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RESEARCH

The Trade Theory of Money: External Exchange and the Origins of Money

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Abstract

For over a century, scholars have debated the merits of two competing theories for the origins of money. The commodity theory of money has traditionally held that money developed as a medium of exchange in order to increase the economic efficiency of barter economies. Alternatively, chartalist explanations have given causal primacy to the role of state taxation in standardizing money as a unit of account. Recently, skepticism over the existence of barter economies in either contemporary societies or ancient history has led to the increased popularity of the state-centric chartalist approach. Evidence from many pre-state societies around the world, however, shows that commodity money was often used in long-distance trade networks where systems of debt and reciprocity would have been impractical. This paper draws on evidence from two such exchange systems, the "interior world" of pre-Columbian western North America and the Bronze Age of western Europe, to argue that money can come about to facilitate exchange between strangers and across borders. As such, I suggest that the commodity theory of money is more accurately explained by the importance of exchange in external rather than internal economic systems. I propose that a trade theory of money can explain the origins of money in pre-state societies without relying on the "myth of barter".

Keywords Origins of money · Shell beads · Bronze Age · Economic anthropology · Trade and exchange

Introduction

It is an exciting time to be working on the origins of money. Experimental new forms of digital currency have brought debates about what money is and where it comes from into the forefront of the popular imagination. Within scholarly discourse, recent research by economic anthropologists has challenged economic

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orthodoxy regarding the evolution of money by questioning the existence of ancient barter economies (Graeber, 2001, 2011a; Rosenswig, 2024a). Instead of seeing money as having increased the efficiency of barter exchange, many scholars now argue for "chartalist" approaches that see money as originating from "top-down" state intervention rather than from "bottom-up" exchange between individuals (Graeber, 2011a; Martin, 2013; Rosenswig, 2024a, b). Other anthropological case studies, however, have illustrated wide and diverse uses of money by indigenous societies around the world with shells, beads, feathers, salt, and other commodities having been used as money by many indigenous and ethnographically known societies (Baron & Millhauser, 2021; T. Earle, 2018; Fauvelle, 2024; Lynn H. Gamble, 2020). Understanding how and why money might emerge in non-state societies is therefore a pressing question for the study of ancient money. In this paper, I draw on ethnohistoric and archaeological case studies to show how money can come about in order to facilitate trade across borders and between strangers for whom debt relationships would have been impossible or impractical. I argue that a trade theory of money can explain the origins of money in pre-state societies without depending on barter exchange as a necessary precondition.

For over a century, economics textbooks have defined money as an object that functions as a medium of exchange, a unit of account, a standard of value, and a store of value (Jevons, 1875). Ever since the time of Aristotle, however, scholars have tended to focus on the role of money as a medium of exchange and saw money as coming about to increase the efficiency of economic interactions. This approach is often called the "commodity theory of money" or the "metalist theory of money" (after one the most common commodities to turn into money) is associated with the work of Austrian economist Carl Menger (1892) and has been advocated by scholars ranging from Aristotle to Adam Smith. Those focusing on the role of money as a unit of account have argued that money is imposed by the state in order to facilitate the collection of taxes, the payment of tribute, and the financing of war. This approach is often called the "credit theory of money" or "chartalist theory of money" (after the Latin word *charta* meaning ticket or paper) and was first proposed by German economist Georg Friedrick Knapp (1924). Although often presented in opposition to each other (c.f. Hart, 1986), commodity and chartalist theories of money need not be mutually exclusive, as it should be clear from the anthropological record that money has been independently invented in multiple ways in different times and places around the world (Table 1).

The multiple roles and functions of money can make it difficult to define and identify in the archaeological record. In many traditional societies money often takes a more social role, working to settle debts and establish relationships. This has led many anthropologists to give different names to money used in traditional societies, calling such money objects "primitive valuables" or "social currencies" (T. Earle, 2018; Graeber, 2012). As I have argued elsewhere, however, money almost always fulfills both social and financial roles at the same time, albeit to different degrees (Fauvelle, 2024). Even Kula objects from the Trobriand Islands, one of the most commonly cited examples of "primitive valuables", are sometimes used in regular transactions for food, tools, and services (Macintyre, 1983). This position the Kula objects (and other high-value commodities) should be seen as money was supported

Table 1 Theories of money

The Credit Theory of Money holds that money comes about due to its function as a *unit of account*, often associated with the ability of states to collect taxes. Also described as the chartalist theory of money. It is a heterodox economic theory
The Commodity Theory of Money holds that money comes about due to its function as a *medium of exchange*, often associated with its ability to increase the efficiency of barter economies and to address the problem of the double coincidence of wants. Also described as the metalist theory of money. It is an orthodox economic theory
The Trade Theory of Money is presented as a modification to the commodity theory in which money comes about in situations of intensive exchange across borders and between strangers. In this way it addresses recent criticism over the lack of evidence for the existence of localized barter economies in the ethnographic and historical record

by Mauss, who wrote that they "have the same function as money in our societies and consequently deserve at least to be placed in the same category" (Mauss, 2002, p. 128). Following these examples, I suggest that we can identify the use of money archaeologically when an object is seen as functioning either as a medium of exchange or as a unit of account. Most often, of course, both roles can be fulfilled at the same time.

