Money, Currency, and Heterodox Macroeconomics for Archaeology

Robert M. Rosenswig

Many archaeologists do not realize that their commonsense assumptions about what constitutes money naturalize orthodox (neoclassical) economic theory. Rather than the orthodox view of money as primarily a medium of exchange, this paper presents the heterodox claim of money as primarily a unit of account imposed by those with political power. This heterodox understanding casts money as the mechanism at the heart of ancient states' political economies. A brief history of heterodox chartalist macroeconomics is followed by eight starting points from which archaeologists can explore the operation of state money using the material remains of past societies. Ancient Mesoamerica provides a case study that developed independently of better-known monetary histories from ancient Egyptian, Mesopotamian, Greek, Indus, and Chinese civilizations. Monetized state economies date back to at least AD 600 in Mesoamerica and possibly as early as 300 BC. Cacao beans, standard lengths of cotton cloth, and shell and greenstone beads functioned as the currencies of taxation that underwrote political economies across ancient Mexico and Central America. I conclude that similar organizing principles, by which elites in hierarchical pluralities have extracted and deployed surplus production, resulted in the independent invention of money as an accounting system among unrelated ancient societies the world over. My primary argument is that money—understood as a politically controlled system of accounting—is largely missing from our analysis of ancient complex societies.

Anthropologists have much to contribute to economic theory, not the least of which is evidence that the origins of money posited by neoclassical economists are factually incorrect. As Graeber (2011) observes, "Our standard account of monetary history is precisely backwards. We did not begin with barter, discover money, and then eventually develop credit systems. It happened precisely the other way around" (40). Adam Smith based his history of money on ignorance (either genuine or purposeful) of what actually happened in the past (Desan 2014:3; Wray and Bell 2004:33–41). Hudson (2004*a*) notes that the "underlying problem is one of ideological blinders. . . . Its criterion for acceptability has become simply whether its assumptions are logically consistent, not whether they are grounded in historical reality" (108). Archaeologists have long known that credit systems and debt obligations were operating in Bronze Age Mesopotamia and Egypt long before physical currencies ever circulated. Therefore, capitalist credit did not solve a problem, nor did it reduce transaction costs compared to some hypothetical preceding system of traditional barter (Dalton 1982:182–183). Over 35 years ago, anthropologist Caroline Humphrey (1985) observed, "No example of a barter economy, pure and simple, has ever been described, let alone the emergence from it to money; all available ethnography suggests that there never has been such a thing" (49). The assertion that barter gave way to money was simply made up by Adam Smith—and parroted by generations of his adherents—to emphasize money as a medium of exchange at the expense of its role as a unit of account.[1] This false narrative allowed economists of the late nineteenth-century Austrian School and mid-twentieth-century Chicago School to ignore money's political function (and inception) in order to claim that reduced government involvement in economic affairs was somehow natural. The result in both eras was increased economic inequality, built on a factually incorrect account about the nature of money in the past.[2]

1. Medium of exchange, unit of account, store of value, and standard of deferred payment are the standard definitions of money. If pushed, all economists will list these four characteristics, and disagreement centers on which are the most important.

2. The Austrian School, and its founding proponent Carl Menger (1981 [1871], 1892), was established as a refutation of Marx's class-based analysis and to provide justification of capitalist wealth accumulation as a natural phenomenon akin to biological evolution. The Austrians asserted the orthodox position that private banks create money of their own accord and that government should stay out of financial matters and allow markets to allocate resources. Mid-twentieth-century supply-side economics was a direct heir of this orthodox neoliberalism with the advocacy of deregulation and small government. In fact, Hayek not only influenced Friedman and Stigler but also, with financial backing of the ultra-conservative Volker Fund, was responsible for moving the heart of laissez-faire theorizings from Europe to the University of Chicago (see Harcourt 2011:131–132). Not coincidentally, twenty-first-century income inequality has reached levels not seen since Austrian School policies held sway and feral robber barons roamed the land.

Robert M. Rosenswig is Professor in the Department of Anthropology of the University at Albany–SUNY (1400 Washington Avenue, Albany, New York 12222, USA [rrosenswig@albany.edu]). This paper was submitted 30 VII 20, accepted 5 V 21, and electronically published 29 II 24.

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What is called money in common parlance—metal coins and paper bills—is more accurately currency. Money is an accounting system that can be measured by a variety of currencies. Today's national monies are each denominated in a currency: dollars, pounds, pesos, yen, and so forth. Domestically, these are the units used for exchange as well as the units of account in which each nation requires that taxes, fees, and fines be paid. The concept of money is best kept analytically distinct from the counting units (currency) employed to measure it. In a similar manner, weight is not the same as its measurement in kilograms, pounds, or stone. Money and weight are abstract concepts, whereas dollars and kilograms are measurement units used to quantify them.[3] As sociologist Geoffrey Ingham (2004) explains, "To identify *forms* of money and their *circulation* with the quality of 'moneyness' is to misunderstand the phenomenon" (9; emphasis in the original). The distinction between money and currency is fundamental to the following discussion. Money is a system of accounting, whereas currencies are the units in which the accounts are measured.

Citizens of wealthy twenty-first-century states rarely question the nature of their relatively stable international monetary system. The pervasive misunderstanding of modern money ironically hinders archaeologists' ability to study ancient pecuniary systems that were more fragile. The history of the British pound, one the world's most trusted modern currencies, provides an illuminating place to begin. Modern British money is based on a system created by Charlemagne in the ninth century denominated in pounds, shillings, and pence (Graeber 2011:48–49). Pounds sterling were nominally that weight of silver, but coinage was not standardized and the monetary system was one of accounting that did not rely on the existence of physical tokens (Pounds 1974:119–121). For many centuries, large transactions employed tally sticks to record debts denominated in pounds sterling. A notched hazelwood stick measured the amount of debt and was then split in half, with the creditor keeping the stock (so becoming the stockholder) and the debtor keeping the stub. Tally sticks were the currency of English monarchs, who issued them to purchase goods and services and then accepted them back from citizens as payment of taxes (Desan 2014:171–190). Taxpayers would have to acquire sufficient tally sticks and then return them on tax day when the Exchequer matched stock and stub, wiping clean the tax debt. So while, theoretically, the accounting system was in pounds of silver, payment could also be denominated in the currency of notched hazelwood sticks. The accounting of debt formed the basis of the British monetary system, not the particular currency tokens. Kings used their political, legal, and coercive (when necessary) power to force their subjects to accept little notched twigs in payment for real goods and services. Modern British pounds function in much the same way—paper substituted for wood in the eighteenth century and then electronically recorded bank balances by the twentieth century—with the unit of account still enshrined by the English legal principle of nominalism (Desan 2014:10–18). So wood, paper, metal, and electronic impulses have all functioned as currencies for the British monetary accounting system.

Money can function reliably only when people have confidence in it. As Hyman Minsky (2008) famously observed, "everyone can create money; the problem is to get it accepted" (255; and see Wray 2016:90–98). A monetary system's IOUs (be they abstract credits or currency tokens) will be accepted in exchange for real goods or services only if those who accept them have confidence that the monetary system will maintain value into the future (Simmel 2004 [1900]). There exists a hierarchy of monies, and some are more widely accepted than others. For example, the credits issued by institutions like the US Treasury and central bank monies of sovereign states are at the top of the money pyramid (Bell 2001). However, modern nations are not all deemed equally reliable, so there also exists a hierarchy of state monies (e.g., Guyer 2012; also see examples in Senders and Truitt 2007). In the ancient world, the monies of state governments were also the most widely accepted. And why was that? Because holders of such high-ranking receipts were confident that they would be accepted at a predictable value in the future. Modern video games (as an extreme example) create game gold that can (at times) be exchanged for national currencies, but you would not want your weekly paycheck denominated in the currency of such a monetary system, as it falls low on the money pyramid (Agha 2017; Truitt 2020). In some countries of the Global South, mobile cell phone credits function as a currency that can pay for a wide variety of goods and services and are often preferred to national currencies (e.g., Maurer 2015). Likewise, airline frequent flyer miles can be used to purchase clothing, electronics, and a host of other consumer goods. In spite of this, you would not want to save frequent flyer miles to live on in your retirement.

Money can come in many forms, but its defining feature is its function as a system of accounting. For the remainder of this paper, the term "money" is employed synonymously with state money. Such usage is consistent with the chartalist position (see below). State money reliably holds value into the future, as the taxes, fees, fines, and so on that states collect assure a demand as long as the state continues to exist and to have the power to collect its money back as taxes, fines, and so forth. The British example of pounds sterling being denominated first in tally sticks and coins, then paper bills, and more recently electronic bank balances exemplifies the changing of currencies that are acceptable media of tax payments that underlie the nation's monetary system.

Anthropologists and historians sometimes conflate state currencies used for financial accounting with prestige items used for social accounting. State monetary systems at the heart of heterodox analysis are distinct from other systems that circulate valuables (e.g., Brandherm et al. 2018). So-called primitive money in the anthropological literature is terminologically deceptive because such items are not like the monetary

3. Simmel (2004 [1900]:139–141) provides an interesting discussion of this distinction from an idealist perspective.

currencies of states, nor are they particularly primitive (see Graeber 2011:129–136). Primitive monies—be they shells, feathers, or cows—keep track of social obligations between people by settling blood feuds or as bride payments. The purpose of primitive money is not to settle financial accounts but to keep systems of social relations in motion (Dalton 1965:50–51). One is a financial accounting system and the other a social accounting system. Dalton (1982:184) suggests that such social payment currencies are better called primitive valuables to avoid confusion. This system of social accounting was known as *wergeld* among the Germanic peoples on the fringe of the Roman Empire, and Grierson (1978:12–15) argues for a widespread use of that term to subsume bride wealth and blood feud payments (see Hudson 2018:35–46). At the heart of this terminological confusion is that these tokens of social accounting have at times transitioned to serve as currencies for conquering state governments. This transition often occurred when primitive money was appropriated as a currency of taxation by colonial authorities—wampum beads in the eastern US are a canonical example (Goldberg 2005:962). Below, I discuss the historical context in which gold and silver in ancient Greece underwent such a transformation from circulating as prestige items of the traditional elite to currency of account for city-state governments. In each case, tokens of social obligation were repurposed by governments with the coercive power to determine what was acceptable to settle fines, tribute payments, and tax obligations.

I begin this paper defining tenets of heterodox macroeconomic theory relevant to the ancient world. Heterodox theory has received public attention over the past decade under the label modern monetary theory (MMT; Kelton 2020; Mosler 2010; Wray 2015). MMT is not the only heterodox approach, but all such macroeconomic theory understands the modern money supply as being endogenous, that is, created by banks in response to demand for loans within a legal framework determined by state authority (Di Muzio and Robbins 2017:78–85). Modern state monies are therefore not identical to ancient monies in their creation, but heterodox chartalist approaches place the source of demand for money in state regulation and taxation. In the ancient world, states created money by using their political power to require a variety of types of payments from those they controlled. Money is thus considered a creature of the state and its acceptance dependent on the ability of government authorities to collect taxes, fines, and so on. This contrasts with the orthodox approach, which defines money primarily as a medium of exchange, spontaneously created by banks or merchants to make barter exchange more efficient. Some anthropologists acknowledge money as a system of accounting but then want to treat it as if it was not, because that is what many citizens of the modern world have been duped in to believing (Vansantkumar 2019). Others simply ignore these issues, with many notable exceptions (e.g., Baron 2018*a*:100–101; Di Muzio and Robbins 2017; Freidel et al. 2017:30–31; Graeber 2009, 2011; Hart 1986, 2001:321; Maurer 2015, 2017; Maurer and Swartz 2017; Millhauser 2020; Sampeck 2019:542–543; Smith 2004:90–91). But none of these anthropologists operationalize the material expectations of a heterodox analysis of money's central role in the political economies of the past. I therefore enumerate eight starting points, derived from heterodox chartalist macroeconomics, for the study of ancient state economies. These are as follows: (1) Coinage and other physical currencies are not the most productive place to start studying money. (2) Counting units and calendrics, as well as systems of weights and measures that facilitate accounting, is instead a more effective place to begin searching from ancient monetary systems. (3) Inequality is a prerequisite for a reliable monetary system to operate that is enforced by taxes, tributes, and so on, necessary to maintain long-term demand for money and whatever currencies it may be denominated in. (4) Publicly sanctioned state violence commonly accompanies the establishment of taxation, as it is generally less onerous to threaten violence than to carry it out. (5) Religious ideology, justifying social hierarchies, taxation systems and state violence, will accompany the establishment of money. (6) Market exchange presupposes the existence of money, so the latter necessarily existed first. (7) Increased economic activity (to amass sufficient payment for taxation) often results from the establishment of monetary accounting for state taxation. (8) The results of taxation are made material in public works projects and craft objects and the acquisition of foreign luxuries. I then introduce evidence of a monetized economic system among the ancient Maya dating back to at least AD 600 and possibly as early as 300 BC in some areas of Mesoamerica. Economic historians limit themselves to the textual sources of Mesopotamia, Egypt, and the Classical world when documenting money's history. I explore how Mesoamerican currencies and the region's monetary system might expand the societies that contribute to a comparative economic history of our planet. I further propose that a complete account of money must include societies for which no written sources exist, and so it is necessary to establish material expectations for the monetary organization of prehistoric political economies. Before presenting the Mesoamerican case study, I review the basic principles of heterodox chartalist macroeconomics.

A Brief History of Chartalist Theory

Sovereign governments create money by spending it, and taxpayers then pay their obligations to the state in tribute, taxes, tithes, fees, or fines. The single most salient insight of heterodox chartalist macroeconomics for archaeologists is to understand money as a state-imposed accounting system (Mitchell et al. 2019:2–7, 436–438; also see Desan 2014:42–45). As previously mentioned, the neoclassical orthodox position asserts that money emerges spontaneously as a medium of exchange employed by enterprising individuals to minimize the transaction costs of barter exchange. From this neoclassical perspective, money is politically neutral and simply provides the grease that lubricates the gears of commerce (see Goodhart 1998). The orthodox approach does not require much in the

way of explanation for the history of money. For them, money is virtually synonymous with currency that naturally developed by efficient, maximizing individuals (clever bankers and merchants). In contrast, the heterodox position sees money as a political institution, enacted by government to mobilize the resources that underwrite the political economies of complex societies.

Economists refuting the Austrian School's neoclassical assertions established basic tenets of heterodox macroeconomics during the first half of the twentieth century. Innes (1913, 1914) noted that Adam Smith got the barter-to-money argument wrong, citing the economic history of Early Bronze Age Mesopotamia (Wray 2004). Innes also observed that free markets do not come into existence in a spontaneous or natural manner but depend on state laws and enforcement systems to purposely bring them into existence (Harcourt 2011:141–149). He was aware of the clay tablets used in the ancient Near East and spent much time discussing the use of European tally sticks. Another important early twentieth-century figure in heterodox theory is Georg Knapp. Originally published in German, Knapp's (1924 [1905]) English translation *State Theory of Money* defined chartalism after the Latin *charta* (a token or ticket). Knapp argued that money is created by law and therefore not a commodity. He defined chartalism in opposition to metallism, which had held sway for centuries and was the justification for affixing the value of money to silver and gold standards (Ledbetter 2017). Knapp's state theory of money posited that a state can choose anything it likes to receive in payment for taxes and can change the thing any time it likes. Knapp and Innes were apparently unaware of each other, but their knowledge of ancient and medieval history (and the cross-cultural comparisons this afforded) allowed for a clearer understanding of the fundamental nature of twentieth-century money.

The best-known figure in the heterodox tradition is John Maynard Keynes, a British civil servant and one-time director of the Bank of England who influenced generations of economists and politicians during the twentieth century. Keynes's (1930) influential two-volume *Treatise on Money* cited Knapp's chartalism as a starting point for his economic analysis. Keynesian economics was widely accepted in the United States by the mid-twentieth century (e.g., Lerner 1943, 1947). A Keynesian understanding of the economy was the basis for Roosevelt's New Deal, which financed an explosion of archaeological fieldwork as one of many job creation programs (Means 2013). It is worth noting that the central thesis of Karl Polanyi's (2001 [1944]) *Great Transformation* was also a refutation of the neoliberal myth of free markets and so part of the heterodox movement of the time. Polanyi employed ethnographic information from the Trobriand Islands and East Africa as well as the history of financial organization in Mesopotamia, Egypt, and Greece as the empirical basis of his analysis. However, he unfortunately misinterpreted these ethnographic and historical cases as being qualitatively different from capitalist economies (e.g., Polanyi 2001 [1944]:53–58). The ensuing formalist-substantivist debate in anthropology was largely one between orthodox and heterodox theory. However, Polanyi's unfounded insistence that capitalist and noncapitalist states were organized qualitatively differently, and the related unhelpful dichotomy between special purpose and general purpose money, inhibited the more fundamental heterodox insights on the nature of money from being realized within anthropology (see Parry and Bloch [1989:14] for a reanalysis of Bohannan's [1959] view of money). Substantivists could have waged a more effective battle against the methodological individualism of the formalist position if they had provided a chartalist framework to analyze capitalist and noncapitalist economies according to similar principles. This is precisely what I am attempting with this paper.

