note the extent to which the Wheat Ratio line parallels the Silver Price and Bills of credit lines on the graph.

31. Douglass, "Discourse," *Colonial Currency Reprints*, 3:332.

32. This and the next sentence is added by the editor as a substitute for a lengthy discussion by Brock where, using a complicated and confusing formulation, he argued against the idea that the silver price was equal to the volume of the money supply divided by the volume of trade. For the text see the original manuscript, Alderman Library.

33. "An Enquiry Into the State of the Bills of Credit Of the Province of the Massachusetts-Bay in New England: in a Letter from a Gentleman in Boston to a Merchant in London," [Boston, 1743-44] *Colonial Currency Reprints*, 4:195-196.

34. J. Wright, *The American Negotiator: or the Various Currencies of the British Colonies in America*, (London, 1761) vii. The Massachusetts exchange rates are to be found in John J. McCusker, *Money and Exchange in Europe and America, 1600-1775. A Handbook* (Chapel Hill, 1978) 140-141. The silver equivalent at the market price of silver in London is to be found in McCusker, 151-152. The McCusker compilation is a magnificent monument to the application of diligence and competence to a very difficult field. It is an indispensable tool for anyone working in the field of American colonial currency. Gaps in the McCusker compilation of the market price of silver in London for the early years of the 18th century have been filled in from K. N. Chauduri, "Treasure and Trade Balance: The East India Company's Export Trade, 1660-1720," *Economic History Review*, 2nd Ser., 21:500.

35. Benjamin Franklin to William Parsons, 28 June 1756. *The Papers of Benjamin Franklin*, Leonard Larabee, ed., (New Haven, 1965--) 6:465-466.

36. [Editor's note] The percentage increase in New York imports originally given in the MSS was 503%, and for Pennsylvania, 520%. Since there were reasons for suspecting an error, I revised them, using Jacob Price's "New Time Series for Scotland's and Britain's Trade with the Thirteen Colonies and States, 1740-1791," *William and Mary Quarterly*, 3d ser., 32 [1975] 322-25.

37. Benjamin Franklin to Richard Jackson, 8 March 1763, *Franklin Papers*, 10:209.

38. W. T. Baxter, *The House of Hancock*, (New York, 1965) 17-21.

39. Benjamin Franklin to Richard Jackson, 8 March 1763, *Franklin Papers*, 10:209.

40. *New Jersey Archives*, 1st Ser., 9:384.

41. Italics added.

42. Stanley Pargellis, ed., *Military Affairs in North America, 1748-1765*, (New York & London, 1936) 41.

43. [Editor's Note] These numbers come from Table VII, and were revised along with Table VII.

44. *Historical Statistics of the United States, Colonial Times to 1970*, (Washington, D.C., 1975) part 2, 1176.

45. "The New York Merchants proved to their General Assembly in 1764, from original invoices from Great Britain, that for the three preceding years they had imported what they were charged £1,500,000 for, while the . . . Custom House account for those 3 years makes it no more than £1,042,024, and . . . the Merchants of Pennsylvania at the same time and on the same occasion [for repealing the Stamp Act] proved their imports from Great Britain . . . for the said 3 years to be about £1,500,000 also, when the [Custom House] account of exports makes it no more than £925,544 . . ." Thus it appears that the current value of imports was approximately one-half greater than the official values; hence, the unfavorable balances of trade of both New York and Pennsylvania have been multiplied by 1.5 to obtain the current value. Benjamin Franklin to the *London Chronicle*, 3 November 1768, *Franklin Papers*, 15:253.

46. Money contractors payments, £1,522,199, New York and Pennsylvania portion victualing costs, £847,873, Parliamentary reimbursements, £93,224—total, £2,463,296. The portion of the victualing cost allocated to New York and Pennsylvania was the same as the proportion that the New York money contractors payment bore to the total money contractors payment in America (70.2%). Money Contractors Declared Accounts, A.O. 1/190-582; Account of Sir William Baker for Victualling the Army in North America, Aug. 16, 1756—March 25, 1760 [actually 1765]; Account of John Thomlinson and John Hanbury, Contractors for providing Money for the Subsistance and Payment of the Land Forces sent from Great Britain and Ireland to Virginia and other parts of North America, 24 December 1754—27 May 1757, T. 1/377, f. 153; 39 George II., c. 29; T. 52/501, 287-291; 33 George II., c. 18.

47. The British payments, 1761-1762, consisted of the following: New York money contractors payments, £340,904 sterling, Pennsylvania money contractors payments, £260,000 sterling, a total of £600,904 sterling; New York and Pennsylvania's proportion of the cost of victualing the British forces in North America, £168,963 sterling; Parliamentary reimbursements, £112,847—£882,714 sterling. Money Contractors Declared Accounts, A.O. 1/190-582; Account of Sir William Baker for Victualling the Army in North America, Aug. 16, 1756—March 25, 1760 [actually 1765]; Parliamentary reimbursements, 29 George II., c. 29; 31 George II., c. 33; T. 52/50, 287-291, T. 52/51, 244. *Pennsylvania Votes and Proceedings*, 7:5915.