This approach to defining money is an emic one that differs somewhat from the traditional view of money as something that simultaneously performs all four functions of modern money (medium of exchange, a unit of account, a standard of value, and a store of value). I see these traditional functions of money as useful heuristic categories that serve as a useful starting point for exploring ancient money but should not serve as a strict test for whether an ancient object served as money. As I have argued elsewhere, while the traditional definition of money works well for modern money it is needlessly exclusionary when applied to the diversity of forms of money seen in the ethnographic, ethnohistoric, and archaeological record (Fauvelle, 2024). While all four functions of money may be present in many examples of ancient money, it is often the case that one or more functions are emphasized to a higher degree than others. For this reason, most scholars of ancient money have tended to focus either on its role as a medium of exchange or a unit of account (Fauvelle, 2024; Lynn H. Gamble, 2020; Rosenswig, 2024a, b). I retain this focus on these two functions in the following discussion of money's ancient origins.

Most traditional economics textbooks explain the commodity theory of money by asking students to imagine a non-monetary society run on the basis of barter exchange (Begg *et al*., 2014; Stevenson & Wolfers, 2020). Without money, it is argued, both exchange partners would need to have goods to trade that are desired by the other party; the so called "double coincidence of wants". If a fisher wanted to acquire a new flint blade, for example, they would need to find someone with excess flint who also has a need for fish. Money solves this problem as it provides a commodity of equal and universal value to all exchange partners, greatly increasing the efficiency of economic activity. Under the commodity theory of money, we would expect the first physical money to be durable goods of widely held value, for example, metals, salt, grains, and exotic items such as feathers or shells. Money is also seen as emerging from the bottom up, through the actions

and agreements of multiple merchants and traders deciding on mutually agreeable standards for exchange.

The problem with this version of the commodity theory of money is that barter systems are practically non-existent in the historic or ethnographic record (Graeber, 2011a; Humphrey, 1985). In most traditional communities, exchange occurs within well-established social relationships where the expectation of reciprocity is taken for granted. Barter is unnecessary as it is assumed that all debts between community members will be repaid. To take the example given above, a fisher in need of a new flint blade could expect their neighbor the flint knapper to readily provide them with one as they know that they can depend on the fisher to provide fish in case they ever go hungry. Without the problem of a double coincidence of wants, the need for money to facilitate exchange in small scale societies disappears, casting doubt on the role of exchange within societies as a primary pathway to the origins of money. The lack of ethnographic support for the existence of barter economies has been dubbed as the "myth of barter" by Graeber (2011a, b) and has been a central plank of recent critiques of the commodity theory of money. Criticism over the "myth of barter" has led to a resurgence in popularity for chartalist explanations for the origins of money. Greaber (2011a), for example, argued that most ancient economies were organized on the basis of debt and credit and that of credit money emerged in order to finance the activities of the Sumerian palace and temple economies. More recently, Rosenswig (2024a, b) also has promoted an explicitly chartalist approach to understanding ancient money. According to Rosenswig, orthodox approaches that see money as emerging from its function as a medium of exchange serve a political agenda by naturalizing free markets and neoliberal ideologies (Rosenswig, 2024b, p. 72). He argues that pre-state money served a primarily social function and that financial money only emerged later and under the auspices rulers seeking to collect taxes and tribute. In the absence of evidence for any inefficient ancient barter economies, Rosenswig (2024a, b) argues that financial money came about in order to facilitate taxation and state control over the economy.

But what if barter between community members was not the problem being solved with the invention of money? While it is now well established that the economies of most traditional societies function on the basis of debt and reciprocity rather than barter, these processes mostly work in situations of internal exchange where it can be expected that all parties know each other and will meet again. In cases of external and long-distance exchange, these assumptions are on shaky ground (Sahlins, 1972:200–202). Traders might not know when or if they will return to the same location and may not have well-established or trusting relationships with their exchange partners. In these cases, the double coincidence of wants becomes a real problem and money would undoubtedly increase the efficiency of exchange. Durable, fungible, and widely-desired commodities would be valued by traders and travelers in such situations due to their ability to be exchanged in a wide range of situations. Regular and sustained trade between strangers and across borders can thus explain how money systems developed in many world regions in the absence of controlling state structures.

The Trade Theory of Money

The idea that money can develop from external exchange has old roots. Marx, for example, wrote that in some traditional communities "money -and it's pre-condition, exchange—is of little or no importance within the individual community, but is used on the boarders, where commerce with other communities takes place" (Marx, 1859, p. 223). Weber (1978, p. 673) held a similar view, writing that "economic barter was always confined to transactions with person who were not members of one's own "house", especially with outsiders in the sense of non-kinsmen, non- "brothers"; in short, non-comrades". Polanyi also distinguishes between internal and external trade and writes that money as a means of exchange can only come about as linked to the latter (Polanyi, 1968, pp. 195, 201). Likewise, Bücher (1912, p. 68) wrote that "the money of each tribe is that trading commodity which it does not itself produce, but which it regularly acquires from other tribes by way of exchange", suggesting that in situations of long-distance trade widely valued commodities will start to be used as money. Despite these early recognitions of the importance of trade in the origins of money, both orthodox and heterodox approaches during the twentieth and twenty-first centuries have mostly focused on the origins of money in internal economies, either promoting or critiquing approaches based on the presumed existence of barter economies (Begg *et al*., 2014; Graeber, 2011a, b; Martin, 2013; Rosenswig, 2024a, b; Stevenson & Wolfers, 2020).