Of interest to those of us who investigate the past, Keynes spent many years in the 1920s obsessed with studying ancient Mesopotamia to understand how money originated (Ingham 2000). What he found was that the Babylonian shekel was fixed by state decree at a *gur* (1.2 hectoliters) of barley and that later the shekel was reset at 8.3 grams of silver; either currency could be used to pay rents and taxes to both religious and secular authorities (see Hudson 2004*b*). The initial *gur* of barley was deemed the amount necessary to maintain a laborer and his family for a month (Goldsmith 1987). Once barley and silver bullion were both accepted to pay taxes, the exchange rate between these commodities became fixed by the process of state taxation. It was more than a millennium before coins were stamped in Lydia and Greece. A monetized state economy without any monetary tokens was therefore a stable and long-lasting basis for economic organization in the ancient Near East. One of Keynes's insights was that barter is a bilateral relationship between trade partners, whereas in a monetized economy exchange is trilateral, with the state necessarily implicated in private transactions that employ payment using the state's monetary system. The essential institutions of resulting market economies are the debt contracts and price lists made possible only by the state's establishment of a money of account (and of course enforced by state law, courts, police, and armies). In Keynes's words, payments are made

> by delivery of which debt contracts and price contracts are discharged [and] can only exist in relation to a money of account. And the Age of Chartalism or State Money was reached when the State claimed the right to declare what thing should answer as money or the current money of account. (Keynes 1930:3–4)

Money's other key functions—medium of exchange, store of value, and standard of deferred payment—can reliably follow only from its role as a government-induced unit of account. The currencies demanded for tribute, fines, fees, fines, tithes, and tax payments will maintain reliable value only as far into the future as the state persists and maintains coercive power to collect such monetary units of account.

The proximate cause of current befuddlement on the subject of money is neoliberal economic theory, especially after the so-called Washington Consensus of the 1990s, as well as those who broadcast such propaganda through undergraduate economics

classes and cable news programs.[4] In the 1980s, Milton Friedman and his monetarist disciples displaced Keynesian understanding of macroeconomics among politicians and policymakers. This orthodox approach directly crafted Reagan's and Thatcher's policies of small government and minimal regulation in order to let supposedly "natural" market forces determine resource distribution (see Hart 2001:312). The current heterodox position has gained attention since neoliberal economists were unable to predict or explain the 2008 financial collapse or the fatal structural problems inherent in the Eurozone's shared currency (see Goodhart 1998; Kelton 2020; Wray 2015:270–276).

Anthropologists are generally receptive to the historical reality of a chartalist understanding of money, as many classic ethnographies document European colonial powers monetizing the economies of newly subjugated peoples. Bohannan (1959) presents a canonical example of colonial policy in West Africa, but similar cases are numerous (Maurer 2006:21–22), though certainly not simple (e.g., Saul 2004). Colonial authorities could, and did, simply steal some wealth. However, colonial administrators often wanted more or required local labor to create roads or other infrastructure. When colonized peoples did not want to provide such labor, colonial administrators would impose a tax to be paid under threat of some unpleasant repercussion. In the case of taxation in currency, the tokens (made of metal, paper, shell, wood, or whatever) would be introduced throughout the year to pay for the construction of roads, canals, and governors' manors and then collected back again at tax time. These historical examples provide a basic model for archaeologists who study complex societies: money is the mechanism (or institution) employed by holders of power to acquire resources and forge the link between political/military power and economic goods. Such an approach builds on the well-established framework of political economy analysis but highlights the mechanism by which money organizes resource mobilization.

Just like with the tally stick example, the slate could theoretically be wiped clean once taxes were paid to colonial administrators. Reality is a bit more complicated. If certain people experienced accidents or other forms of misfortune, they might not be able to earn enough money in a given year. These unfortunate individuals might then be left owing taxes and expose themselves to state sanction. And others, through luck, craft, or theft, might acquire surplus tokens that, after paying their own taxes, could be saved or spent to acquire goods or services from their fellow countrymen. If the penalty for not paying one's taxes was high enough (say, enslavement of your children or spouse), then individuals lacking sufficient state money would be highly motivated to borrow from those with a surplus. A nongovernmental financial system would thus be brought into existence using excess government money. Remember, this was Keynes's insight that the state is implicated in all monetized transactions—even those between individuals and those outside state borders. As should be clear from the nineteenth- and twentieth-century ethnographic examples that document European colonialism, if all taxes were paid, the money supply would be zeroed out. The only way for people to save money is if the government put more into circulation than is demanded back in taxes (in the US today, this is the federal deficit). Therefore, personal and private business savings (along with any trade deficits) necessarily equal the level of government debt (Wray 2015:9–23). And where does this government debt come from? The simple answer is nowhere. It is created by the fiat: printing paper bills, chopping up wooden tally sticks, or adding numbers digitally to bank accounts.[5]

A fundamental proposal of chartalist theory—that state money depends on coercive power to collect taxes—provides a foundation on which to investigate money archaeologically where government is documented and where taxation can be inferred. Taxation can come in many forms: tribute to a chief, head tax, import tax, tolls on government roads, annual income tax, parking tickets, and so on. For a monetary system to function, a government requires the means to enforce any combination of such payments. One motivation for writing this article is a plea to anthropologists (and archaeologists of complex societies in particular) to rid ourselves of the orthodox assertions that are not supported by our data. Guyer (2012) and Weatherford (1997) are examples of anthropologists adopting unsubstantiated orthodox assumptions about money when writing for a generalist audience. As a profession, we should do better. Political reasons exist to reject orthodox economics, but in the academic context of this journal, I advocate for an evidence-based understanding of the present and a more accurate reconstruction of the past. It would be sadly ironic if orthodox economists' faulty use of information from the past were to influence archaeologists' interpretations of our own data in the present. Rather than the polarization between these positions being unnecessary or exaggerated, as some posit (e.g., Baron 2018*a*; Hart 1986), the foundational assumptions of orthodox and heterodox theory must instead be evaluated in terms of accuracy. However, as the empirical reality of money's history is not in dispute, I now enumerate what this means for archaeologists.

A Heterodox Approach for Archaeologists

Inspired by the heterodox chartalist understanding of money as primarily an accounting system, I assemble eight starting points from which archaeologists can investigate money (table 1). This is not an exhaustive list, nor is each point necessarily as important as the others or as easily studied archaeologically.

4. The ultimate cause is the concerted effort of moneyed interests that benefit from such theories and pay to establish business schools and conservative think tanks, as well as to endow professorships in economics departments and hand out Nobel Prizes.

5. Wray (2015:48–54) provides a succinct explanation of how this process of money creation operates in the US, and McLeary et al. (2014) do likewise for the UK.

Table 1. Proposed starting points for the investigation of state financial money using material remains

Starting points	Material implications
1. Money is not currency	Monetary systems do not need currency to operate; however, when physical currency tokens do exist, they can be insightful for studying the monetary system
2. Numbers, weights, and science	Indigenous counting system, calendars and time reckoning, writing system
3. Unequal power relations	Standard indicators much discussed by archaeologists (settlement patterns, elite residences, concentrations of prestige goods, burial practices, etc.)
4. Public commemorations of state violence	Displays of violence by state actors displayed in public contexts, violence and tax payments displayed in the same or related contexts
5. Religious justification of power relations	Unequal power relations and tax obligations on earth parallel to those in the cosmological realm, where tribute is also demanded (e.g., Rosenswig 2017)
6. Market economy	Equally distributed resources across social classes or other methods traditionally used by archaeologists
7. Increased overall trade activity	Increased production of the objects necessary to be delivered as tax/tribute payment, increased trade with neighboring groups
8. Public works	Elite houses and palace construction; temples, roads, canals, etc., that structurally glorify elite or establish them as central to the orderly functioning of society

The list comprises areas of investigation from which to refocus long-established analysis of political economies to incorporate the role that money played in integrating the political and economic organization between powerful and subordinate sectors of society. My emphasis is on material evidence, as these data are more relevant to the vast majority of past societies for which no written accounts are available. In the Mesoamerican examples that follow, I discuss early Spanish accounts and employ evidence of Late Classic period public art and indigenous written sources. However, if we are to ever discover the origins of money in more than a handful of regions (and even there only in more recent time periods), we will need to push past the safety net of written accounts to rely upon the fragmentary material record of prehistory.

1. Money Is Not Currency

Our first task is to take seriously the heterodox axiom that money is primarily a politically established system of accounting. We should therefore not let a search for physical currency tokens distract us from investigating money (contra Haselgrove and Krmnicek 2012). Remember that a century ago Keynes (1930) had already realized the significance of Mesopotamian money operating for at least a millennium before Greek coinage was adopted (see Ezzamel and Hoskin 2002). Coinage in ancient Greece was itself based on a long-established monopolization of precious metals by elites (Wray 2015:165–166). Early Greek city-state officials were asserting their new political power by minting coins from precious metals to undermine the traditional hereditary elite's gift exchange practices by inserting it into the mundane realm of markets and payment of fines and fees (Kurke 1999). By 600 BC, Greek coins were used to pay soldiers, and virtually all city-state coins were minted as the symbolic embodiment of political sovereignty (Graeber 2011:186). Gold and silver bullion therefore transitioned from "primitive money" of traditional Greek elite prestige rituals to the currency of the state taxation system. Searching for currency tokens is not the only, nor is it necessarily the best, way to study ancient money. As Grierson (1978), himself an expert of ancient coins, noted: "In studying the origins of coinage, the scholar has mainly to answer the question 'where' and 'when.' In studying those of money he is more concerned with 'how' and 'why?'" (6). This is not to argue that the study of currency objects are of no import but to emphasize that money and currency must not be conflated. The how and why a monetary system functions within the political economy are to be found not only in the where and when of currency tokens.

2. Numbers, Weights, and Science

Second, the existence of numbers, weights and measures, calendrics, and accounting practices is intertwined with money. Tax liabilities must be measured (numbers), they must be portioned out (weights and measures), a schedule of payments must be set (calendrics), and finally the payment must be kept track of (accounting). It is certainly possible that some of these practices emerged for religious or other purposes and were repurposed for taxation. Whatever the original motivation, these developments in math and science are necessary prerequisites for a monetary system to function. These aspects of science were all identified by Renfrew (1994) as effective ways for archaeologists without textual sources to access material remains of human cognition. The archaeological study of money would do well to build on such insights of cognitive processual archaeology.

3. Unequal Power Relations

Third, state money cannot (by definition) exist without government authority to impose tax obligations and thus maintain demand. Therefore, as various heterodox scholars have observed, long-lasting pecuniary systems exist only among hierarchically organized societies (Ingham 2000:19; Semenova and Wray 2015). In the remainder of this paper, I frequently refer

to "the state." This is not meant in evolutionary terms but instead as the governing body of a hierarchically organized polity: be it a complex chiefdom, kingdom, fiefdom, city-state, empire, or whatever. Such usage is more consistent with the literature on the history of money. I have previously argued that hierarchical societies first exist only with evidence of exploitation, and, in the evolutionary terminology of yesteryear, this occurs at the transition from simple to complex chiefdoms (Rosenswig 2012). Using Eric Wolf's (1982) streamlined mode of production terminology, this occurs with the establishment of a tributary mode of production (see Rosenswig and Cunningham 2017). The material indicators of societies with the power to collect taxes and tribute—that is, settlement patterns, differential domestic architecture and wealth concentrations, burial practices, and so on—are well known to archaeologists.

4. Public Commemorations of State Violence

Fourth, state-sanctioned violence is another place to begin the search for money. This may not initially be evident. Warfare is waged to conquer land, to extract revenge, and for young men to garner honor and glory. However, here I am not referring to warfare or violence itself. Instead, it is the commemoration of violence in public contexts that serves a political function by proclaiming the social acceptability of the state and its rulers to carrying out such violence. State violence can be explicitly recorded as punishment for nonpayment of tribute or taxes, but more often it is expressed in religious terms as a sin against the gods (Trigger 2003:473–494). Similarly, when one kingdom defeats a neighbor or an empire gobbles up a smaller state, such victories are usually commemorated as accomplishments of a king. But what ultimately motivates the personal glory-seeking campaign of a ruler? Tribute, slaves, and other expressions of power. Any ruler that is continuously successful in pursuing these proximate motivations will ultimately become rich and powerful. Therefore, public monuments that depict and/or describe state violence have economic implications in addition to any religious connotations or the obvious personal aggrandizement explicitly bragged about by those who commissioned the monuments. Political power, the acceptance of state violence, and the public commemoration of both are indicators of the sort of governments that can institute a monetary system. However, a lack of public commemorations of violence does not necessarily mean that money or state violence was not in place. States can publicly promote ideologies of social egalitarianism or emphasize order and peace to obfuscate what is necessarily an exploitive relationship. Such false consciousness in the subject matter depicted on public monuments and so-called collective state ideologies obfuscate the coercive reality (as is also the case with modern (neo)liberal democracies).

5. Religious Justification of Power Relations

Fifth, as mentioned above, religious justification of taxation in ancient states generally frames tax payments in religious and cosmological terms that allow economic organization to be preached as public morality and thus naturalized. If the god(s) decree that kings have a divine right to rule and must be paid taxes, then failure to do so is a sin as well as a crime. Elsewhere, I document that economic systems of surplus extraction are cross-culturally correlated with reinforcing ideological frameworks (Rosenswig 2017). Peoples who pay tribute to a king or chief have cosmologies where gods are paid tribute. Conversely, peoples who live in egalitarian societies without tribute have corresponding cosmologies that are more egalitarian. This is perhaps not surprising, but it does confirm a consistency in religion functioning as justifying ideology for economic systems. This is what Henry (2004) reports for Egypt (more on this below) and more generally what Trigger (2003:473–494) found among the eight ancient civilization he compares. Material indicators of religious belief that place rulers as intermediators with the divine realm and oblige commoners to pay taxes are common (and commonly missed) evidence of money functioning within society.

6. Market Economy

Sixth, as Keynes discovered almost a century ago, a market economy presupposes the existence of a money of account that sets equivalencies between different goods and thus insinuates government within even private financial transactions. It is only orthodox supply-side propaganda that government should stay out of business activity. As we have seen, without a money of account and government deficit (not to mention state-enforced property rights), there can be no market economy for private business to benefit from. In Mesopotamia, as we have seen, government taxation established an equivalency between silver bullion and barley. Similarly, Feinman and Garraty (2010) define market exchange as "where prices or exchange equivalencies exist" (171). But from where do such equivalencies come? The orthodox answer is spontaneously from rational actors' "natural" propensity for efficiency. The chartalist perspective detailed in this paper is that central authorities such as states establish equivalencies based on what they accept to cancel tax and other political/legally imposed debts. Documentation of a market economy based on the distribution of prestige goods through all households (e.g., Hirth 1998; Stark and Garraty 2010) or other methods that indicate that markets were operating necessarily implies the existence of money. Exchange of goods at seasonal fairs based on annual rhythms of plant and/or animal growth (e.g., Humphrey 1985) do not constitute markets in the sense of a market economy. It is therefore not enough to document the physical location where goods were traded to infer the existence of a market economy or a monetary system. Instead, it is only when goods are exchanged using a uniform standard of equivalencies that money and market exchange can be inferred. Further, there is no a priori reason why monetary transactions could not be restricted to certain segments of the population (e.g., property owners) or to a limited number of goods. These are empirical issues to be documented through the study of ancient political economies.