48. *Beekman Mercantile Papers* (New York, 1956), 2:534, 539, 544, 567, 577, 580, 581, 739, 825-6, 901, 905-6.

49. To Gedney Clarke, "Letter Book of John Watts, 1762-1765," New York Hist. Soc., *Collections*, 61:204-205.

50. *Acts and Resolves of the Province of Massachusetts Bay*, 3 [1878] 430-41.

51. Brock, *Colonial Currency of the American Colonies*, 252-253.

52. Ibid., 254-255.

53. *Acts and Resolves of Massachusetts Bay*, 3:717-719.

54. Hutchinson, *History*, 3:7.

55. Brock, *Colonial Currency of the American Colonies*, 273.

56. C.O. 323/19.

57. [Editor's note] Winifred B. Rothenberg, "A Price Index for Rural Massachusetts, 1750-1855," *Journal of Economic History*, 39 [1979] 983, table 2, reveals considerable yearly fluctuations in prices received by farmers, but no striking trend in this period. If anything, prices are somewhat higher in the post-war years than during the war.

58. [Editor's note]

CORRELATIONS FOR SERIES IN FIGURE V

	New York exchange rate on London	Pennsylvania exchange rate on London	Massachusetts exchange rate on London
Pennsylvania exchange rate on London	.927		
Massachusetts exchange rate on London	.606	.547	
Par of Exchange	.330	.321	.021

59. Historical Statistics of the United States, part 2, 1176. Separate import and export figures for Massachusetts are not available. In all probability, however, fluctuations in Massachusetts' imports from England corresponded to the fluctuations in New England's imports. British expenditures in Massachusetts increased the monetary circulation and, as a result, increased purchasing power that doubtless led to increased imports from England. Imports from England were chiefly introduced into New England through Massachusetts or, to some degree, through New York. Connecticut, which emitted sizable issues of bills of credit during the French and Indian War, was not engaged in direct trade with England. During the period, Rhode Island's sizable issues of bills of credit underwent rapid depreciation that eroded away their purchasing power and thus canceled out any influence they may otherwise have had on imports. The new tenor issues of New Hampshire emitted from 1755 to 1757 underwent depreciation with similar effects. The New Hampshire sterling bills of credit emitted from 1758 to 1762 appear, however, to have maintained their value.

60. [Editor's note] I cannot determine the source of the estimate of the unfavorable balance of trade of New England, and the numbers given are quite different from other estimates. For example, using Jacob Price's data, and without multiplying by 1.5, gives a figure for 1755-60 of £2,496,120, and for 1761-6 of £1,643,586. See "New Time Series for Scotland's and Britain's Trade," *William and Mary Quarterly*, 3d ser., 32 [1975] 322-25.

61. The official value of the unfavorable balance was transformed into current values by multiplying it by 1.5.

British payments, 1755-1760, consisted of money contractor payments, £667,346 (.40 x £1,668,365), victualing payments, £144,936 (.12 x £1,207,796), Parliamentary reimbursements, £212,265—total £1,024,547 sterling. Money Contractors Declared Accounts, A.O. 1/190-582; Account of Sir William Baker for Victualling the Army in North America, Aug. 16, 1756—March 25, 1760 (actually 1765); Account of John Thomlinson and John Hanbury, Contractors for providing Money for the Subsistance and Payment of the Land Forces sent from Great Britain and Ireland to Virginia and other parts of North America, Dec. 24, 1754—May 27, 1757, T. 1/377, F. 153; Parliamentary reimbursements, 29 George II., c. 29; 31 George II., c. 33; T. 52/50, 287-291; T. 52/51, 244.

The British payments, 1761-1762, consisted of money contractors payments, £56,537 (.40 x £141,343), victualing payments, £84,908 (.076 x £1,117,207), Parliamentary reimbursements, £180,527—total £321,972. Money Contractors Declared Accounts, A. O. 1/190-582; Account of Sir William Baker for Victualling the Army in North America, Aug. 16, 1756—March 25, 1760 (actually 1765); Parliamentary reimbursements, 29 George II., c. 29; T. 52/50, 287-291; T. 52/51, 244.

62. [Editor's note] If there was "no stock of circulating specie" in the colony for the paper to supplant, as Brock says, why did a huge percentage increase in the supply of money result in only modest inflation? I disagree with Brock's statement, and feel that he could have made better use of Virginia's experience to establish his principle thesis: that offsetting specie flows helped keep inflation within bounds.

Even without paper money, the stock of circulating specie in Virginia was highly variable, fluctuating in response to the state of the tobacco market. This we know from John Hemphill's excellent study *Virginia and the English Commercial System, 1689-1733*, (New York, 1985). John Mair's *Book-keeping Methodiz'd* (3d edition) describes Virginia in the late 1740s as abundantly supplied with circulating specie. Yet on the eve of the French and Indian War, and before any paper money was emitted, Francis Jerdone wrote that "the gold & silver which was current in the country a few years ago is now chiefly vanished." A partial answer as to why there was not more inflation is that the stock of specie in Virginia was not chronically small, but rather had been at a low ebb when emissions of paper money began. The people of Virginia were willing to hold more money at the existing price level, and had paper not been supplied, would probably have managed their affairs so as to acquire more specie.