All the passages cited above correctly note that money cannot have come about from internal exchange as such situations are dominated by relationships based on debt and reciprocity. For exchanges with strangers, however, a different logic takes hold that encourages the standardization of exchange around commonly valued commodities. To avoid confusion with standard metallist or commodity theories that held that money emerged from generalized barter, I call this the "trade theory of money.[1]" By focusing on the role of external rather than internal exchange, a trade theory of money avoids the problem of the "myth of barter" that has plagued recent applications of commodity money theory. It explains how money can come about through its function as a medium of exchange even in pre-state societies where debt and reciprocity govern most economic interactions. As I argue below, money originating through external trade can eventually also be used in local interactions, becoming a standard of payment for daily exchanges. I suggest that the trade theory of money provides an alternative pathway for understanding the origins of money, which I see as complementary to state-centric chartalist theories.

The importance of the distinction between external and internal trade has been lost in most modern discussions of the origins of money. Orthodox economists have tended to ignore this distinction in their desire to see both internal and external exchange as dominated by the maximizing goals of individual agents. Heterodox economists, on the other hand, have focused on abundant written evidence of

[1] While often used interchangeably, here I distinguish between trade and exchange with the former being focused on cross-boundary interactions while the latter involves all kinds of both internal and external interactions.

the emergence of money in ancient states, sidelining evidence of the financial functions of money in many non-state societies. When the possibility that money could have emerged through external trade is acknowledged it is often dismissed as being only a theoretical possibility without solid historical grounding (Graeber, 2011a, b, 2012). For example, Graeber argues that the dangers involved in ancient trade would have made the use origins of money through trade impractical, going on to write that "there is no reason to believe that such a mechanism … could possibly create a money system used in everyday transactions within a society or *any evidence that it might have done so*" (added emphasis, Graeber, 2011b:6–7). In the following, I provide evidence from two case studies in which money emerged in pre-state societies characterized by intense and long-distance trading systems. I argue that these examples provide a clear mechanism for the development of money through external trade, showing how a trade theory of money can function in practice.

Pre-Columbian Western North America

Shell Bead Money

One of the best examples in the world of the pre-state innovation of money comes from western North America where numerous indigenous societies used shell beads as money for over a thousand years prior to European contact (Fauvelle, 2024; Lynn H. Gamble, 2020; E. Smith & Fauvelle, 2015; Zappia, 2014). Nearly all early European explorers and colonizers writing about indigenous California made note of the use of shell money by indigenous groups they encountered (Bolton, 1930; King, 1976; Simpson, 1961). While the exact shapes and dimensions varied by time and location, most shell money in ancient California took the form of tiny disk beads that were strung on strings and measured by length (Bennyhoff & Hughes, 1987; Fauvelle, 2024) (Fig. 1). Tens of thousands of shell beads have been recovered from archaeological investigations in regions spanning the American West (Bennyhoff & Hughes, 1987). During the peak of shell money use in the first half of the second millennium CE, it is calculated that many millions of beads were produced on the California Channel Islands (Fauvelle, 2024). The scale of production on Santa Cruz Island in particular was so intense that many archaeologists have described the island as the "mint" for the region's political-economic system (Jeanne. E. Arnold & Graesch, 2004, p. 7; L. H. Gamble, 2011, p. 232) (Table 2).

Ethnohistoric accounts make it clear that these beads were used as money. Writing about the Chumash in 1792, for example, José Longinos Martínez wrote that "these Indians are fond of trafficking and commerce... In their trading they use beads for money. The beads are strung on long threads, arranged according to their value. The unit of exchange is a *ponco* of beads, which is two turns of the strings about the wrist and the extended third finger" (Simpson, 1961, pp. 54–55). In the early nineteenth century, Anglo-American sailor Daniel Hill also reported that shell beads circulated alongside Spanish coinage at the rate of two and a half hand-widths of beads per Spanish real (Woodward, 1934, p. 119). In the interior regions of western North America several writers documented the use of coastal shell beads as money

Fig. 1 Olivella shell saucer beads from the Middle Period of the Santa Barbara Channel region. It is likely that beads of this type were the first form of money used in western North America starting around 2000 years ago. Image used courtesy of the Santa Barbara Museum of Natural History. Photo by Mikael Fauvelle

Table 2 Shell money in Western North America

Time period	Pre-Columbian and Early Historic Periods (circa 200 BCE to 1804 CE)
Measurement system	Strings of beads measured by length
Scale of exchange	Tens of thousands of excavated beads with overall production estimated to be in the millions
Distances traveled	Over 600 km in core region
Types of usage	Daily exchange, including the purchasing of food and services as well as numerous other objects including blankets, baskets, tools, and textiles. Also used for the payment of debts
Sources of evidence	Ethnohistoric and archaeological

with some recording transaction prices for goods such as hides or blankets in lengths of bead strings (Bandelier, 1890, p. 149; Bolton, 1930; Frisbie, 1974, p. 125; Judd, 1967, p. 59). The types of exchange documented make it clear that shell money was used for daily transactions, showing that it was both a social and financial currency that fulfilled all the four functions of money.