7. Increased Overall Trade Activity

A seventh area of inquiry we can derive from the heterodox perspective is that taxation provides the engine of economic exchange and the value of money, by establishing a reliable demand. Taxation creates demand for resources that extends out beyond the political regime that enforces taxation. Long ago, Blanton and Feinman (1984) provided insightful analysis of Postclassic Mesoamerican tribute obligations that not only collect resources from tributaries but also force tax-paying peoples to trade with their non-tax-paying neighbors. In a related but inverse manner, rulers often employ the surplus from taxation to acquire exotic goods from abroad. Demand for distant preciosities can motivate merchants to increase imports and foreign dignitaries to present a king with exotic gifts. Both behaviors increase interregional exchange and result in material patterns documented by archaeologists with chemical sourcing techniques of stone and clay. Trade can certainly exist between societies without financial money and without hierarchal political institutions. A heterodox perspective simply pushes us to consider government taxation as a common organizing institution in hierarchically organized societies. Rulers translate their coercive power into economic surplus that is then used to underwrite elevated social status and reinforce their political position. Of course, this is the basis of defining a political economy, and I claim no new ground in this regard. However, what often goes unrecognized among prehistorians of complex societies is that monetary relations can function as the inner workings of such political economies.

8. Public Works

An eighth insight derived from the heterodox approach is to understand money through the tangible results of its organization, that is, work projects funded by ruling elites who form the government (see Smith 2004:92; Trigger 1990). Money and taxation are political processes marshaled by state authorities to finance public works projects and to maintain occupational specialists. Both public works and occupational specialists leave material remains. As with public displays of state-sanctioned violence and increased exchange, this is the suggestion that the temples and roads as well as elite residences and the fancy possessions they contain—all things that characterize ancient civilizations—can be understood in terms of how labor was organized to produce and transport them. Egalitarian societies can marshal large amounts of labor for communal activities but can be distinguished by a lack of associated social stratification (see Rosenswig and Burger 2012). But when ancient states and empires embarked on public works projects, what was the mechanism through which labor was mobilized? If the answer is some variant of a corvée system, appropriation of food, or any other forms of taxation, then we are necessarily talking about unequal power relations; quantities of earth, stone, and grain that need to be measured; and dates by which they must be delivered and their receipt accounted for. The repercussions for nonpayment must also be understood by both the taxers and the taxed. Money would not form the basis of corvée labor systems, but the accounting and scheduling required can be envisioned as protomoney in the sense of laying the organizational and accounting groundwork from which money could emerge.

Some archaeologists may respond to these proposals by asking: "So what? This is what we've been doing for decades." To them I reply: Yes, what I am proposing emerges directly from the insights of historical materialism and the long anthropological tradition of studying political economy (Graeber 2009; Gregory 2012). The writings of Marx and other nineteenth-century political economists certainly provide foundational insights on which heterodox macroeconomics were built (Mitchell et al. 2019:5–6). However, the chartalist principle that money is a creature of the state adds the accounting mechanism by which economic resources are marshaled by politically powerful social classes and how state resources are deployed to maintain their elevated position. My main proposal in this paper is that money—understood as a politically controlled system of accounting—is largely missing from our analyses of ancient complex societies. Other forms of money could well have existed in past societies as they do today, but they were not accepted in diverse contexts. Forms of money lower on the pyramid (i.e., below that of state money) do not reliably hold value into the future, as they hold value only as long as ancient business cartels and video game manufacturers continue to exist and so on can maintain confidence in their credit notes, frequent flyer points or video game gold. I now turn to Mesoamerica to provide some examples of money in the ancient world.

State Money and Currencies in Ancient Mesoamerica

When the Spanish conquered Mexico and Central America, they encountered empires and city-states with dense urban populations, elaborate social hierarchies, multiple written languages, and well-developed math and sciences. Elite sectors of society across the region collected various forms of revenue from commoners as a privilege of their station. For example, commoners at the heart of the Aztec Empire had to pay taxes in corvée labor, agricultural products, and textiles (Millhauser 2017), and those in the more distant provinces had to pay for a wide array of foods as well as utilitarian and luxury items (Smith 2015*a*:table 3.3). A complex system of tax collectors is known from the Aztec empire, with named professions for both nobles and commoners who collected taxes, others who shipped them, and still others who recorded and accounted for receipt of tax payments (Smith 2015*a*:95–101). Professional classes of merchants among the Aztec were also warriors (*pochteca*), and among the Maya specialized traveling merchants (*ah ppolom yoc*) were distinguished from local merchants (*ppolom*). From Spanish documents, we know that cotton and cacao were

the most common currencies (Baron 2018*a*, 2018*b*; Millhauser and Overholtzer 2020). Colonial accounts record prices, exchange rates, production locations, and trade relationships (Masson and Freidel 2012). Cacao was set at a fixed exchange rate of 65, 80, and 100 beans for woven cotton cloth of standard lengths, called *mantas* in Spanish (Sahagun 1959:48). Copper bells also functioned as currency, as did greenstone and shell beads. With the exception of cacao, all of these currency tokens were incorporated into formal costumes of the elite (Freidel et al. 2017). Commoners spent such currencies, whereas elite fashion took them out of circulation as a form of consumption not terribly different from today's proclivity of paying a premium for brand labels that signal that your shirt costs many times more than its production costs. Similarly, a drink made of cacao was consumed by Maya elites but was prohibitively expensive for commoners (Blom 1932:537). Elite chocolate-drinking rituals were literally the consumption of money in a conspicuous manner. Mesoamerica's various currency tokens were each implicated in social class distinction and rituals and served economic purposes.

When tribute lists preserve, there are a limited number of objects demanded to fulfill tax obligations and avoid violent repercussions. For example, the Codex Mendoza was commissioned by Antonio de Mendoza (the first viceroy of Mexico) around 1542 as a gift for Charles V of Spain. As with all early colonial documents in the years after conquest, surviving native elites were enlisted to record Prehispanic practices, and the Codex Mendoza lists tribute-paying colonies as a combination of Nahuatl (i.e., language of the Aztec) glyphs and Spanish translations. The Soconusco page of the Codex Mendoza names eight towns down the left side that had to pay taxes as well as the name of two tax collectors at the top (fig. 1). The modern Soconusco region of coastal Chiapas, Mexico, was called Xoconuxco in the times of Aztec and then by Spanish conquerors who subsequently also demanded tribute (Gasco 2017).

The tribute demanded of the Soconusco by the Aztec was in an array of commodities. All items are listed twice, as tribute was due two times per year. Strung greenstone beads (the finest of which were jade) at the top below the tax collectors' names as well as raw amber at the bottom were not available on the Pacific coast of Chiapas. These items of taxation necessitated trade with highland Chiapas, as the only source of amber is near San Cristobal de las Casas and highland Guatemala for jade. Tozzer (1941:95, n418) notes that greenstone beads function as currency at the time of Spanish arrival. The tribute demands made by the Aztec thus necessitated Soconusco residents to trade with their neighbors.

The most plentiful items of taxation recorded on the Soconusco page of the Codex Mendoza were tropical bird feathers, jaguar pelts, cacao beans, and dried gourd. Each flag represents 20, so five flags above the packed cacao bundles indicate 100 bundles of 8,000 beans (the standard load and a round number in the Mesoamerican vigesimal system), or as written in sixteenth-century Spanish, "*cient cargasse de cacao*." Little trees on top of the other items indicate 400, so that many gourds to carry the cacao (as explained by the Spanish annotation). Therefore, 20 jaguar pelts and 100 of each of five different types of tropical bird feathers and 80 birds (i.e., four little flags) had to be delivered twice a year. Each of the major tribute items was available in the tropical lowland forests of the Soconusco but not in the highlands of Central Mexico where the Aztec and neighboring tributaries were located. In fact, the Aztec targeted the Soconusco and Gulf Coast as the main lowland areas to colonize (fig. 2). A hot, humid environment is also where cotton is best grown, so both of the major Mesoamerican currencies were produced in the lowlands and transported to the Aztec in the dry, temperate highlands. The heterodox understanding of money, that necessarily links it to taxation, would consider any of these tribute items as currencies. Anyone, including those from outside the Aztec empire, interacting with the residents of the Soconusco could have spent greenstone beads or cacao beans (as well as bird feathers and jaguar pelts) to purchase whatever they wanted locally, as demand for such currencies was predictably high due to the twice-annual tax obligations.[6]

Price lists were recorded in the early Colonial period and indicate equivalencies denominated in cacao beans. For example, in 1545 the following price list was documented in the highland city of Tlaxcala, not far from the Aztec capital: a turkey cock (200 beans), a turkey hen (100 beans), the daily wage of a porter (100 beans), a forest rabbit (100 beans), a small rabbit (30 beans), a turkey egg (3 beans), an avocado (3 beans), a fish in maize husks (3 beans), a large tomato (1 bean), and a large sapote fruit (1 bean; Anderson et al. 1976:208–213). From this account, we know what a day of unskilled labor cost in relation to an array of goods soon after the Spanish arrived in the Americas. Further, in 1528, Francisco de Bonilla interviewed Nahuatl-speaking Nicaroa traders off the coast of Nicaragua and was told that 10 cacao beans would buy a rabbit, a negotiated rate of 8–10 beans was required for the services of a prostitute (*guatepol*), and 100 beans bought a slave (Blom 1932:537). That such accounting was documented in Nicaragua demonstrates that monetized economic standards existed beyond

6. Smith (2015*a*) posits that Aztec taxation was different from that in Mesopotamia, but he relies on unhelpful literature to make a distinction between taxation and tribute (see also Smith 2014) or domain states versus tax states. With regard to tax versus tribute, as argued in the text, any collection of resources by a central authority can create demand necessary to keep the monetary system functioning. The term "tribute" may well have negative connotations in the context of European colonial chroniclers (using it to denote less evolved forms of resource extraction), but such emic issues need not concern a comparative history of money. Regarding the typology of states he borrows from historians, I see no value in it, as apparently neither does he (Smith 2015*a*:103), so that is irrelevant. Furthermore, the chartalist understanding of money makes such typological exercises unnecessary for understanding ancient political economies. Despite the idiosyncratic details in each region, Smith presents no argument that the Mesopotamian and Aztec monetary systems functioned differently within their respective political economies.

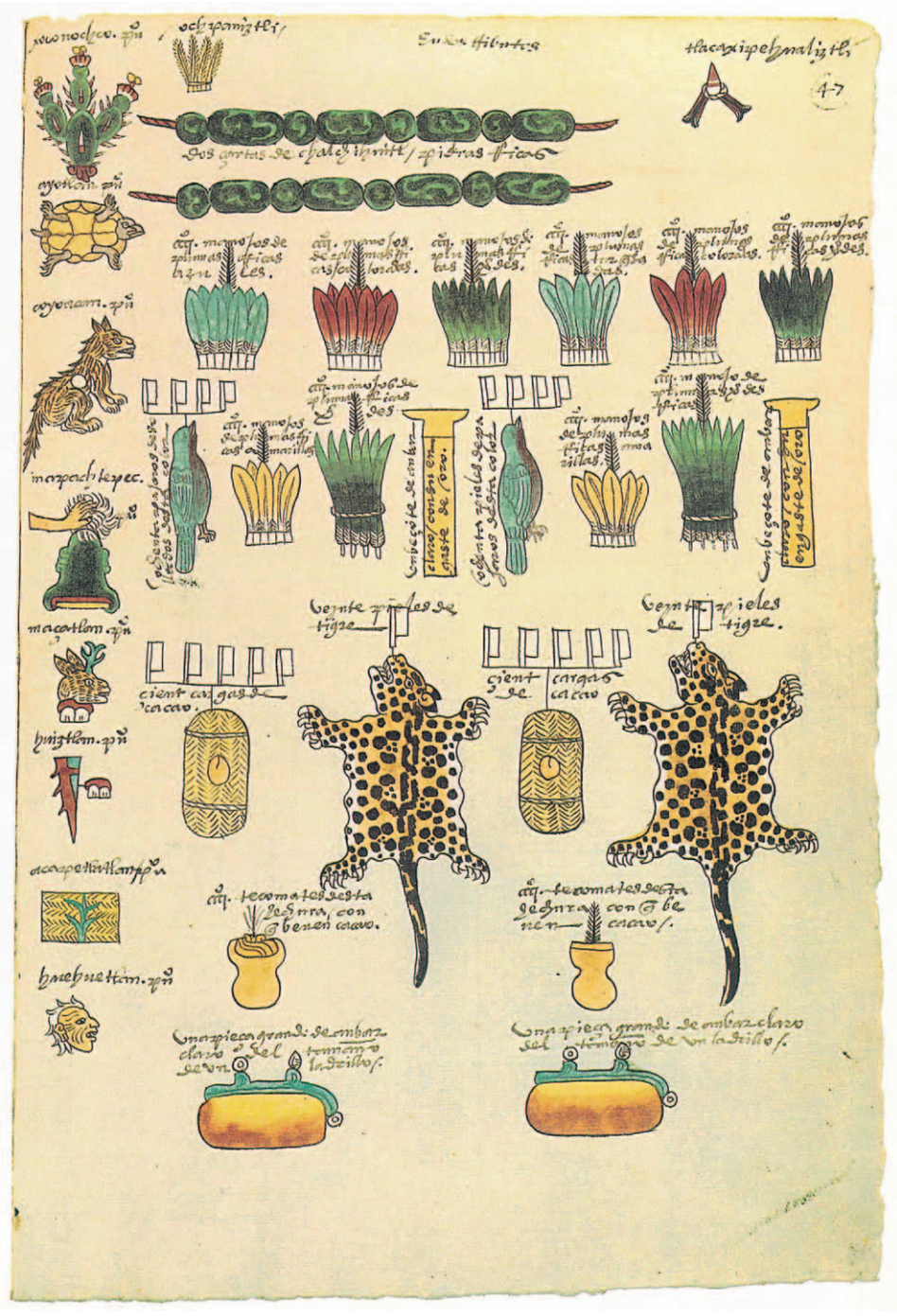


Figure 1. Codex Mendoza, Folio 47 recto. This image is in the public domain.

the edge of Mesoamerican states and empires. The chartalist understanding of money explains that the ultimate reason why traders operating at the outer reaches of Mesoamerica had faith in a cacao-based system of equivalencies was because they were sure to be interacting with peoples owing taxes in this medium (whether or not local Nicaraguan chiefs also collected tribute in cacao). Demand for currency was assured as long as the Aztec empire continued to exist with the power to tax. A further peculiarity of these two recorded sets of equivalencies is that in 1528 a slave could supposedly be bought for 100 beans in Nicaragua, whereas 17 years later the same number of beans was only sufficient to pay for a single day of labor in Tlaxcala. Either slaves were very cheap in lower Central America or tremendous inflation had occurred in just under two decades, or else (most likely) Francisco de Bonilla misunderstood what he was being told. If the latter is the case, and it was labor, not slavery, described to de

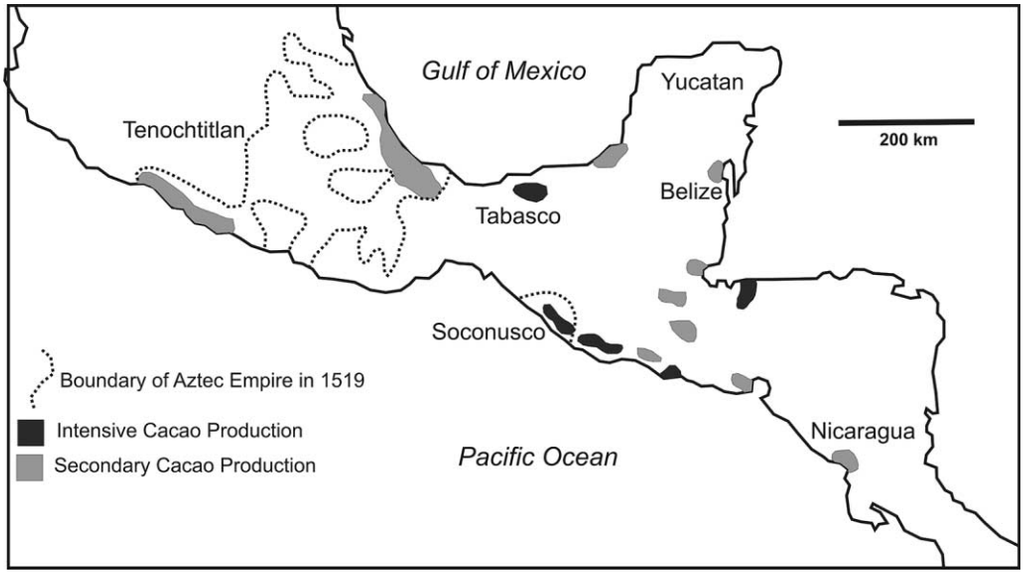


Figure 2. Map of Mesoamerica with cacao growing regions. Image by the author.