At the beginning of the French and Indian war, specie, though scarcer than it had been a few years earlier, still circulated. As Virginia issued paper money, her remaining specie disappeared. Corbin wrote in 1762 that "upon the . . . large Emission in 1757 almost the whole Species of Gold and Silver which was in the Colony disappeared and Exchange kept rising." The problem would continue, Corbin maintained, as long as the quantity of money issued continued to "exceed the Demands of Trade." This was a commonly held view in

colonial Virginia. Even those who attributed the disappearance of specie to the vagarities of trade admitted that people often blamed paper money because of the close coincidence in timing. In January 1759, Francis Fauquier commented that in the seven months since his arrival in Virginia, all the specie he had seen, gathered together in a heap, would not amount to £100 sterling. Burnaby, who visited in the summer of 1759, blamed paper money, and said there was "not a pistole or a dollar remaining."

Sources: Francis Jerdone to Capt. Hugh Crawford, 12 September 1754, *William and Mary Quarterly*, 3d ser., 14 [1957] 144-45; Richard Corbin's memorial (1762) to the Lord Commissioners of the Treasury, CO 5/1330, 256; Rind's *Virginia Gazette*, 26 April 1770; Purdie and Dixon's *Virginia Gazette*, 4 December 1766; Francis Fauquier to the Lords of Trade, 5 January 1759, CO 5/ 1329, 169; Rev. Andrew Burnaby, *Travels through the Middle Settlements in North America in the years 1759 and 1760*, [1775, 2d edition] (reprint, Ithaca, N. Y., 1968) 29.

63. William Waller Hening, *Statues of Virginia*, 4:218-220 (1 George II., c. 9).

64. [Editor's note] Suspecting an error, I replaced the original trade figures for New York (318%) and Pennsylvania (365%) with numbers derived from Price's "New Time Series for Scotland's and Britain's Trade." Brock's construction of the Virginia trade figures is described in a later endnote.

65. The Papers of George Washington, "Ledger A," Library of Congress.

66. Calculation of the sterling value of Virginia exports.

From the 2s./hhd. duty &c. on tobacco exports, it is possible to calculate the number of hogsheads of tobacco exported annually for the year ending October 25. The revenues produced by the 2s.hhd./ duty &c. included revenues other than those arising from the 2s. duty. Thus, it is necessary to adjust the gross figure of hogsheads exported derived by dividing the gross revenue by 2s. It is possible to do this because for the years 1745 to 1756 we have the figures for annual exports from another source, and likewise, for the years 1769 and 1770. If the average of the annual exports from the independent source be divided by the average of those for the corresponding years calculated from the revenues of the 2s./ hhd., the result will be .8284. The gross calculation of the annual hogsheads exported is then multiplied by .8284 to obtain the adjusted calculation. This will be found, on the average, to be accurate within .99 of 1%. Assuming 1,000 pounds to be the weight of a hogshead, the value of the annual export in Virginia currency is then calculated. The prices used were obtained from the ledgers of Edward Dixon, in the Library of Congress. Dixon was a Port Royal, Virginia, merchant. The ledgers covered the years, 1743-1774. The value of the annual exports in Virginia currency thus obtained was reduced to sterling by dividing it by the average annual exchange rate expressed as a decimal. The average annual exchange rate was calculated from monthly quotations collected by the author and by John J. McCusker.

The official value of British tobacco imports was calculated by multiplying the number of pounds imported into England by 2 1/4d. and the number imported into Scotland by 2 1/ 2d. The figures for tobacco imports were obtained from Jacob M. Price, *France and the Chesapeake* (Ann Arbor, 1973) 2:844. The annual official value of British tobacco imports from Virginia was subtracted from the official value of all imports to obtain the value of British imports from Virginia other than tobacco. To this figure was then added the current

sterling value of Virginia tobacco exports to Britain to give the total value of Virginia exports to Britain. Since the official value of British exports to Virginia and imports from Virginia is not available, the figures being given for Virginia and Maryland jointly, Virginia was apportioned two-thirds of the joint exports and imports. To the figures for imports from Britain was added the current value of the imports of slaves. The number of slaves imported annually was obtained from *Historical Statistics of the United States*, 2:1172; the price of slaves imported was obtained from ibid., 1174. The annual imports from, and exports to, Britain from Virginia are to be found in *William and Mary Quarterly*, 3d Ser., 32 [1975] 322-325. Virginia's unfavorable balance of trade for the years, 1755-1761, was then calculated.

The total British aids for the same period was then calculated. These consisted of sums transferred by the money contractors in 1757 and the Parliamentary reimbursements for the years, 1758-1762.

67. Ernst, *Money and Politics*, 7, 356.

68. *Correspondence Between William Penn and James Logan*, 1700-1750, [March 1755] (Philadelphia, 1870) 1:368.

69. *Letter Book of John Watts*, 1762-1765, New York Hist. Soc. *Collections*, 61 [1911] 308.