There is wide agreement among archaeologists currently working in southern California that cupped shell beads made from the callus portion of the Olivella shell were used as money during the region's Late Period (circa 1300 to 1782 CE) (J. E. Arnold, 2001; Jeanne E. Arnold & Graesch, 2004; Jeanne E. Arnold & Munns, 1994; Fauvelle, 2024; Fauvelle & Perry, 2019, 2023; L. H. Gamble, 2008; Lynn H. Gamble, 2020; King, 1976, 1990; Zappia, 2014). This was a period of intensive inter-regional and regional exchange, characterized by sedentary villages, social hierarchy, and chiefdom-like political organization (J. E. Arnold, 2001, 2004; Fauvelle & Perry, 2019, 2023; Fauvelle & Somerville, 2024; L. H. Gamble, 2008). Gamble (2020, p. 10) has recently argued that high levels of standardization in earlier saucer beads suggest that these beads were also used as money as early as the region's Middle Period (circa 200 BCE). This corresponds with evidence of incipient social complexity during this period, including wealth inequality and the use of advanced plank canoes after around 500 CE (Fauvelle & Somerville, 2024; L. H. Gamble, 2002; L. H. Gamble *et al*., 2001, 2002). What is certain is that the use of shell beads as money predated European contact and had a long history within the region.

Shell Money and Long-Distance Trade

Most scholars working on southern California archaeology agree that trade and exchange played a central role in the origins of shell bead money (J. E. Arnold, 2001; Jeanne E. Arnold & Munns, 1994; Fauvelle, 2024; L. H. Gamble, 2011; Lynn H. Gamble, 2020; Zappia, 2014). One early model argued that shell money first appeared and was used on the northern Channel Islands in order to acquire needed foodstuffs from the mainland (J. E. Arnold, 1992, 2004; Jeanne E. Arnold, 1987; Jeanne E. Arnold & Munns, 1994). This explanation has recently received considerable criticism due to a lack of evidence for the intensive exchange in staple foods across the Santa Barbara Channel (Fauvelle, 2011, 2012, 2013, 2014; Fauvelle & Somerville, 2021a, b; Gill *et al*., 2019). Gamble (2020) points to internal exchange as a possible origin for shell money in the Chumash region, arguing that the need for status displays, ceremonial burials, and ritual exchange may have played a role in intensifying the use of shell beads (see also Fauvelle & Perry, 2023). Other scholars have pointed to external exchange, especially with interior regions such as the San Joaquin Valley and the Pueblo regions of the American Southwest (Fauvelle, 2024; E. Smith & Fauvelle, 2015; Zappia, 2014). Trade with these regions would have required movement across multiple cultural and linguistic boundaries, making the use of shell money as a trade currency highly advantageous.

Trade between coastal California and the interior regions of the American West has a long history that goes back to the Early Holocene (Fitzgerald *et al*., 2005). The

intensity of regional exchange increased during the first millennium CE and rapidly accelerated after around 500 CE (E. Smith & Fauvelle, 2015). During the following centuries, large amounts of goods flowed east to west across south-western North America, interlinking the political economies of regions stretching from the Pacific Coast to the Mississippi River (D. D. Earle, 2005; Pauketat, 2023; E. Smith & Fauvelle, 2015; Zappia, 2014). Goods exchanged included ceramics and textiles from the desert regions of the Southwest and shells and bitumen from California (E. Smith & Fauvelle, 2015). Traveling merchants often undertook long-distance journeys to transport goods from the coast to the interior with indigenous Mojave traders becoming famous for their role as trade intermediaries (D. D. Earle, 2005; E. M. Smith & Fauvelle, 2022; Zappia, 2014) (Fig. 2). During the historic period, numerous Spanish chroniclers described encounters with trade parties traveling across the American west, often carrying large amounts of shell wealth (D. D. Earle, 2005; Fauvelle & Perry, 2023).

The scale of exchange of shell beads during the late Pre-Columbian times was immense. During the most intensive period of bead production and exchange, dating after 1300 CE, it is estimated that millions of labor-intensive money beads were produced on the Channel Islands and traded into the mainland coast and beyond (J. E. Arnold, 2001; Fauvelle, 2024). In the Channel Region, it is not uncommon for elite burials from this region to contain thousands if not tens of thousands of beads (Fauvelle & Somerville, 2024; L. H. Gamble *et al*., 2001; Lynn H. Gamble, 2020; Raab, 1994). In one recent study spanning the region's Middle through Late Periods, the mean number of beads per burial across all segments of society was 148, indicating the degree to

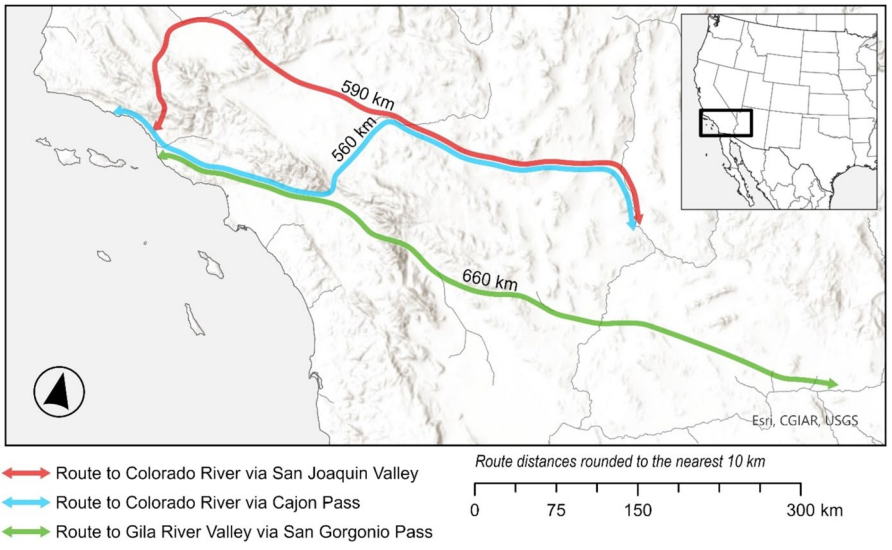

Fig. 2 Ethnohistoric trade routes between coastal California and interior regions of western North America. Shell money was traded from the coast to the interior while ceramics and textiles were traded in the opposite direction. Shell beads from the Pacific Ocean continued to be traded east reaching as far as the Mississippi River. Map prepared by Karl Smith