Bonilla, then significant consistency existed across the Nahuatl-speaking world regarding the cost of a day's labor. However, complicating matters is that Nahuatl gamblers are recorded as selling themselves into slavery to cover their debts for 20 cotton mantas (Millhauser 2017:269). Even if these were the smallest mantas, worth 65 cacao beans, these slaves were valued at 1,300 beans—13 times the rate in Nicaragua or the cost of 13 days working as a porter in Tlaxcala. This brief discussion shows that when the Spanish arrived, they witnessed an indigenous Mesoamerican monetary system denominated in various currencies as well as wage labor, stored value, and a complexly interconnected regional economy employing shared monetary standards. But how early did such financial organization begin in Mesoamerica?

Late Classic Period Maya (AD 600–900)

Classic period Mesoamerican texts do not directly address money or accounting of economic debts and instead focus primarily on the ritual exploits of kings and gods. In fact, written documents, all commissioned by the elite, seem to purposefully downplay the importance of merchants, markets, and trade (McAnany 2010:269–304), and no taxation or census records have ever been found (Miller and Martin 2004:125). However, with a little inference, it is clear that the patterns described at the contact period date back to at least the Late Classic period from AD 600–900 (see Masson and Freidel 2012), and murals from this time depict commercialized markets (Carrasco 2012). Taxation and accounting practices are obliquely referred to on the colorfully painted cylindrical ceramic vessels that depict Maya royal courts. On some vessels, the glyph *tojool* signifies payment, cost (of work), or price used in the context of tribute payments, and the glyph *patean* means tribute in the form of both goods and labor (Tokovinine and Beliaev 2013:175). The cylindrical vessels were exchanged as gifts between Maya royals; they often bore the owner's name, were labeled as being chocolate pots, and sometimes even specified the recipes of what cacao was blended with (Stuart 2006). These pots were themselves elite ritual items used to consume cacao by the most powerful members of society.

The Classic period Maya cylindrical vessels depict more economic information than is traditionally acknowledged. Freidel et al. (2017) have argued that accounting was necessary to keep track of debt and that the currencies depicted in royal courts on these vessels were most frequently bags of cacao beans and bundles of cotton cloth. They also identify a professional class of bookkeepers with responsibilities of counting tribute payments. These professional bookkeepers are depicted either with a stylus and a shell paint pot or with a ceramic vessel that contained wax to scrape accounts into and then easily be wiped clean (Freidel et al. 2017:32–34). A revealing example of a painted Maya cylinder vase, now at the Denver Art Museum (fig. 3), depicts a household belonging to a district governor (*lakam*) named Nabnal K'inich in the Rio Azul district of modern-day Guatemala (Tokovinine and Beliaev 2013:179). A lakam was a nonroyal rank responsible for collecting taxes and recruiting warriors (Lacadena 1998). The lakam in figure 3 is depicted in the middle of the scene with his four younger brothers and his wife, Lady Sky Turtle (Ix Chan Ahk), and a female attendant behind him. Facing Nabnal K'inich is a principal lord (*baah ajaw*) accompanied by a fan bearer (*yok waal*). At a lower level, tribute goods are piled up (from left to right): two fans, a bundle of cotton mantas, three bundles of cacao depicted in the standardized manner (that contain 8,000 beans) and labeled as "our beans," "our beans," and "three bags of our beans," two more bundles of cotton mantas, and an odd spade-like symbol that might represent salt. In the middle of all this tribute is a small individual with a speech scroll that says "the young men put themselves together" (*tz'akbaj*



Figure 3. Late Classic period Maya painted ceramic vessels (Kerr database K2914). Photo by Justin Kerr (Justin Kerr Maya archive, Dumbarton Oaks, Trustees for Harvard University, Washington, DC).

kele[em]). The plate in front of him could be the sort of wax-filled accounting device proposed by Freidel et al. (2017). This chocolate pot is a rare example of a painted vase owned by a nonroyal individual who had achieved the elevated status of lakam, possibly by marrying a royal wife. The imagery on the pot emphasizes (overemphasizes?) this lakam's social status and his family's wealth.

There are less literal indications of taxes suggested for the Maya court scenes painted on conical pottery vessels. For example, McAnany (2010:277–278) argues that when tamales (balls of cornmeal) are depicted on open plates next to other tribute items, they symbolically represent much larger transfers of taxes in maize delivered to the court. Other open plates in these courtly scenes depict bundles of small sticks. Freidel et al. (2017:36) interpret these stick bundles as general purpose accounting tools associated with royal accountants. Tokovinine (2020) takes the interpretation a step further and argues that these bundled sticks recorded debt obligations (thus functioning in a manner similar to European tally sticks). Notched bone and shell functioned as accounting devices that were depicted bundled together and displayed alongside other currency objects collected to fulfill tax obligations. Tokovinine (2020) also provides examples of bundled tally sticks worn in the headdresses of some royal figures as wealth displayed in an manner analogous to wearing shell and greenstone bead currencies sown into clothing. This is an intriguing possibility and supported archaeologically by the remains of groups of bone tally sticks buried together in royal Maya interments: Burial 39 at El Peru-Waka and in Tomb 2 in Structure 23 at Yaxchilan (Freidel et al. 2017:36). Such bone tally sticks would be the first noncommodity currency recognized in Mesoamerica and deserve much more inquiry.

The practice of royal bloodletting shows how Classic period Maya elites acted as intermediaries with the gods. Using stingray spines, a male member of the elite would bleed his penis and a women her tongue, as exemplified by Lintel 17 at the site of Yaxchilan located on the Usumacinta River in Chiapas, Mexico (fig. 4*A*). Elite blood was spilled onto paper and then burned so that the smoke rose to the heavens. Lintel 25 at Yaxchilan contains the date of October 20, 681, and shows the queen with blood-dotted bark paper in a dish held in her left hand as well as another dish with paper from which a celestial being emerges from the smoke (fig. 4*B*). The gods, in turn, are appeased, and rain feeds the earth, allowing maize to grow and feed the populace. Therefore, for the gift of rain from the heavens, commoners had to pay taxes to the elite. Earthly tribute payments were framed in cosmological terms. This emic understanding of Maya tribute illustrates how religious belief reinforces the economic necessity to pay one's taxes, as is the case in many cultures (Graeber 2011; Trigger 2003).

Depictions of Classic period Maya royal courts painted in elaborate murals at Bonampak (not far from Yaxchilan in Chiapas) juxtapose tax payments, war captives, and elite bloodletting. A detail from Room 1 shows the Lord and two Ladies sitting on a throne with a standing male attendant and sitting female on the ground (fig. 5*A*). Also on the ground is a large pile of tribute that is too deteriorated to make out the details, except for *Spondylus* shells that seal two bags (and so may indicate their contents) as well as one bundle of cacao (see in fig. 5*A*) containing 40,000 (5 × 8,000) beans. The labeling of tribute shows how such depictions are not literal and how a similarly sized bundle can contain different quantities of currency objects. This also emphasizes the power of written



Figure 4. Yaxchilan Lintel 17 (*A*) and Lintel 25 (*B*). © The Trustees of the British Museum.

language not only in accounting but also in the public depiction of royal wealth. A detail from Bonampak's Room 3 shows three women on a table-like throne, one of whom is passing a cord through her tongue next to a spiked ceramic vessel containing bark paper to absorb the blood that will be burned (fig. 5*B*). Another woman stands behind the throne and bleeds her tongue with the help of a figure sitting on the throne. Beneath them on the ground is another seated woman with an infant and a kneeling man. All individuals wear necklaces of greenstone beads, indicating that they are part of the elite, except for the woman holding the infant, who has a necklace of red shell bead and may be a royal nanny. A bundle of shell tribute is the only object depicted beneath the throne (Miller 2013:77–78). This is a telling scene of tribute juxtaposed with elite bloodletting visually emphasizing the connection with the labor and transportation of shell currency that has occurred in the past with bloodletting—in the depicted moment—with the burning of blood that will float up to the gods in the future. Both details from Bonampak are from the top corner of completely painted rooms that overlook three layers of activity that depict the goings-on of the royal court in rich detail. Other scenes show war and humiliation of captured prisoners while dozens of elaborately dressed elite personages strut around the royal court. Implicit in these scenes are the taxation systems that paid for all the luxury as well as the ideological system that justified it.

Formative Period Mesoamerica (pre-AD 300)

How early can money be traced in Mesoamerica? Freidel and Reilly (2010) propose that by the Middle Formative period (ca. 700 BC), the buried greenstone blocks at the Olmec capital of La Venta served as the "Fort Knox" of the Olmec. Tokovinine and Baliaev (2013:171–173) reconstruct linguistic evidence that places the origins of Maya terms for "sell," "buy," and "trade for profit" back to the first or second millennium BC. Tribute obligations likely contributed to building the mounds, carving the stone monuments, and feeding the rulers and their retinues when the Gulf Coast Olmec capital of La Venta was at the peak of its power between 700 and 400 BC. Money could have underwritten the political economy, but conclusive evidence is lacking. Burying tons of imported greenstone objects within La Venta's city core definitely represented the conspicuous consumption of wealth by its rulers. Burial of such wealth would have been anti-inflationary and caused more to be mined and traded, thus stimulating the economy. A parallel situation existed a few centuries earlier at the first Olmec capital city of

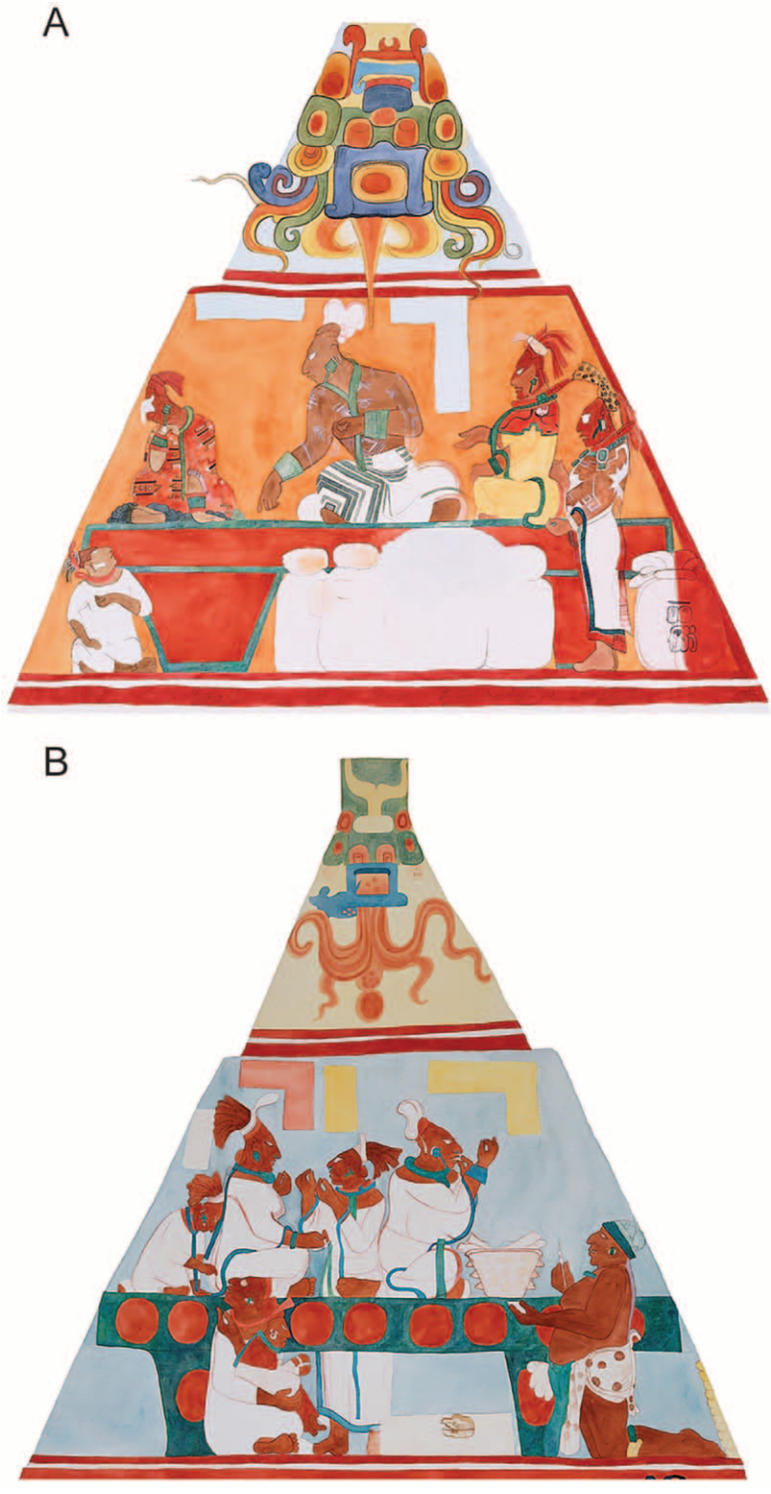


Figure 5. Bonampak murals. Detail from Room 1 (*A*) and Room 3 (*B*), Bonampak, Mexico, Maya, AD 791. Reconstruction, Yale University Art Gallery, Gift of Bonampak Documentation Project, illustrated by Heather Hurst and Leonard Ashby. Courtesy of Mary Miller.

San Lorenzo, where tons of similarly sized iron ore cubes (many with enigmatic holes drilled though them) were imported and buried at the site center (Alva-Valdivia et al. 2017). Cacao consumption is also documented at San Lorenzo by 1400 BC (Powis et al. 2011), so it could have been collected as tribute and functioned as currency, as is attested to in later times. However, public proclamations of state-sanctioned violence were absent from both Olmec capitals (although see Baudez 2012), and there is no evidence that greenstone, iron ore, or cacao was circulating as currency or hoarded beyond the two successive Olmec capital cities. In the case of greenstone beads, and other carved wealth items, they are known only from elite burials and so are contextually as likely to have served as primitive money deployed for social purposes. A monetized economy during the Middle Formative period is difficult to substantiate given the current state of our knowledge.

More convincing indications of money are found in Mesoamerica during the Late Formative period (300 BC–AD 300). This is when urbanism is first documented over much of Mesoamerica and when huge pyramids were common and stone stelae proclaimed the feats of kings, including glorifications of violence. Evidence of state-sponsored violence is dramatically documented with the erection of "*danzantes*" at Monte Albán in the Mexican state of Oaxaca (Scott 1978). At the heart of this city, built into the wall of a public building, hundreds of disemboweled individuals, many named with glyphs, writhe in pain for all to see. No kings are depicted, only subjugated individuals. Disembowelment (and its public commemoration) would be a strong incentive to maintain the flow of taxes to this early government. From the other side of Mesoamerica, Freidel et al. (2002) argue that red *Spondylus* shell beads were first used as currency among the Maya at this time, linking trade systems between the Caribbean with larger kingdoms in the Petén of Guatemala. *Spondylus* shell bead production debris is first documented in Belize at Cerros and nearby sites of Kaxob and San Estevan during the Late Formative (Isaza-Aizpurúa and McAnany 1999; Rosenswig and Kennett 2008), and finished shell beads (with no production debris) are first documented at the large inland capitals of Nakbe and Tikal. Therefore, sites on both ends of the production chain document the flow of a potential currency at the same time. I am willing to wager that some point around 300 BC will turn out to be when monetary accounting of state tribute began to underwrite and organize the urban life and elite culture in Mesoamerica. Once instituted, state-induced money of account would have facilitated trade and transactions at markets.

Two decades ago, Freidel et al. (2002) predicted that shell, greenstone, and cacao "will eventually prove to be commensurate with currency-based systems found elsewhere in the world" (45). I wholeheartedly agree in principle, but we still have a long way to go to prove it. One reason Mesoamerican money is not well understood is that few scholars have approached it as a state accounting system and instead focus primarily on the currency tokens that can be excavated or that are artistically depicted. The orthodox understanding of money promotes analysis of money and currencies as being virtually synonymous and asserting that both are neutral tools of economic efficiency employed by maximizing individuals. In contrast, heterodox theory supplies a theoretical lens through which to expose monetary relations at the heart of ancient political economies. Taxation, tribute, or any other means by which a politically powerful segment of society extracts resources from subordinates is the starting point from which to understand the political economy of ancient complex societies, including those in Mesoamerica during the Formative period.