which the use of shell beads was ubiquitous across social strata (Fauvelle & Somerville, 2024). Outside of the Channel Region, tens of thousands of beads have been found at sites in California's Central Valley and Bay Areas including 28,338 beads from a single burial in Livermore Valley (Lynn H. Gamble, 2020; Milliken *et al*., 2007). Large amounts of California shell reached as far as the Mississippi region, where 13,948 *Olivella dama* beads from the Sea of Cortez have been found (Kozuch, 2002).

None of this trade would have been possible without the use of shell beads as financial money. The millions of shell beads that were produced on the coast and traded inland during the last thousand years of the pre-Hispanic period allowing for transactions in a wide range of goods to be denominated in values of beads. Trade corridors running east to west in North America were thousands of kilometers long and crossed numerous ecological and cultural boundaries (D. D. Earle, 2005; E. Smith & Fauvelle, 2015; Zappia, 2014). This was especially true in ancient California which was one of the most linguistically and culturally diverse regions in the ancient world (Codding & Jones, 2013). Traders traveling across these regions would therefore have had difficulty depending on pre-established debt relationships alone and would have greatly benefited from the use of highly portable and fungible shell beads as financial money. Historical accounts document that numerous goods across this wide region were denominated in values of shell beads (Bandelier, 1890, p. 149; Bolton, 1930; Frisbie, 1974, p. 125; Judd, 1967, p. 59). A Mojave merchant traveling from Hohokam towns in the Gila Valley to the Chumash political center at the Goleta Slough (a distance of some 700 km) would have been able to use shell money to purchase food, blankets, hides, and stone tools at stops throughout their journey. Without the use of shell money, it is difficult to see how this vast trade system would have functioned.

The shell money trading network of the North American "Interior World" developed in the absence of any state or other hierarchical regional authority. It is therefore clear that in the North American case, the use of money was a pre-state phenomenon. Furthermore, the wide range of shell money use excludes tribute or taxation by chiefly authorities as a likely explanation. While Olivella shell beads were produced under chiefly auspices in coastal California, they were exported into a wide region with a diversity of different forms of sociopolitical organization. The value of shell money in the Mojave Desert, for example, did not depend on their value for paying tribute to coastal Chumash chiefs. Instead, the best explanation for the development of money in western North America is that it developed to meet a need for a fungible currency to facilitate trade and travel across this vast region. As described above, the North American case study clearly shows how external trade between strangers and across boundaries can lead to the development of financial money.

Bronze Age Western Europe

Long-Distance Trade and the Bronze Age World

One of the earliest prehistoric examples of a globalized economy can be found in the European Bronze Age (Kristiansen and Larsson 2005; Vandkilde, 2016a, b). Much

like in pre-Columbian western North America, Bronze Age Europe was deeply connected by trade networks that crossed numerous cultural, linguistic, and geographic boundaries. Although we lack written records for Northern Europe during this time, accounts from the Bronze Age Mediterranean such as those recorded in the Odyssey emphasize the heroic character of long-distance travel and sea-voyaging (Kristiansen and Larsson 2005). Artistic parallels in rock art and bronze etchings found in both Scandinavia and the Mediterranean also give testimony to the widespread travel of both people and ideas during this time (Bradley *et al*., 2020; Kaul, 2013, 2022; Ling & Stos-Gale, 2015). These connections are backed up by material sourcing studies with goods such as copper, tin, and amber found in locations far distant from their natural sources (Ling *et al*., 2013, 2014; Murillo-Barroso *et al*., 2018; Vandkilde *et al*., 2024). Much as in North America, a strong case can be made for the emergence of money in the form of copper and bronze ingots to facilitate trade across the continent during this period of heightened interaction.

The long-distance movement of metals was central to the functioning of Bronze Age society. Copper and tin, the metals that make up bronze, were only available from a few regions across the continent yet were needed in massive quantities by every society that used bronze tools. For northern Europe and southern Scandinavia, it is conservatively estimated that between 2.5 and 4 tons of metal needed to be imported annually, including at least 1 ton per year for Denmark alone (T. Earle *et al*., 2015; Ling *et al*., 2018b). As copper was not locally mined in Scandinavia, this metal needed to be imported over long distances from sources on the British Isles, the Alps, or the Mediterranean. Lead isotope analysis further shows that many metal objects from Bronze Age contexts in Scandinavia used copper from sources in Iberia, a distance of over 2000 km (Ling *et al*., 2013, 2014). Important nexuses of interaction where traders from multiple regions may have met to exchange copper, tin, amber, and potentially slaves, such as the British Channel and the Isle of Thanet (Ling & Rowlands, 2013; Ling *et al*., 2014), would have also required long-distance travel to reach. With critical resources traveling over such great distances, it is clear that the Bronze Age European economy required travels across numerous regional boundaries and trade between partners for whom the chance of meeting again was uncertain.