Discussion and Conclusion

Ancient Egypt provides a monetary arrangement similar to that documented in Mesopotamia. By the Naqada III period (3200–3000 BC), Upper and Lower Egypt had been unified, social hierarchy was established, and there is clear evidence of kingship (Henry 2004). Writing by this time included clay tags that identify ownership of clay pots full of goods acquired by the king through taxation. Memphis was the most important administrative center, with layers of bureaucracy and tombs of various sizes that both reflect complex social hierarchies. Foreign trade was well established, and there were full-time craft specialists producing both luxury and utilitarian goods. Wealth was based on agricultural production, and Pharaohs extracted surplus wheat and labor through taxation. This is also when Egypt's state religion first focused on the king as a semidivine being. During the Old Kingdom, Defendfre (2560–2555 BC) was the first Pharaoh to claim to be the son of the god Re. Also during Old Kingdom times, the monetary unit of account was the *deben*, a unit of weight equivalent to 92 grams. Initially, the deben was 92 grams of wheat; later, it was also a standard weight of copper, and then it transitioned to refer to that weight of gold or silver. The deben was thus an accounting convention, and the items being measured were arbitrary and set by government fiat. Labor service to the pharaohs was also measured in deben, but no currency ever changed hands (Bleiberg 1996:26), and coinage was not employed in Egypt until the Ptolemaic period Greeks introduced it after 300 BC.

All continents (except Australia and Antarctica) developed monetary systems of state accounting. However, the similar systems from Bronze Age Egypt and Mesopotamia are quite possibly historically connected. Money and accounting practices may have also diffused into the Indus Valley and possibly even China, where taxation and state monetary systems are also well documented by historical sources (Grierson 1978:5–6; Von Glahn 1996). However, there can be no doubt that the Mesoamerican case was independent of those in Europe, Asia, and Africa. Like analogous evolution in biology that accounts for both bats and birds developing wings for flight, money was analogously developed independently as an accounting system at the heart of unrelated ancient political economies. The knotted string khipus of the Inka Empire is another unrelated example of state recordkeeping that may be the earliest example of double-entry accounting in the Americas (Urton and Brezine 2005). Together these state accounting systems from around the

globe provide evidence of a convergent mechanism that organized the political economies of unrelated civilizations. It may be possible for a state to function without a monetary accounting system, but I am doubtful. The Inka and Hawaiian cases are frequently cited as complex societies without money, but as just cited, the possibility of double-entry accounting by the enigmatic khipu makes it possible that this Andean empire had a monetary system similar to that of Bronze Age Egypt and Mesopotamia with accounting and no currency tokens. Perhaps the Hawaiian case could benefit from chartalist insights as well.

Mesoamerican civilization needs to take its place in the comparative history of money. A monetary system with equivalencies between cacao and cotton currencies is documented, as are complex counting systems and the accurate accounting of time and possibly fiat money recorded with bone tally sticks among the Late Classic period Maya. A commoner class who supported royal lineages and elite functionaries (including accountants) is well attested to. Religious justification for tribute payments to royals is documented, as is royal bloodletting as payment to the Maya gods. These characteristics of a monetized political economy in Mesoamerica date back to at least AD 600 and possibly as early as 300 BC.

The Mesoamerican monetary system was structured similarly to those in other regions yet distinctive in some details. One unique characteristic of Mesoamerican monetary standards is how pervasive and stable they were. Different polities, speaking an array of languages, all used the vigesimal counting system and employed similar forms of currency tokens over thousands of kilometers for a millennium or two. Cacao and cotton as well as marine shell and greenstone beads circulated in large quantities from the final centuries BC until the Spanish arrived. Another distinctive aspect of Mesoamerican currency is that cacao rather than maize was the commodity employed as the standard of value. The ancient monetary systems of Eurasia and Africa all used staple grains as their commodity currency. In contrast, cacao was the main ingredient of a prestigious drink, and so its consumption reinforced social hierarchies more than it fed the population.

The heterodox chartalist explanation of how state money functions provides insights for both the modern and ancient worlds. Heterodox economists rely on the past to argue for the pervasive reality of money functioning as the accounting system of ancient states. Historians and archaeologists provide modern economists with the evidence that the orthodox "creation myth" of money (i.e., that it was invented to reduce transaction costs) is quite simply untrue. This article provides a step in operationalizing a heterodox approach for prehistoric complex societies by focusing on material evidence. Written records provide invaluable insights when available, but to limit ourselves to that single class of evidence excludes countless complex human pluralities from building a complete economic account of our planet.

The orthodox explanation of money as being purely transactional has policy implications that support ruling elites. Adam Smith provided capitalists of the eighteenth century with theoretical justification for feudalism's demise caused by the ingenuity of private business. The late nineteenth-century Austrian School devotion to the idea that free markets achieve price equilibrium due to the "invisible hand" was a response to Marx's political and social understanding of money. It was also just what powerful industrialists of the time wanted to hear—providing academic justification for late nineteenth- and early twentieth-century capitalists who wanted to get government regulation out of their way. Late twentieth-century amnesia of the lessons of Keynesian economics in the wake of the Great Depression allowed monetarists to provide similar academic cover for Reagan's and Thatcher's supply-side economics of reduced corporate taxes and regulation that allowed for the disastrously unfair economy the world is still grappling with today. Orthodox economics is constructed on the assertion that money is a politically neutral medium of exchange. As anthropologists we can document when, where, and how money has developed independently in multiple areas of the world. To do so we must embrace the historical reality of the heterodox position that state money is an accounting system reliant on political and military power used for resource mobilization and, further, that money functions as a unit of account that provides the financial mechanism missing from traditional political economy analysis.

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Comments

Christine Desan
Harvard Law School, Griswold Hall, 18 Everett Street, Cambridge, Massachusetts 02138, USA (desan@law.harvard.edu). 29 IX 22

Recapturing the Elusive, Complex, and Utterly Essential Unit of Account

In virtually every ongoing monetary system, money takes shape as credit: overwhelmingly, modern states create the unit of

account out of government liabilities. Cash dollars, for example, are little pieces of government debt that hold value against the polity.[7] Dollars created by commercial banks are derivative forms of credit, private issues that promise the government liability on demand (Jackson and Dyson 2013). The bills used in the provincial American world, the pennies used in medieval Europe, the coin of the British isle in the seventh and eighth centuries, the denarius of the ancient Roman world—all appear to work on a credit logic (Desan 2022).

None of that evidence proves that money cannot emerge out of barter, the enduring if circular explanation so often deployed to explain how societies adopt a token that will facilitate further trade. But it does make for a puzzle: why do scholars so insistently elect a narrative—the barter story—at odds with so much lived experience? If the easily accessible record bespeaks the plausibility of a strategy, indeed its familiar and recurring probability, why do commentators prefer a more contrived explanation for money's invention?

I understand Robert Rosenswig's essay to ask that question, a query as applicable in legal and historical fields as in archaeology. As he points out, the narrative we assume matters: it aligns our vision about the market and the wider society. The argument that money emerges from barter posits value as preference privately held by individuals—individuals as the enterprising agents who maximize their preferences by trading and markets as the orderly pattern that results. By contrast, the argument that money represents collective credit posits communal initiative at the root of markets—markets as dynamics publicly orchestrated and value as a complex phenomenon that takes shape through that social and legal process. In my own work, following the clues that money may be a public institution suggested new hypotheses about the polities I was studying and created new genealogies for money as a constitutional project.

Once we widen our lens, however, the plot thickens. Axioms transposed from heterodox chartalist economics cannot capture the richness of money's character as a terrain of governance. The axioms assembled in the essay mark important points. At the same time, their literal application would be misleading. Consider, for example, the complex and essential unit of account.

Credit theories of money commonly focus on money as a "unit of account." And for good reason. In a world without a shared medium, objects have no conventional commensurability (Desan 2023). Establishing a unit in which to measure value is therefore a material accomplishment, one that we cannot take for granted. A creditor common to many debtors can readily establish a unit of account by determining what will work to settle an obligation owed to it. Money thus generally emerges from a collective—here, debtors with a common relationship to an authority.

But that is only the beginning of the project. While the unit of account is elemental, a "money" must travel between strangers as well as keep accounts between familiars. To make a money, the common creditor acting as a stakeholder must support the use of its unit for broader exchange. And once communities have a working medium, they usually engineer a way that individuals can expand that medium for uses other than paying the common creditor. That expansion will in turn affect the value of the original unit of account.

The unit of account bleeds here into the medium of exchange, credit into currency, and accounting between two parties into something much trickier (see, e.g., Orléan 2023). Entailing value into a unit that can also facilitate wide-ranging exchange is not, in other words, analogous to measuring length or weight. Neither decreeing a dollar quantity, nor picking a dollar item, nor demonstrating the use of a dollar would make it so. The unit would either escape the control of the anchoring creditor or be meaningless to others.

The stakeholder must contrive a way for the unit it supports—a liability it accepts for value—to change hands. Further, it must enable people to expand that representation for their own use while negotiating the impact of that expansion on its own credit. A working "money" is, in other words, a highly imbricated affair built out by activities sustained over time. The stakeholder—usually a polity—ties its unit of account to daily use by enforcing it in a proliferation of exchange. Participants assimilate and expand the unit in ways ordained or tolerated by the stakeholder. The entire project must be managed in ways that keep value fluid, elastic, and stable—all at the same time.

The radical result is a way to capture value, mark it as a measure, and make a market out of exchange. That process connects the stakeholder to participants throughout the political economy, from the debts due at the center to trade among strangers on the periphery and beyond.

While the unit of account can be conceptualized abstractly, making a money is a material political project. The worldly container for monetary value can indeed take different forms, but those forms critically inform the dynamics of the unit. For example, money may come in a circulating token first, a tangible counting device for tracking credit. Thus, the English silver penny was both a unit of account that held value as a legal matter, carrying collateral in the form of silver, and a currency.[8] That identity explains critical phenomena, including the politics of strong money, patterns of daily medieval exchange, and core tenets of mercantilism. Tallies as a credit form came later and referred to those tokens. Making and maintaining pennies as money, with their iconic legal status and their freight of silver, configured the English political economy in myriad ways that lay in the very intersection of their abstract identity and material body (Desan 2014:61–65).

It is not clear to me that Rosenswig would disagree with any of this. My point is to emphasize the path he flags as one that opens into an essential and virtually unexplored terrain of governance. It would benefit us enormously if archaeologists would enter and illuminate the space.

7. 12 U.S.C. § 411.

8. "The Case of Mixed Money in Ireland." In *Cobbett's Complete Collection of State Trials* (Privy Council 1605).

Timothy Earle
Professor Emeritus, Northwestern University, Evanston, Illinois 60208 USA (tke299@northwestern.edu). 6 IX 22

Drawing attention to the subdiscipline of economic anthropology, Rosenswig's article adds significantly to our understanding of how political economies developed across deep history. Working out explanations of economic institutions would seem foundational to understanding common processes and divergent histories of human societies. Should not this be a foundational objective of anthropology? The variable and changing roles of money are key to our understanding of how economies functioned, and Rosenswig documents convincingly how money uses dramatically altered with centralized state powers. Coupled with twentieth-century ethnographies and available historical records, anthropological archaeology can fashion a vital historical economic anthropology. Archaeological studies offer our discipline the opportunity to study social process prior to and in contrast with the modern world; in brief, this is the original objective of anthropology and should continue to be embraced. I should state my personal bias that Rosenswig's top-down approach to political economy is very agreeable. He provides a thoughtful and correct analysis, I think, of how states sought to manage economies to establish control and finance state operations. The article deserves to be foundational in comparative work on the role of money.

I do have some concerns with the article and want to contextualize its central argument in more general comparisons. The narrow conception of so called primitive money is, I feel, inadequate. Rosenswig's discussion on this topic is short, meant really only as a foil to his primary argument on state monetary systems. Following substantivists Graeber (2011) and Dalton (1965), traditional valuables are envisioned as functioning to keep track of obligations as in blood feud or bride payments. They are believed to be typologically distinctive from state currencies. Although useful heuristically, strict dichotomization of traditional valuables from state money creates rigid types that simplify the observed variability and multiple functions of wealth in stateless societies, but of course to deal with such traditional valuables would require a completely different article. Based on previous considerations (Earle 2002), I considered traditional valuables to exist across a spectrum ranging from highly individualized objects to very standardized forms. The former have social biographies that make them inalienable from their social contexts; the latter are convertible in exchange to many objects because of straightforward measures of labor or use value. The dramatic feathered capes of Hawaiian chiefs were individualized, manufactured by highly skilled attached specialists, and handled in limited spheres of use and exchange. Other valuables, especially the "commodity" moneys like iron bars or feather bundles, had broadly established exchange values not unlike money that could be traded broadly across cultural boundaries. As described by M. Farvelle (unpublished manuscript), shell beads were an intriguing class of highly standard forms and sizes that functioned in nonstate societies similarly to modern money.

By typologically narrowing how money is considered, Rosenswig identifies critical uses in state accounting; however, he limits our ability to look at the origin and effectiveness of currency as a means of state control. State coinage has dual aspects (Hart 1986)—the "heads" representing state control, as Rosenswig explains, but also the "tails" representing value to the people in storage, transfer, and accounting in their daily lives. Hart's joining of top-down and bottom-up functions suggests how currency became so broadly useful as a means to governed people. Such money, with bottom-up values, was something that the masses desired, and so by establishing control of it, by introducing state-minted currency, the state could extend its influence into the everyday life of people living often on the margins of direct state domination. Money, I believe, has a long evolutionary history in stateless societies that created opportunities for state intervention. As discussed by Farvelle, money should be seen as a broad phenomenon, with variability in form and function important for explicating socioeconomic processes.

Rosenswig describes well the function of money as a tool of state/imperial accounting. This makes perfect sense. He captures the role of accounting in state development but downplays the interesting evidence for its variation. Thus, the Maya are made to look not unlike other states, but this is only partially true. Yes, all states probably developed accounting as part of finance and control; however, the means and probably origins of their accounting systems appear highly variable. Bronze Age Mesopotamian states developed writing to document contracts and balances to measure equivalences, Rome and China emphasized coinage, Mesoamerica as described here used commodity moneys but had no minted currencies or balances, and the Inca, without balances or currencies, developed the elaborate recording system of *quipu* as memory devises. How to explain such variation is a challenge that probably represents classic evolutionary processes, in which preexisting technologies are transformed as needed for new uses. I do not see money as just a system of accounting but rather return to its much broader role in exchange, certainly existing in noncurrency forms well before and outside of states. Money is, I would argue, standardized units of value (like shell beads) that can be exchanged across cultural boundaries. I hypothesize that states develop currencies as a means of accounting when markets were established and media of exchange were important. This would have been true of the later Old World states. The rather different means of accounting described by Rosenswig for the Maya or alluded to for the Inca existed rather where markets were more peripheral or nonexistent.

David Freidel
Department of Anthropology, Washington University in St. Louis, St. Louis, Missouri 63130-4862, USA (dfreidel@wustl.edu). 8 VIII 22

Rob Rosenswig provides a lucid and clear-minded brief for archaeologists to discover and define monetary political

economies in the past. That I find it broadly compelling should be a surprise to no one, as in his final discussion of Mesoamerican archaeology, he draws significantly on scholarship I have produced in collaboration with other Mesoamerican archaeologists, most especially Marilyn Masson and Kent Reilly. I agree that the Classic Maya evince promising evidence of a monetary political economy, even as this remains open to debate among specialists. I am not so enthusiastic about the Marxist underpinnings of chartalist political economics as he appears to be, so I find a notion like false consciousness diversionary in the study of the material symbolism key to detecting political economic developments. In our study of Olmec political economics, Kent Reilly and I (2010) drew on the substantial corpus of public art and decorated artifacts to propose that veneration of rulers as embodiments of maize was motivated by political ambitions to entice followers into reliance on this storable, partible, risky food as a staple. The objective, in our view, was to encourage followers to acknowledge leaders as essential to management of the circulation of maize to reduce risk in a moist tropical environment where it could not be stored for long periods of time. Whether or not Olmecs actually believed that their rulers were magical, as I surmise from the evidence, they certainly must have expected them to deliver on relations of material obligation.