There is considerable evidence that at least some of the trade that connected the European Bronze Age world was carried out by individuals and groups who traveled over great distances, rather than by down-the-line exchange between multiple parties. Numerous rock art panels in Scandinavia depict motifs that seem to be drawn from the Mediterranean world, including ox-hide ingots, conical hats, backward bent dances, and bull and chariot imagery (Iversen, 2014; Kristiansen and Larsson 2005; Ling & Stos-Gale, 2015). Other objects from the Nordic Bronze Age, including razors and folding chairs, also seem to be heavily influenced by similar objects from the Mediterranean world (Iversen, 2014; Kaul, 2013). These parallels in art, cosmology, and the material world strongly suggest that individuals, rather than just ideas or objects, were traveling between these two regions (Kristiansen and Larsson 2005). Considering the scale of trade in metals discussed above, the pressure to eliminate middlemen by trading directly for copper and tin would have been immense and would have provided a motive for such long-distance journeys. Several

Table 3 Bronze money in Europe

Time period	Bronze Age Europe from at least 1500 BCE onwards
Measurement system	Weight
Scale of exchange	Up to 4 tons of bronze are consumed in Northern Europe every year, with 1 ton in Denmark alone
Distances traveled	Up to 1000 km and more
Types of usage	Bronze was used in a vast array of objects including utilitarian as well as high-status items. Bronze money was likely used by all segments of society
Sources of evidence	Archaeological

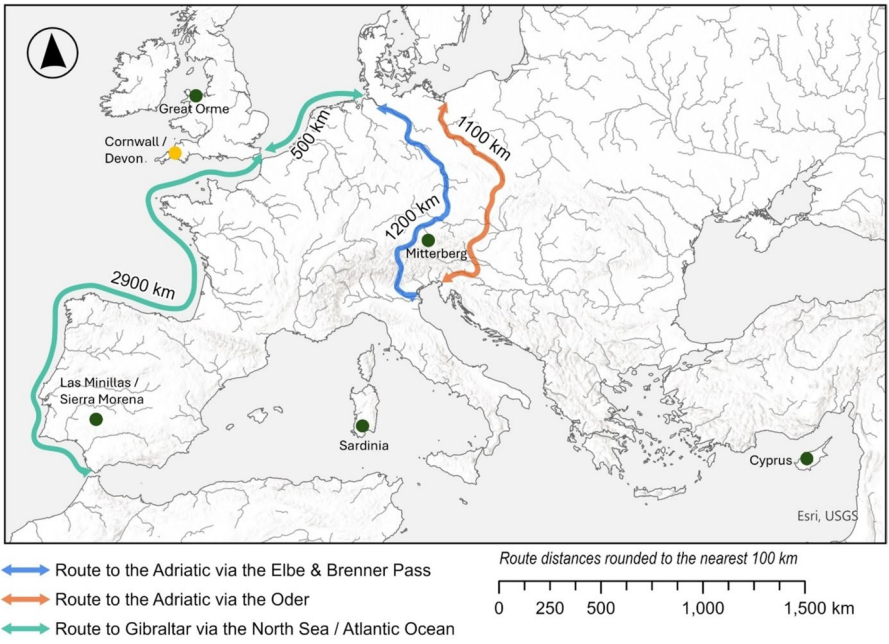

Fig. 3 Map of possible trade routes connecting Scandinavia with the Mediterranean. Even though terrestrial routes are shorter they would likely have taken longer to travel than the longer coastal route. Coastal route shows a stop at the island of Thanet which was likely a major trading point for metals from the British Isles. Map shows sources of copper that have been chemically identified in Scandinavian bronze artifacts in dark green and the Cornwall/Devon tin source in yellow. Map prepared by Karl Smith

rock art panels from Scandinavia depicting boats in association with metal ingots of the typical oxhide shape can provide support for the idea that at least some of these journeys may have been conducted by sea (Ling & Stos-Gale, 2015) (Table 3).

Organizing long-distance trading journeys to bring metals to Scandinavia would have been logistically difficult without the use of money. An overland trading expedition from Denmark to the Adriatic Sea would have involved traveling over 1000 km through highly diverse terrain and across numerous cultural boundaries (Fig. 3).

A sea voyage from Scandinavia along the Atlantic coast to Iberia would have been more than twice as long and would have required landings on dozens of beaches in intermediary territories. A journey by either route would take many weeks, if not months, and would require far more food and supplies than would be possible for any expedition to carry with them. By necessity, traders would have needed to procure supplies along their route. Social connections with intermediary groups would have been key, and some resources could have been procured through networks of marriage alliances and participation in trade guilds or secret societies (Hayden, 2018; Ling *et al*., 2018a; Ling *et al*., 2022). Kaul, for example, has stressed the importance of traditions of hospitality and friendship between non-related individuals (Greek *xenia*) which may have helped facilitate travels between the Mediterranean and Northern Europe (Kaul, 2022). Considering the length of these journeys, however, such social connections could not have been depended on at every stage of the trip. At some point, travelers would have had to interact with strangers in order to procure safe passage, lodging, or provisions. In these cases, it would have been critical to carry highly valuable and portable commodities that could be depended on to hold value across wide cultural, linguistic, and geographic boundaries.