Regarding money and currency, it is fair enough to suggest that these are distinct and that a monetary political economy might not require currency as Rosenswig details. At the same time, archaeology relies on material evidence, and currency tokens, if identifiable, are one way to advance arguments about monetary political economic institutions. In the case of the Olmec and other Early to Middle Preclassic peoples of southeastern Mesoamerica, the principle enduring artifact is the polished greenstone celt. Flannery and Schoenwetter (1970), Karl Taube (2000), among others, have suggested that these may well have functioned as currency curating maize. Celts are widely distributed outside major Olmec centers, occurring as ritual offerings in Laguna Manatee near San Lorenzo in the mid-second millennium BCE and in communities of the Mokaya region even earlier. Some celts cached as offerings in Ceibal in southwestern Peten were evidently produced in the Olmec Gulf Coast heartland and exchanged back (Aoyama et al. 2017; Juan Carlos Melendez, personal communication, August 2020), even though the source of greenstone is in mountains of the Maya highland region. These celts were not part of mortuary furniture but were cached in the earliest ceremonial center, a commemorative solar calendar E Group, and later center settings. In addition to celts, a variety of other carved stone artifacts were in circulation in the Middle Preclassic, including beads of the kind that likely served as currency tokens in the later Classic. One specific context at La Venta, within Offering 3 in the eastern end of the south-central platform of Group A (*The Olmecs and the cultures of the Gulf of Mexico* 2021:133–136; Gillespie 2008: fig. 6; Reilly 1992), was a distinctive bed of cinnabar containing greenstone beads along with miniature crystal turtles, miniature jade effigy shell and canoe mirrors pierced for sewing onto garments, a small figure of a person transforming into a supernatural, and another small person, among other tokens. This is not grave furniture, but it is likely a shaman's bundle.

As Masson, Rich, and I (2017) suggested in our article touching on Classic Maya tokens, there was likely a range of functions in ancient Mesoamerica, from casting and divining to currency exchange. People did not have to believe that currency tokens were magical and could be used for divining, but they evidently did so, and such currency represented power intrinsic to the rulers governing monetary economies. Houston (2014) identifies symbols for "red" and "green" embedded in Classic Maya depictions as partible depictions of holiness, *k'uhul*. *K'uhul* is the qualifier of the epithet lord, *k'uhul ajaw*, designating the ruler as someone above the rest of his court not only in status but also in power. The Yucatec-speaking peoples of the sixteenth century had green beads of stone and red beads of shell currency, as Rosenswig observes, and we suggest (Freidel et al. 2017, 2002) that they did in the Classic and Late Preclassic, as he notes. I think that Middle Preclassic peoples had already established monetary political economies.

Rosenswig's eight guiding points are useful ways to encourage archaeologists to further advance the study of monetary political economy. But he also raises intriguing timely questions, perhaps most salient being the politics behind the construction of massive horizontal ceremonial centers in the Early and Middle Preclassic periods in the lowlands of what would become the Gulf Coast Olmec heartland and adjacent Maya country (Inomata et al. 2020). There is little material evidence of elites mobilizing the labor to make and sustain most of these early centers, some of which seem to precede commitment to staple domesticates like maize or to sedentism. The notable exception is San Lorenzo, the famous Early Preclassic Olmec center that is part of this horizon of emergent complex society. But it does not look like San Lorenzo's rulers inspired all the rest of these centers, which by and large lack elaborate traditions of material symbolism such as are found there. What they seem to have in common is the number 20 laid out in platforms and an orientation to the annual cycle of the sun. Numeracy and calendars figure prominently in Rosenswig's clues of monetary political economy more than currencies. It may turn out that Mesoamerica's monetary economies were first developed by collective political organizations and only subsequently were appropriated by elites.

Sylvio Kappes, Wesley Marshall, and Louis-Philippe Rochon
Department of Economic Theory, University of Ceara, Av. da Universidade, 2486, Benfica, CEP 60020-180, Fortaleza, CE, Brazil/ Department of Economics, Metropolitan Autonomous University Iztapalapa, Adolfo Prieto 1113-9, Mexico 03100 Mexico/Department of Economics, Laurentian University, A-350, Arts Building, Sudbury, Ontario, Canada (lprochon@laurentian.ca). 3 VIII 22

Endogenous Money for Archeologists

Robert Rosenswig writes an insightful article, the main argument of which revolves around ideas that undoubtedly belong to

heterodox economics. We agree with the author that anthropology has much to offer economics, particularly when it comes to the nature of money and how it emancipates explanations from the notion of barter.

Rosenswig employs authors and ideas that get us almost out of the dark woods of monetary ignorance and into the sunny clearing of understanding. However, he does not get us quite there, as he discusses only one side of the coin regarding the nature and reality of money in capitalist systems and practically ignores the other side (the creation of money in the market and how banks lend money into existence, that is, money's so-called endogeneity).

This is crucial, as the omitted discussion would have led the author into important issues concerning monetary policy where the differences between the various schools of thought he discusses become readily apparent. This can also help, in the author's own words, in "integrating the political and economic organization between powerful and subordinate sectors of society."

It also leads us to acknowledge that the greatest part of the creation of money comes from banks, not the state—although the two certainly operate in concert. An important defining characteristic is that money creation is the charge of the private creditors; the state merely accommodates and validates.

There are also a number of statements in the paper that many heterodox authors would consider rather odd. First, the author argues, "What is called money in common parlance—metal coins and paper bills—is more accurately currency." While ignorant of much of the anthropological literature, we can confidently say that this basic definition does not reflect its consensus, as it is discordant with Karl Polanyi's view and definition of money.

Second, the author claims that Keynes is the "best-known figure" in heterodox economics. This is a matter of great debate. This statement might have been correct some three or four decades ago, but as Rochon, Czachor, and Bachurewicz (2020) write, "much of what passes for 'post-Keynesian' economics today is more rooted in the Kaleckian tradition" (488). Indeed, the economics of Mickał Kalecki is today probably preferred to Keynes's work, which is judged to be too conventional.

Third, the author goes on to say that "Keynesian" economics became prominent, seemingly drawing a parallel between Keynes and Keynesian economics, ignoring the fact that Keynesian economics is not the economics of Keynes. Here post-Keynesians are in complete agreement. Indeed, it led Joan Robinson, perhaps the most important student of Keynes, to refer to it as "bastard Keynesianism."

Fourth, Rosenswig seems to claim that chartalism represents a heterodox consensus and uses both words interchangeably. This is misleading, as chartalism has been subject to a number of criticisms from fellow heterodox economists, some friendly (see Lavoie 2013; Rochon 2019) and some less so (see Epstein 2019; Palley 2015).

These minor quibbles form a part of our greater criticism, which is that the author relies perhaps too much on chartalism and in doing so neglects some of the most insightful aspects of Keynes, and also Polanyi, who advanced the study of money from the anthropological perspective more than Keynes. Hence, our aim in this brief comment is to present a broader heterodox view, which while not at odds with the chartalist approach per se, is at odds with presenting it as the only view.

With respect to the monetary theory of Polanyi, while chartalists claim that the existence of money results from states imposing taxes upon their subordinates and that these taxes must be paid in whatever thing the state demands, Polanyi claims that money is a social convention—a social good that, like language, develops alongside the development of society and in the absence of any formal authority. The forms that money assumes are wildly varied and indeed irrelevant; it is the institutional structure in which it is embedded and the societal role it fulfills that define money and its uses. Where society exists, money always exists in one form or another. As one form of economic arrangement among a great many, capitalism implies the institutional arrangement in which private banks create money through loans. It is rightly called capitalism because it is private capital that leads the process. The state certainly can create its own credit and lead the process as well, as made clear in the example of the Soviet Union. But then it is a different economic system rightly called socialism.

If one takes the view that money is endogenous (created through the lending activities of banks), then it follows that money is related to credit, and this relation gives a reason to demand bank money—just like taxes are a reason to demand state money. For example, if firms take bank loans to finance its production, they will be using bank money to pay workers, who will accept this money because it can be used to purchase firms' production. And firms will accept bank money in exchange for its products because they need to repay their loans. As is put clearly by Rochon and Vernengo (2003), "it is the fact that bank loans must be repaid that ensures the utilization of bank money, and money becomes a creature of banks rather than a creature of the state" (61).

Historically, there are a number of episodes in which bank money has been more important than state money. During the Renaissance, "Italian bankers were more powerful than the state, and in some cases they actually took over as *condottieri* of their cities, as in the case of the Medici Family" (Rochon and Vernengo 2003:64). The control of money is always contested, and since then many measures have been taken to ensure that the financial system serves not only private interests, with varying degrees of success. For example, in England, it was not until Robert Peel's 1844 Bank Act that the Bank of England could be the only issuing bank. Today, the banks of Wall Street have come to dominate the asset-backed credit market.

It is of little surprise that the Great Economists such as Adam Smith, Keynes, and Galbraith all look beyond the modern capitalist system in their search for the nature and meaning of money. Economics can be insightful for archeologists and

anthropologists, but perhaps the inverse of the equation has proven more fruitful and never more so than with Polanyi. Today, without a more anthropological angle, economics cannot fully understand independent central banking or shadow banking. Indeed, these monetary institutions have gained great political importance that far outstrips their understanding by the economics profession at large.

Bill Maurer
School of Social Sciences and Institute for Money, Technology and Financial Inclusion, University of California, Irvine, Irvine, California 92697-5100, USA (wmmaurer@uci.edu). 12 IX 22

Does the matter of money matter? This compelling reanalysis of money in ancient Mesoamerica stakes much on the claim that it does not—which initially struck me as unusual coming from an archaeologist. Demonstrating the applicability of the chartalist perspective of money to three periods of Mesoamerican civilization, Rosenswig methodically illuminates the accounting systems at the core of state and protostate systems. Insofar as these states had systems for measuring the extraction of resources from subordinates, they had money, generally visible in the form of taxes or tribute and whether it was recorded in paintings in elaborate rooms in royal courts or on vases or tribute lists.

Like David Graeber, Rosenswig argues that anthropological fascination with social currencies, and all the stuff of such currencies—the shells, the feathers, or, here, the cacao beans, green stones, and birds—mistakes "currency" for "money" and confounds the social relations such currencies sustain with the financial accounting and expropriation of the state. Although such items "have at times transitioned to serve as currencies for conquering state governments," generally for taxation purposes, the key difference is the coercive and extractive power of the state, harnessing such items to create, maintain, and bolster political authority.

But, oh, those things, and the actions associated with them! Cacao drunk in special mugs; blood dripped on paper and burned; disembowelings! If money is "just" the accounting system to suture people to political authority (I know: it is a big "just"), why all the interesting items and grotesque practices?

Chartalism very usefully pulls the curtain back on the neoclassical economic perspective that money is simply a neutral medium of exchange and instead—correctly—identifies money as an authoritative accounting system for credits and debts denominated and enforced by the state. Rosenswig's review and contextualization of chartalism, and his demonstration of its utility in the Mesoamerican case, is a breath of fresh air. Surfacing state-sanctioned accounting systems for tax or tribute, indeed, also supports the case that it is the accounting that matters—for it reveals the system of expropriation and the source of state elites' power—not the stuff of money. Yet the range and diversity of such stuffs in the archaeological record—even in ancient states, as demonstrated in this article—suggest, to me anyway, that something else might be going on.

Like the author, I, too, want a way to "analyze capitalist and noncapitalist economies according to similar principles." But doing so, for me, means expanding the concept of authorizing power beyond the state and into elites in other systems of inequality. That, in turn, helps answer the question of why this or that currency-stuff matters for a particular system's money or accounting. Why this or that thing can serve as currency in a system of accounting suggests that people's access to it—people's ability to gain rights to it and to contest rights held by other people—is a central point of control for elites over others.

If we move beyond the state and instead adopt something like a soft-chartalist perspective for nonstate systems of inequality, we can see that those creditors who control access to the things they themselves define as the only way to discharge a debt begin from a position of strength and then more easily maintain it. They can demand from others the things that they already control or to which they have greater claim. This might be feathers, cacao, or cows. Those others then need to scramble to acquire those items, to return them in the form of tribute, or bridewealth, or some other kind of payment that discharges the debt, and may have other effects, besides (turning a young man into an adult man, for example; indeed, what that got me thinking along these lines was the sentence about the commemoration of state violence "for young men to garner honor and glory." So: what did young women garner? See Collier 1988). The point is that the model Rosenswig builds of money in ancient states here is more broadly applicable to nonstate societies that are also, but differently, structured by inequality between men and women, between young men and elder men, between different ranks, and so forth.

Not having state-sanctioned accounting systems and the bureaucrats that maintain them does not mean equality or the absence of hierarchy. (Or another way to put this: societies without tribute are not necessarily egalitarian.) Other nonstate systems are also systems of inequality—structured on different principles and with different ways of accounting that may be just as hierarchical if not financial. The material cultures associated with them will suggest the particular problems people think they have to solve in order to become full persons in that system, settle disputes, or settle accounts.

Nevertheless, the call to archaeologists to make visible the accounting behind settlement patterns, differential domestic architectures, wealth, burials, and so forth, is a way not only to bring money into archaeology but also to further advance the necessary counterweight to the neoclassical position that money is a medium of exchange. Money is a creature of the state and also a creature of elites' claims of rights to and over others in other systems of inequality.

Dagfinn Skre
Iron and Viking Age Archaeology, Museum of Cultural History, University of Oslo, PO Box 6762, St. Olavs plass, NO-0310 Oslo, Norway (dagfinn.skre@khm.uio.no). 6 X 22

Has heterodoxy become the new orthodoxy? Is there a "heterodox consensus of money as primarily a unit of account

imposed by those with political power," casting "money as the mechanism at the heart of ancient states' political economies"? Has this creative multitude of theoretical trajectories, united only by their critique of neoclassical economics and therefore loosely termed "pluralist" or "heterodox," turned stale and fossilized? Luckily, no. Vital and productive diversity is intact, and the purpose of this comment is, in a heterodox spirit, to draw attention to but one contended issue.

I subscribe to the understanding of money laid out by Rosenswig in his points 1 and 2; they have proved fruitful in my studies of monetization in AD first-millennium Scandinavia. However, Rosenswig's emphasis in points 3–8 on money being a political tool introduced through state taxation to serve the interest of a ruling class seems hard to square with Scandinavian evidence. Yes, since the third century, these societies were hierarchic polities (Skre 2022, forthcoming) that Rosenswig would likely term "states." But none of them issued means of payment until minting for local use started in the eighth-century town Ribe and in kingdoms in the late tenth and taxation even later.

Minting was not the start of monetization, though. Non-Scandinavian coinage, first Roman in the third through sixth centuries and then Frankish, Anglo-Saxon, and Islamic in the ninth to tenth, were used for payments, along with precious-metal bullion, weaponry, hides, cloth, grain, butter, cows, and any other item the payer offered, and the receiver accepted (Skre 2017, 2021). An account unit that allowed their values to be compared, the *eyrir* specified in weighed gold, appears to have been derived from the Roman *aureus* gold coin. Gold rings and sets of copper-alloy weights comply to multiples and fractions of that unit. In law-codes written in the twelfth century, the *eyrir* was used to stipulate *weregeld* and fines in weighed gold, although Scandinavian kingdoms had issued coinages for more than a century by then.

Thus, although account units and precious-metal means of payment had been used since the early first millennium, there is no indication that this was "imposed by those with political power." Apparently, Rosenswig has adapted Georg Knapp's understanding of the state's role in monetization and added a materialist twist by casting the state as a coercive tool for the ruling class and money as their instrument for exploitation. Knapp addressed nineteenth-century European states that had the capacity to decide how taxes should be paid, and according to Rosenswig, centralized Mesoamerican states did likewise. Because Knapp and Rosenswig study polities where rulers do issue money or taxes, they potentially overlook aspects of monetization more readily apparent in polities that do not. Insights from studies of the latter may nevertheless be relevant for understanding monetization in money-issuing polities.

A socioeconomic rather than sociopolitical approach may better explain the monetary history of first-millennium Scandinavia. Two periods, the third through sixth and ninth through eleventh centuries, display ample finds of precious-metal means of payment and weighing implements. In the interlude, there are no finds of these types, but account units established in the early period were used for valuing by, for example, payers and receivers of atonements and bride price, sellers and buyers of goods, heirs dividing an estate, and so on. This period saw limited commodity production and little long-distance trade with monetized lands. In contrast, the two periods with ample finds have extensive commodity production and long-distance trade, in the early period with the Roman Empire and Continental Barbaricum and in the Viking Period with the Caliphate, the Frankish Empire, and British kingdoms. Coinage and bullion, some of which was brought back to the homelands, were received as payment or obtained through plunder and extortion.

Some of that was hoarded, but single finds in market sites and houses suggest circulation; these finds were lost during transactions. How could people continue to trust the value of bullion and foreign coinage in lands where the issuing authorities had no control? *Weregeld* provisions decided and imposed in general assemblies contributed to stabilizing value (Grierson 1977:20), while the prospect of traveling overseas to where coinage had been issued will have contributed to upholding trust; foreign traders bringing coinages into Scandinavian market sites would contribute likewise.

Why did Scandinavians start using money when no authority demanded taxes specified and paid with such? That question cannot be answered using a hierarchic systemic approach; heterarchic transaction relations have greater explanatory potential. During the two periods of peak long-distance trade, the proportion of transactions between strangers will have increased. When both parties might not meet again, one could not rely on the practice normal in dense societies of deferring payment (establishing debt) until the debtor came up with the means of payment that the creditor required. Settlement on the spot was preferred, and liquid payments like coinage and bullion allowed that.