In describing the long-distance expeditions taken by traders to acquire copper and tin I have taken what Knapp and colleagues describe as the "maximalist" position on Bronze Age trade (A. B. Knapp *et al*., 2022). The maximalist position holds that the sheer scale of exchange coupled to shared cultural elements (*xenia*, conical hats, backward bent dancers, and bull and chariot imagery, *etc*.) point to the long-distance movement of individual travelers across the European continent (Iversen, 2014; Kaul, 2013; Kristiansen and Larsson 2005; Ling & Stos-Gale, 2015). Knapp and colleagues counter with a "minimalist" position in which communities were interlinked through key interaction nodes without having to travel across the entire interaction network. While settling the debate between minimalist and maximalist positions is beyond the scope of this paper, I suggest that even within a minimalist framework traders would need to interact with strangers at ports of trade. Indeed, the "minimalist" interaction networks proposed by Knapp and colleagues (2022:86) are themselves nearly a thousand kilometers wide and would certainly have spanned multiple social and political boundaries.

Bronze Money

Bronze ingots, axes, and rings were among the most durable, fungible, and widely desired commodities in Bronze Age Europe and are widely considered to have been used as a form of early money (Ialongo & Lago, 2021, 2024; Ialongo *et al*., 2021; Kuijpers & Popa, 2021; Lenerz-de Wilde, 1995; Rahmstorf, 2016; Sommerfeld, 2013) (Fig. 4). In a large-scale statistical analysis of 23,711 metal objects, Ialongo and Lago (2024) showed that metal weights were log-normally distributed after around 1500 BCE, suggesting that a monetary economy was in place by that time. During the Early Bronze Age, highly standardized and unpolished ring ingots began to appear in hoards in Central Europe (Kuijpers & Popa, 2021; Lenerz-de Wilde, 1995; Rahmstorf, 2016). The unpolished nature of many of these rings and the fact

that they are sometimes found in numerical clusters of five to ten suggest a possible use as money (Rahmstorf, 2016, p. 34). Early Bronze Age axe blades from Central Europe have also been suggested as having monetary functions (Kuijpers & Popa, 2021). Statistical analysis by Kuijpers and Popa (2021) has shown that ring, rib, and axe-formed bronze ingots cluster into consistent weight categories suggesting that they would have been of mutually indistinguishable weights to the average observer. Such standardization in weight and size highlights the importance of fungibility and would have facilitated the use of bronze ingots in financial transactions. Middle Bronze Age palstave-shaped bronze axe-ingots found across the Atlantic façade of Europe are also highly standardized and may potentially have been money objects (L. Melheim *et al*., 2018a, b, p. 104). The fact that many ingots have been found in maritime contexts associated with shipwrecks emphasizes their association with trade and also points to their likely use as a form of currency (Berger *et al*., 2022).

The introduction of standardized weights into western Europe during the 2nd millennium BCE would have increased the utility of bronze as a form of financial money (Ialongo, 2019; Ialongo & Lago, 2021, 2024; Ialongo *et al*., 2021). By weighing amounts of metal, merchants could divide bronze into small quantities for trade, greatly increasing the efficiency of long-distance exchange. Indeed, facilitating economic exchange would have been one of the primary functions of weight systems in ancient societies and continues to be a central function today (M. A. Powell, 1977; Renfrew, 2012). Weights in ancient Europe took the form of rectangular or lenticular objects,

Fig. 4 Early Bronze Age Spangenbarren (rib ingots) from Swabia, Germany. From the Germanisches Nationalmuseum, photo by Monika Runge. These images are provided with the WissKI Infrastructure under license CC BY-NC-ND 4.0

generally made from stone, that confirmed to standardized weights and which would have been compared between merchants prior to bargaining over a transaction (Ialongo, 2019). Although there is considerable regional diversity in weight and measurement systems in ancient Europe, both Bronze Age European and Mediterranean weights cluster into a unit corresponding to between 9.2 and 10.2 g, suggesting continuity across large areas (Ialongo *et al*., 2021). Weight systems spread into Europe from the Eastern Aegean after around 2300 BCE, reaching much of the Atlantic coast by 800 BCE. In Late Bronze Age Scandinavia, Malmer (1992) suggested the existence of a weight unit of 103 g, corresponding to ten of the units identified by Ialongo and colleagues (2021). Support for the existence of weight units in Bronze Age Scandinavia can be found in standardized crucible sizes for bronze smelting (L. Melheim *et al*., 2018a, b). By the Late Bronze Age, therefore, standardized measurements seem to have been used to weight bronze from Scandinavia to the Mediterranean.

In order to test the theory that fragments of metal could have been used as financial money, Ialongo and Lago (2021) analyzed 2739 whole and fragmentary bronze objects from Italy and Central Europe to see if fragments fit into standardized categories corresponding to known weight standards of between 9.4–10.2 g and 420–450 g. Their results showed that objects tended to be fragmented in order to comply with weight systems, strongly suggesting that they were used as a form of financial money. Critically, Ialongo and colleagues (Ialongo & Lago, 2021; Ialongo *et al*., 2021) show that the dispersal of weight systems across Europe follows interregional trade routes and seems to have been driven by merchants seeking to regulate the exchange of their wares. This shows that the spread of money—or at least monetarized weight systems—was driven by long-distance exchange and not by the demands of ancient states.