The push toward liquid payment would not affect a particular class but everyone who dealt with strangers: artisans, craftsmen, horse breeders, lords who ran commodity production, and rulers who paid ransom for a captured son. Finds of coinage and bullion suggest that their use first surged in markets and towns; single finds from elsewhere are few and late. The use of account units derived from the coinage, however, likely soon spread beyond and were introduced in a variety of spheres, like the judicial.

Globally, monetization started from account units developed in the bureaucracies of centralized states like Egypt and Mesopotamia, and it appears to have transpired into the population through various economic obligations that largely may be called taxes. But the general acceptance within and beyond such states of one or both monetary practices—valuing in account units and paying with tokens—suggests that people found them useful for purposes other than paying tax. Studying individual agency in heterarchic relations seems a viable approach to explore this aspect of monetization in money-issuing states and other polities alike.

Michael E. Smith

Teotihuacan Research Laboratory, School of Human Evolution and Social Change, Arizona State University, Tempe, Arizona 85287-2402, USA (mesmith9@asu.edu). 25 VIII 22

The Origins of Money in Mesoamerica: Where's the Data?

In an earlier paper I briefly reviewed heterodox research on the origins of money (Smith 2004). Like Rosenswig, I found this a refreshing set of ideas, and I recognized the potential of Mesoamerican data to contribute to answering a big question in economics. But, unlike Rosenswig, I concluded that the evidence was simply not up to the task of answering the key question about the origins of money: Which came first? High-value state currencies or low-value money used by people to buy their basic necessities? Competing theories are more effectively evaluated with evidence than with logic. Outside of a few key historical examples that support the heterodox model—for example, Greek coinage, Egyptian deben—there is little concrete evidence either way.

When I saw Robert Rosenswig had written a paper on heterodox theories of money in Mesoamerica, I was enthusiastic. Perhaps new pictorial evidence had turned up or maybe an improved archaeological, linguistic, or pictorial operationalization of key concepts. But this paper is disappointing. It fails to present empirical evidence bearing on the key questions it asks and instead gives us a series of informal post hoc interpretations. The fact that one can plausibly interpret the scanty Mesoamerican evidence in terms of the chartalist (heterodox) model does not constitute support for that model. Indeed, it would not be hard to dream up a parallel explanation of the Mesoamerican evidence fully consistent with the orthodox model of money origins. But that would not help resolve the issue either. As I have written elsewhere, "We can all dream up numerous alternatives to explain (or explain away) any set of findings" (Smith 2015*b*:19); for post hoc arguments, see Clark (2000), Gerring (2012), and Kerr (1998).

The most widespread currencies in ancient Mesoamerica were cacao beans (low-value items) and cotton textiles (high-value items). These currencies are well described for the Aztec economy (Berdan 2014; Rojas 1986, 1998). A market attendee with three cacao beans could buy a turkey egg, 15 green chili peppers, or three tamales. Cotton textiles varied in size and grade; one large "blanket" could be worth anywhere from 65 to 300 cacao beans (Smith 2012:118). Standardized textiles served as the primary item of taxation in the Aztec empire (Smith 2015*b*).

Cacao beans and cotton textiles had a long history as payments in Mesoamerican economies (Baron 2018*b*; Sampeck 2021). But what kind of payments were these—commercial purchase, state taxation, elite gifts—and which came first? If cacao beans were the earliest currency in Mesoamerica, this would support the orthodox theory for the origins of money: that currencies were developed initially to facilitate small-scale market transactions. By contrast, if cotton textiles served as money at an earlier period than cacao beans, this would support the heterodox view: that money originated as state payments. Unfortunately, neither item survives well archaeologically, and early pictorial evidence is just not very helpful. Bags of cacao beans and piles of cotton textiles are both among the goods paid to Maya kings and nobles (see Rosenswig's figures), but it is not clear whether these were commercial payments, gifts, tribute, or taxes. More directly relevant to the question of origins is the fact that it is not possible to determine whether cacao beans or cotton textiles first served as money (or whether they developed together). This lack of evidence led me to abandon my search in 2004. Continuing research on Mesoamerican money has enriched our knowledge, but we are no closer to answering the key question of the temporal priority of cacao beans versus cotton textiles as forms of money (Baron 2018*a*; Freidel, Masson, and Rich 2017; McKillop 2021; Sampeck 2021).

The closest thing in this paper to an operationalization of the heterodox model is a list of starting points for an archaeological investigation of state money. This list is a mixed bag of definitions (nos. 1, 3) and political-economic correlates of money (nos. 2, 4–7). These points are not well justified or contextualized, a problem that also characterizes a parallel list in Sampeck (2021). Two types of homogenization mar this analysis. First, disparate economic and political institutions are lumped together. For example, Rosenswig seems to claim (in n6) that distinguishing taxation from tribute—a key point for me (Smith 2014, 2015*b*)—is an "emic issue" that does not matter for the comparative history of money. Tribute is an unstandardized lump-sum payment, not created by states, whereas taxation is typically assessed by regularized payments in state-created money. Surely, this distinction is relevant to the topic at hand.

Second, Rosenswig offers highly generalized descriptions of how early states typically operated, instead of analyzing the variation in early economies and its implication for the origins and use of money. Key distinctions such as commercial versus command economies (Smith 2004), collective versus autocratic regimes (Blanton and Fargher 2008), or city-states versus empires (Trigger 2003) are important to understand the role and nature of money, but they are ignored in this paper. Instead, we get a one-size-fits-all sketch of the political economy of early states in general. This is a topic ripe for comparative analysis, using systematic data coding and quantitative methods. Rosenswig's seven points could be worked into hypotheses to be tested cross-culturally.

I wish Mesoamericanists would use better methods of argumentation. Rosenswig claims that "with a little inference," one can extrapolate contact-period economic practices to the Classic period. My reply is that, with a little inference, one can say whatever one wants. Instead of the amount of inference (whatever that means), we should be concerned with things like sample size, operationalization, quantification, testing, and argument strength (Chapman and Wylie 2016; Smith 2015*b*, 2023; Toulmin 2003). Perhaps Rosenswig is correct that "this

article provides a step in operationalizing a heterodox approach," but it is but a small step. The reason scholars lack a better understanding of early Mesoamerican money is less their failure to adopt a heterodox position—as he claims—than the basic intractability of the evidence and our inability to devise creative operationalization of key concepts.

Henry Tantaleán
Escuela Profesional de Arqueología, Universidad Nacional Mayor de San Marcos, Lima, Peru (htantaleany@unmsm.edu.pe). 21 VIII 22

The issue that Rosenswig raises in his article is of the utmost importance. Differentiating between money and currency is a relevant issue to understand past and present societies. Currently, confused by the neoliberal political economy, we have reified and fetishized money, and we have allowed ourselves to be trapped by the ideology of the free market. So alienated, archaeologists have also tried to understand, explain, and value the societies of the past. Adam Smith's "invisible hand" had nothing to do with state-controlled socioeconomic relations in the eighteenth century any more than it did several millennia ago. As Rosenswig reminds us, money ("a politically controlled system of accounting") already existed in societies as studied as ancient Greece, Egypt, or Mesopotamia long before the invention of coined currency. In this way, exploring how old money is, as well as the way in which the elites of the states control the political economy in their territories, is relevant not only for the Old World but also for the New World, a cultural space that many times it is about seeing exceptionally. In this way, Rosenswig helps us to see things differently by using Marxist theory and chartalist macroeconomics. Better yet, he illuminates his proposal through eight points for archaeological research on money and tests them with Mesoamerican societies.

Rosenswig's article has profound relevance for an Andeanist like myself who has been exposed to Marxist theory and political economy debates for the past three decades. In fact, an important tradition of archaeological studies based on political economy emerged in the 1970s in Peru and, without a doubt, continues to be influential, especially since important states and even empires developed in the pre-Hispanic Andes. Regardless of the historical depth that these state societies may have in the pre-Hispanic Andean world, if we focus only on the Inca empire, we find a long debate about the nature of its political economy (Hirth and Pillsbury 2013). However, no well-informed archaeologist or anthropologist will disagree with me when I point to the important evidence in the pre-colonial Andean world of states, political economy, elites, bureaucracy, artisan specialists, labor tributes, in-kind tributes, long-distance trade, exotic goods, measurement systems and units, state warehouses, social asymmetries, surpluses, accumulation of wealth, institutionalized coercion, and social exploitation.

However, as with the discussion raised by Rosenswig, some Andean researchers have also confused appearance with its essence, phenomenal expressions with political institutions, especially in an archaeology that lacks the help of historical texts. A clear example is the debate on the existence of markets in ancient Peru, a debate in which the place (marketplace) was also confused with the political-economic institution (market; Burger 2013; La Lone 1982:300; Stanish and Coben 2013). Similarly, the denial of the existence of a currency has resulted in the automatic denial of the existence of money as defined by Rosenswig ("the mechanism (or institution) employed by holders of power to acquire resources and forge the link between political/military power and economic goods"). In this sense, John Murra (1980, 2002) had already pointed out a series of institutions and practices of the Inca political economy that fit very well in several of the eight points indicated by Rosenswig. In fact, for the Inca state there is evidence of specialists in the administration of taxes, measurement systems materialized in architecture and artifacts, architectural structures for counting and storing taxes, and accounting instruments such as *yupanas* and *khipus* (Arellano 2014; Barraza et al. 2022; Julien 2000; Urton 2017). Likewise, there are early Hispanic colonial sources that indicate the existence of control by the state of the production of certain elements such as high-quality textiles (Hirth 2020:143; Murra 1962). In fact, there was a decimal system by which the Inca rulers counted, controlled, and administered the main tribute: the labor force (Julien 1988). That is to say, following the definition proposed by Rosenswig, we would be faced with the evidence of the existence of money ("a state-imposed accounting system"). However, in the case of the Inca state, the most evident is the control of the amount of labor force and goods that were demanded as tribute from the subalterns, while we lack evidence of the materialization and representation of some type of currency (Stanish and Coben 2013).

But could we project such an economic situation to the pre-Inca state societies? This is a challenge for archaeologists because there was a great diversity of state formations in which political economies were generated that would have established their own forms of money. We must not forget that the systematic accumulation and extraction of labor power and goods from community members and specialists was the only way that the elites had to support themselves and reproduce economically and politically. Furthermore, as Rosenswig reminds us, the type of currency depended on what the elites imposed as such. In this sense, the *Spondylus* and the artifacts produced from this shell could have been one of those goods demanded, controlled, and accounted for by the elites, as suggested by the archaeological evidence in sites of the Lambayeque and Chimú societies on the Peruvian northern coast (Sandweiss and Reid 2016; Shimada 1997:157). Likewise, for the south coast of Ecuador we know of the existence of "*axe-monies*" (Holm 1978; Marcos 2005) and on the north coast of Peru of "*naipes*" (Shimada 1995:26), both copper artifacts that could be part of a poorly understood exchange system for the Peruvian sector (for a recent discussion, see Topic 2013). Also, despite their marginality in the Inca empire, it is likely that the "*merchants*" or *mindaláes* of Ecuador reported in the early Spanish chronicles were part of

an ancient economic system that continued to function in parallel to the Inca political economy (Salomon 1987). Finally, the "*merchants*" of the Chincha Valley on the southern coast of Peru, and especially their likely traded products and measuring instruments, continue to be the subject of controversy among specialists (Burger 2013:122; Rostworowski 1970; Sandweiss 1992; Sandweiss and Reid 2016).

As is evident from the examples above, there is much to investigate regarding the political economy of pre-Hispanic state societies, even older than those mentioned above, such as the Moche and Wari. In fact, there is currently a debate about the moment of the emergence of the state in the pre-Hispanic Andes, a debate that can be enriched by Rosenswig's proposal (Tantaleán 2021). For all these reasons, the study of economic and political institutions such as money can help us to deeply and structurally understand the pre-Hispanic Andean societies that, independently, generated economies and politics similar to those of other parts of the ancient world.

L. Randall Wray
Levy Economics Institute of Bard College, Blithewood, Annandale-on-Hudson, New York 12504-5000, USA (wray@levy.org). 10 VIII 22

Professor Rosenswig argues for cross-fertilization of economics and archaeology by recognizing heterodoxy's approach to money. He examines much of the same literature I studied over the past four decades in the development of modern money theory (MMT), an approach recently in the news because it offers an alternative to the neoliberal approach to monetary and fiscal policy formation. While much of MMT is devoted to explaining how modern sovereign currency systems work—and how they can be used to take advantage of the policy space available to government—MMT also argues that orthodoxy relies on false narratives about the history and nature of money. Professor Rosenswig has accurately explained the MMT alternative and urges archeologists to take notice. It is equally important for economists to recognize the archeological evidence he offers in support of MMT.

To recap, orthodoxy supposes that markets developed from direct barter exchange at relative prices. To reduce transaction costs, one commodity was chosen as a numeraire and medium of exchange—a commodity money. While efficiency increased, nothing fundamental changed—Milton Friedman famously said that all the important characteristics of the modern capitalist economy can be observed in the stylized free market based on barter. Money is neutral—affecting only nominal values—at least in the long run. The history of economic thought on money boils down to debates about the conditions that could generate temporary and undesirable nonneutrality. This rather shocking conclusion is designed to discourage attempts to seize social control over money in the public interest.

When I first read the work of historians and anthropologists on money, I was struck that many interpreted the "facts" in line with neoclassical theory propagated by Friedman—most importantly, that money was created to replace barter and that excess money causes inflation. The huge stone wheels of the Yap islanders were transaction costs reducing! Greedy governments issued too much currency, destroying its value! Unlike other disciplines, economics is dominated by a single approach controlling most of the journals, textbooks used in classes, and discussion in the media. It is an imperialist discipline that applies its tools to a wide range of human behavior better left to other disciplines, proclaiming itself to be scientific—more like physics—to reach value-free conclusions. It is not surprising that those working in other fields have limited knowledge of alternatives, but it is important to understand that the doctrine is contested and that in its modern garb it was resurrected to counter Keynesian theory and New Deal policy.

My approach was always based on the work of Karl Marx, Thorstein Veblen, John Maynard Keynes, and Hyman Minsky. Before I got deeply into economics, I studied the contributions to anthropology of Lewis Henry Morgan, Karl Polanyi, George Dalton, and (much later) David Graeber. I read historians Marc Bloch, Fernand Braudel, Rondo Cameron, Carlo Cipolla, V. Gordon Childe, and (later) Philip Grierson and Michael Hudson. When authoring the first monograph that would lay out what became MMT (Wray 1998),[9] I came across the work of A. Mitchell Innes and Philip Grierson. Their arguments convinced me that, first, measuring units must be socially accepted and, second, creation of a money of account was a huge conceptual leap. Many, maybe most, societies practiced Wergeld, imposing debts to compensate victims. Severity of infractions had to be measured and payment enforced to prevent blood feuds.

Thus, as Rosenswig emphasizes, the key components of money already existed in societies that had no need for markets: debt, measurement, and threat of violence. With the rise of inequality, these were adapted so that debts measured in a universal money were enforced by, and to benefit, elite authorities. There is no need to hypothesize social institutions for which there is no evidence, that is, self-interested specialization and markets based on barter exchange in a system of relative prices. Grierson's hypothesis is more plausible: prices and markets come later, and rather than higgling and haggling to clear markets, prices were established by authorities (in the case of long-distance trade, they were negotiated in advance, as Polanyi argues) and posted (on temple columns, as Hudson argues).

My only quibble with Rosenswig's article is the argument that commodities (cocoa, cotton, greenstone, copper bells) *are* currency—with fixed exchange rates—and also elite consumption goods. Perhaps we should see these as like tobacco in early America—not a currency but an important commodity with a fixed price maintained by authorities. As such, it could be accepted in payment, including for taxes—essentially an administered tobacco standard, like a gold standard. But gold was never currency. This maintains the strong distinction between

9. See Rosenswig for other references.

money of account and the money record—more specifically, transferable money records—without confusing the material form of something used in payment for the record itself.

Almost always, the monetary unit is set by authorities (there are a few examples of exceptions, such as the Banco di Giro unit used by northern European banks)—a state money. Anyone, as Minsky says, can record a monetary IOU, but the problem is to get it accepted. Currency is a money record, transferable and widely accepted because it is accepted by the state. This recognition leads to a new view of the true constraints on a state's fiscal and monetary policy space. Simplistic and misleading claims about budget constraints, debt sustainability, and the power of bond vigilantes are seen in a new light. While this is not important for the work of archeologists, understanding that money has always taken the form of an accounting record denominated in a measuring unit does change the focus away from the composition of the material on which the record happens to be kept. The money of account is likely much older than any money record we will find. Approaching money as an accounting system will revolutionize archaeology.

Reply

This is a diverse set of nine commentators, and I thank them all for engaging with my attempt to bridge chartalist theory and archaeological evidence. I am encouraged that the scholars of economic heterodoxy (Desan, Kappes et al., Wray) all saw some value in this endeavor, that Maurer would describe it as "a breath of fresh air," and that Earle feels it "deserves to be foundational in comparative work on the role of money." The comments by archaeologists were relatively positive (except for Smith), and each appropriately took me to task on an array of issues. Below, I respond to as many topics as space allows.

Wray notes that economics is an unusual discipline where those espousing orthodox theory dominate academic discourse and control most of their publication outlets. Anthropologists should be cognizant of this, especially from the theoretically pluralistic environment in which we publish. Steeped in our own disciplinary history, anthropologists allegiant to the formalist tradition are frequently associated with economics, and substantivists are not. However, formalists are aligned only with orthodox economics, and their theories likewise are predicated on methodological individualism and atomistic asocial actors. But there is a world of practicing economists out there who dispute such orthodoxy and propose a variety of heterodox perspectives that recognize methodological holism, with individuals understood as enmeshed in social relations, and so are more naturally aligned with anthropology. The ideas of heterodox economists are also important for anthropology because much of the ambient "common sense" we all ingest about money (and economic organization more generally) by simply existing in modern nations is permeated by what Mirowski (2013) describes as the neoliberal thought collective. In the US, public policy debate between neoliberal Democrats and neoliberal Republicans dramatically limits the range of economic solutions that are even considered. Ambient orthodoxy predisposes many to assert—among other things—that money's defining function is as a medium of exchange. Further, as a discipline that recovers monetary objects, archaeologists are also methodologically predisposed to orthodox theory in reconstructing the function of such objects. This orthodox predisposition is one reason I wrote the paper and why Maurer was surprised to find an archaeologist focusing on nonmaterial aspects of monetary organization. I am glad that Tantalean, Wray, Maurer, and Skre (see also Skre 2017:238) frame my archaeological treatment of money within the larger critique of neoliberal orthodoxy, as it was intended.

Kappes et al. and Skyre call me out for implying that chartalism is a heterodox consensus and for using the terms interchangeably. To this I can only say mea culpa and retract any such conflation. There is a rich and diverse range of heterodox ideas that I acknowledged only once (but see Rosenswig, forthcoming). I leave it to economists to decide whether Keynes or Kalecki was the more important twentieth-century economist. However, I am willing to bet that the majority of anthropologists (myself included) are aware of the former but not the latter—so the question of who is more famous seems clear (though admittedly not that important). Kappes et al. claim that I neglect the "most interesting aspects" of Polanyi's study of money. To this I note that Polanyi was not always successful in shedding orthodoxy as much as he himself wanted to (see Saiag 2014). I do, however, follow his basic heterodox observation that "no object is money per se, and any object in an appropriate field can function as money. In truth money is a system of symbols similar to language, writing or weights and measures" (Polanyi 1968:175).

Maurer and Kappes et al. raise the important issue of what exactly constitutes "the state" in my exposition. For a chartalist-inspired approach (where state taxation drives the value of money), this is a key issue. I assumed, but did not explicitly explain, an expansive, functional conception of "the state" that would include a variety of elites beyond the formal government, precisely as Maurer proposes I should. Maurer further wants to push these ideas into societies where gift-giving can be promoted by men, elders, and others with elevated rank who maintain their positions by controlling the terms in which social accounting is recorded and the media used to do so. I find his proposal for a "soft" chartalism an interesting direction to follow and a productive approach to exploring power and social reproduction in "egalitarian" societies (with echoes of Meillassoux 1981).

Kappes et al. are, of course, correct that the majority of financial money today is created by private banks as interest-bearing debt (and I do mention this). However, it is likewise true that the money created by banks is highly regulated by state law and its supply is (somewhat) controlled by setting interest rates. They note that government and banks today "certainly operate

in concert." But it is more than that, as large banks are not allowed to fail, with government serving as lender of last resort (as well as insuring deposits). In practice, basic aspects of private banking operate as a quasi-governmental institution, akin to the British goldsmith bankers' that were private, profit-driven operations but existed only at the pleasure of the crown (Desan 2014:264). The functional integration of political and financial institutions is also clear for the Italian city-state bankers they mention. The Medici family famously took over the government of Florence. Royal houses of Europe further united hereditary political power and religious authority with second sons entering the priesthood (the Medici dynasty produced four popes), thus also functionally fusing church and state. So conceived, "the state" is more accurately termed "the ruling class." Functionally, Goldman Sachs can also (almost) be described as a quasi-governing institution like the Federal Reserve (and other central banks), the heads of both drawn from the same cadre of orthodox economists serving the same class interests (Mirowski 2013:183–216). Distinctions between the official, legal government and the de facto running of governments (and structuring the economy) are less obfuscated among ancient states due to the smaller scale of bureaucracy and because the divine right to rule meant economic policies of the powerful did not need to be mythologized behind claims of democracy, as they have been during the past century or two. A functional analysis of "the state" might even frame today's orthodox economists as controlling the arcane knowledge they possess and convincing people that they must be trusted to manage financial priorities of (neo)liberal states. This role of orthodox economists would then parallel the priests of old, when the right to rule was justified by gods and the knowledge to access them. In a companion paper to this one, I explicitly define private money that is created by profit-driven institutions, like banks and credit card companies (Rosenswig 2024). Private money and government money both serve financial roles but are distinct ontological phenomena (sensu Ingham 2004). However, as it is state law that ensures bank loan repayment, the circulation of such private money is ultimately dependent on state-enforced contract law for its value.

Two comments by economists question my definition of currency as physical media of exchange. It seems my commonsense usage of this term (while not raising objection within anthropology) is incorrect. Kappes et al. note that "this basic definition does not reflect its consensus," and Wray succinctly defines currency as "a money record" and says that cacao, cotton cloth, and so on, are "not a currency but an important commodity with a fixed price maintained by authorities." I intended to employ the word "currency" as a money thing or token (consistent with Graeber's [2011:130] "social currencies") and in the future will simply call it such. However, I do not believe that this issue of terminology impacts the arguments I make as to how archaeologists can understand the difference between monetary institutions and physical tokens circulating in ancient political economies.

Desan and Earle both draw attention to money's usefulness to society at large. Desan frames this as a "constitutional" endeavor, and Earle calls it "bottom-up value," and they both emphasize the negotiated nature of political and monetary power. As Desan infers, I do indeed agree with all she has written in her comments. The rich detail of her historical data (Desan 2014) clearly describes consensus building between rulers and ruled that allows for money to circulate. Money's usefulness for private endeavors contributed to people's receptivity to accept it as payment and to horde it for future use. This was true in the past just as it is today. Further, the interests and priorities of various classes and interest groups within a given society rarely align—some are motivated to bolster the government and others to undermine it. At any point in time, a negotiated balance characterizes the arrangement. Likewise, taxes were undoubtedly always avoided by those who could, and powerful interests (both past and present) influenced the structure of who is taxed and who is not.

The long expanses of time brought into focus by archaeological evidence teach us that economic arrangements were never permanent and political regimes regularly collapsed. The temporal resolution of archaeological data, however, creates methodological obstacles, as individual years and even decades are invisible. The majority of our data is recorded at the scale of centuries. This means that only long-lasting arrangements are accessible and only the average forms of such negotiated organization detectable. To put this in modern terms, it is as if we divided the history of the past 150 years into three roughly equal epochs: 1870–1930, 1930–1980, and 1980–2023. Historians might choose the same time blocks, make generalizations about similarities and differences within each in terms of social conditions and new laws passed, and then provide detailed evidence (Desan's "richness of money's character"), say, salary information between rich and poor neighborhoods, to compare with sales of differently priced ceramic serving wares and the sizes of newly built houses. Salary variation, disposable income (reflected in sales of fancy pottery), and the size of houses might then be compared on a yearly basis between social classes in light of changing government policies and taxation rates to measure the changing fortunes of various groups (and degree of income inequality). Archaeologists do the same, but all of the remains from each epoch can be recorded only as a single average measure that characterizes the entire phase. It is therefore not possible (no matter how desirable it might be) to track specific individuals or bottom-up processes at more than an averaged scale, based on the material residue of behavior that combines you, your children and grandchildren, and your parents and grandparents (see Rosenswig 2007:5). So the material remains of everything you and every family member you will ever know are all averaged into a single measure of income, house size, ceramic vessel consumption, and so forth—perhaps frustrating to a historian or cultural anthropologist with ethnographic-scale resolution. But, on balance, archaeological evidence allows us to access huge expanses of time and peoples who did not leave written accounts.

In light of Freidel's objection to my use of the term "false consciousness," I want to be clear that this was not meant to denigrate any ancient peoples. The consciousness of those accepting ideas that naturalize the power of elites in the ancient world is no more (or less) "false" than those who internalize ideologies of their own oppression today (Wolf 1999). In fact, the orthodox definition of money is just such a hegemonic ideology. The purported limits of the money supply are a "false" axiom cruelly deployed by central banks to justify raising interest rates to reduce inflation by putting millions of people out of work, a point Wray also raises. Such class interests are sold as "objective" economic necessity when in reality they simply preserve the purchasing power of those with wealth who lend it to those without (Di Muzio and Robbins 2017; Mirowski 2013:107–155). I employed the term "false consciousness" but once and only to describe the public commemoration of violence as serving a political function and noting that even publicly depicted ideals of equality can obfuscate structurally hierarchical economic relationships. Ancient Mesoamerican peoples were not unique in being susceptible to political propaganda, nor were they unique in the way their political economies were organized, as Earle and Maurer clearly appreciate. I agree with Freidel that numeracy and calendrics likely emerged for communal reasons only to later be repurposed by emerging elites. I presented such developments as preconditions for the accounting of money to emerge and not necessarily created for that purpose.

I am glad to hear that the first two starting points of my attempt to sketch the material implications of chartalist theory—money is not currency (i.e., physical tokens) and the importance of numbers, calendric weights, and measures—resonated with Skre based on his work in Scandinavia. A few replies to his comments. First, I would not describe the hierarchical human pluralities he studies as states (better kingdoms) but would not want to get hung up on typology. Second, not all hierarchically organized societies will employ financial money to mobilize resources. Third, I would never claim to have adapted Knapp's state theory of money myself but am following Graeber, Ingham, Hudson, Wray, and others in doing so. Fourth, and most important, the societies that Skre studies did not employ financial money to organize their political economies. What he documents in compelling detail (e.g., Skre 2017) is a complex system of social money used for nonfinancial purposes. In the companion article already mentioned (Rosenswig 2024), I contrast social money and financial money as distinct accounting systems that keep track of separate realms of value. The objects used for *wergeld* payments, dowries, and elite gift-giving (Skre 2017:288–291) are precisely the types of social money that I argue keep track of on-going social relationships. My definition of social money is not novel for anthropology and is in line with Polanyi's special purpose money, Graeber's social currencies, and similar distinctions made by various economic anthropologists. My distinction between social and financial forms of money is meant to highlight similarities in the accounting function of both yet contrast the distinct realms of value being accounted for. In the tradition of Mauss, social money propels ongoing relationships, whereas financial money (etymologically from the French *fin*, "end") terminates them. Earle notes that my treatment of "primitive money" was inadequately dealt with in this paper, and I hope the companion piece satisfies him. My definition of social money fits easily with his treatment of primitive valuables (Earle 2002:19–42). In the companion paper, I likewise posit that the contents of earlier Scandinavian Bronze Age hordes served as repositories of social money that circulated as part of internal political economies but that weight standards were driven by the financial money of eastern Mediterranean and Mesopotamian city-states due to trade (Rosenswig 2024).

Finally, I turn to the commentary offered by Smith. First, a clarification on the distinction between tax and tribute. I understand tribute to be what European colonial authorities called earlier forms of indigenous taxation. The term often denigrated the moral validity of such resource mobilization in contrast to the supposedly "legitimate" taxation of European colonial regimes. Tribute in contrast to taxation was in that sense an emic issue of colonial administrative ideology. Creating an etic definition of tribute as Smith does is fine, but the "unstandardized lump-sum payment, not created by states" he describes is more commonly called ransoms or the spoils of robbery, piracy, and war. Following the lead of chartalists, I propose that the key factor for the creation of financial money is the regular appropriation of resources that creates a reliable demand for them. Neither taxation nor tribute necessarily requires payment be made with money (but either could). Further, taxation can encompass all sorts of corvée-style labor obligations or the requirement to house and feed a king and his retinue as they travel around his domain. Monetary taxation could take the form of harbor fees, road tolls, and import duties. Periodic lump-sum payment of parking tickets or speeding fines (that helps finance many cities today) could be termed a tax or tribute. The important thing is the expectation that such payments will be collected in the future and so will result in a reliable value of whatever is required to clear such debts.

I agree with Smith's conclusion that my paper is a "highly generalized description of how early states typically operate," that "this is a topic ripe for comparative analysis," and further that my eight starting points "could be worked into hypotheses to be tested cross-culturally." The paper is offered as a step down that path (readers can decide for themselves how large or small the step is). For someone who regularly publishes thought pieces based on his latest readings outside of anthropology, Smith's characterization of my paper is rather ungenerous. Further, given that he has read some chartalist work and claims to have found the ideas "refreshing," he seems to have missed the main point. I had assumed that an obstacle in engaging with chartalism for an archaeological audience would be the need to counter the orthodox hegemony that money is primarily a medium of exchange. Smith's proposal—that is, that determining whether cacao or cotton cloth came first as a monetary medium to differentiate whether orthodox or chartalist theory best explains the origins of money in Mesoamerican—is

so far off the mark that the conceptual obstacle is apparently larger than I had anticipated. Cacao having reliable purchasing power prior to cotton cloth would determine only what early rulers first required to clear tax debt.

Both drinking chocolate and exchanging cotton cloth presumably began as objects of ritual and elite gift exchange. Both crops are grown in the lowlands, making them all the more valuable in the highlands, where obsidian and other desired commodities (e.g., amber and jade) are found. The resulting interregional exchange began among peoples sharing Olmec imagery by 1400 cal. BC with the exchange of what I term social money; Flannery (1968) canonically proposed the social mechanisms entailed by such exchange. How these prestigious objects transitioned from media of social accounting, keeping track of on-going social relationships, to serving as financial money of taxation is an important issue of origins.

Almost three millennia after people decorated their pots with Olmec imagery, historical records document that a monetized economy was in operation when the Spanish arrived in the fifteenth century and the rulers of Tenochtitlan had established themselves as the center of an empire extracting resources from multiple provinces. Cacao had buying power, in part, as it was demanded by Aztec authorities. As illustrated in figure 1, millions of cacao beans were regularly packed up and shipped from the Soconusco to Tenochtitlan every year. Many other Mesoamerican governments during the Postclassic period also required cacao as tax payment, which explains just how wide the geographic range over which such objects possessed value. With reliable demand, private actors could also harness the purchasing power of cacao, and market exchange became possible. I propose that this transition had occurred in some places by 300 BC, and Freidel argues that it may have gone back as far as 700 BC. The search for the earliest financial money circulating in Mesoamerica should therefore be sought during the second half of what Mesoamerican archaeologists call the Middle Formative period (1000–300 BC).

The eight starting points are presented as a first stab at assembling material implications of chartalist theory for archaeologists. I am fine with Smith's characterization that they were "dreamed up." However, I would characterize them as having been logically extrapolated from a long-standing school of heterodox economic theory. My paper's core proposal is that we take tax-driven value of government money as a starting point and see where we end up. Smith is correct that more work could be done to lock down the logical linkages of each of the points I proffer. Might we knock a few off the list as being theoretically inconclusive or too ambiguous to operationalize (the equifinality problem)? Quite possibly. Can others be added? Undoubtedly. The material implications I list would certainly benefit from longer and more detailed explanation and justification. The entire scenario would then be made more robust by systematic comparisons with the ethnographical, historical, and archaeological records. Sounds like an interesting book. For now, we have a 12,000-word invitation to consider the chartalist definition of money and how such a conceptual realignment might provide novel understandings of ancient political economies in Mesoamerica and beyond.

—Robert M. Rosenswig

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