Just like in Western North America, money in Bronze Age Western Europe developed as bottom-up phenomena outside of the control of ancient states. Since copper and tin were patchily distributed across the continent, traders were forced to make long-distance journeys to procure the resources that made the Bronze Age political economy possible. As metal objects were small, durable, and widely desired, ingots became a standard and dependable currency through which travelers could conduct trade and obtain provisions regardless of which cultural, political, or geographic regions they found themselves in. During the Middle and Late Bronze Age, the use of metal as money was further facilitated by the spread of standardized weights through the same corridors in which trade was already flowing. While many internal economies throughout Bronze Age Europe may have functioned on the basis of prestige exchange, debt, and reciprocity, the emergent world system that connected the entire continent could not have functioned without the use of commodity money in the form of metal ingots to grease the wheels of interregional trade.

Discussion

Trade and the Origins of Money

Pre-Columbian Western North American and Bronze Age Western Europe are both examples of highly interconnected economic systems where goods were

traded across numerous cultural, linguistic, and political boundaries. In both cases, commodities that were at the center of these inter-regional trade systems eventually came to be used as money, as documented either by the ethnohistoric record or by analysis of archaeological finds. As presented here, it was due to the large-scale and interconnected nature of these trading systems that both shell beads and metal ingots came to be used as financial money. Traveling merchants could not have depended on debt and reciprocity alone to obtain goods and provisions from the many different people they would have met on their journeys. Instead, portable and fungible goods of dependable value would have been carried by traveling merchants in order to finance their expeditions. These case studies thus provide examples of the emergence of money through intense inter-regional trade.

As presented in this paper, the trade theory of money explains how money can come about through long-distance trade between strangers and across cultural boundaries. In this model, money is presented as increasing the efficiency of exchange in external rather than internal economic interactions. In this sense, money can be seen as a form of social technology that provided the societies that used it with the ability to expand their economic horizons beyond the boundaries of their immediate political and kinship networks (Fauvelle, 2024). I therefore agree with scholars who see money as deriving value based on its ability to solve practical problems for the people who use it (Jones, 1976; Melitz, 1970). Through the use of money, ancient societies were able to acquire resources on a greater scale and over a larger area than would have been otherwise possible. The innovation of money is thus one of the catalyzing factors that helped facilitate the formation of ancient world systems in both North America and Europe. As a form of social technology, we could also expect that money would have been invented in multiple times and places throughout human history. That money can develop through external trade systems, therefore, should not rule out the development of money through state taxation.

Not all the people who travelers interacted with on their journeys would have been strangers. Ancient traders were likely well aware of where they were going and probably worked hard to build social networks both at trade destinations and along the routes needed to get there (*e.g.* Hayden, 2018; Ling *et al.*, 2022). Shared traditions of hospitality may also have helped facilitate safe passage between groups with similar values (Kaul, 2022). This does not mean, however, that ancient travelers could depend on social ties alone to conduct long-distance trade. With journeys lasting for weeks or months, some of the people met on long-distance trips would almost certainly have been strangers. Furthermore, even if potential trade partners were previously known to travelers, the distance between them would have placed them in a different category than kinspeople or neighbors from home regions. While one can depend on a neighbor from one's own region to reciprocate a debt, there would always have been an element of doubt as to whether or not distant trade partners would ever be seen again, due to the infrequency and considerable risk involved with long-distance travel. It is in these circumstances that systems of financial money are likely to develop.

Further Considerations and Limitations

In this paper, I have focused on the financial role of money in facilitating long-distance exchange. Money, however, would also have performed social functions within societies including the payment of debts, the financing of feasts, and the display of prestige. Rosenswig (2024b) has recently argued against conflating the financial and social roles of money and has suggested that pre-state money such as the shell beads and bronze ingots discussed in this paper served primarily social functions. Graeber (2012) has argued for a similar position, distinguishing state-centric money from pre-state "social currencies". As I have argued previously, however, both contemporary and ancient money often performs both of these functions (Fauvelle, 2024). In the case of ancient California, the ethnohistoric record is clear in describing shell money as fulfilling both commercial roles in daily exchange as well social roles in chiefly display and the payment of debts. This was likely the case for metal ingots in Bronze Age Europe as well, with traders using them as a form of financial money on long-distance journeys while chiefs used bronze money to fulfill social obligations within local political economic systems. Indeed, it would be difficult to find an example of a society characterized by a purely financial or purely social money system; these different functions are almost always two sides of the same coin.

A money system that has its origins in long-distance trade can be expected to be rapidly adopted for local economic interaction. Indeed, this is what we see in both the case studies presented in this paper. In pre-Columbian coastal California, for example shell beads were used in all manners of daily interactions, including the purchasing of food, clothing, and daily services (Fauvelle, 2024; King, 1976). In Bronze Age Europe, Ialongo and Lago (2024) argue that the use of money was widespread across society based on their identification of log-normal distribution of copper consumption across thousands of artifacts dating to the Bronze Age. Likewise, Powell and colleagues (2022) argue for the widespread and regular exchange of bronze ingots in local communities in central Eurasia. While I agree with heterodox theorists who argue that the widespread use of money is unlikely to originally develop on a local level due to the use of debt and reciprocity in such societies (*e.g.* Graeber 2011; Rosenswig, 2024a, b), I suggest that the trade theory of money provides an explanation for results observed in these case studies by showing how money can first come about in situations of intense interregional exchange and then quickly become used within local economies.

Many of the bronze ingots found in Western Europe come from buried hoards, which Rosenswig (2024a, b:80–81) has argued is more consistent with ritual rather than financial behavior. Furthermore, he has suggested that ethnohistoric material from Scandinavia points to a social rather than financial use of money in northern Europe (Rosenswig, 2024b, p. 80). While Rosenswig is correct to point out that many uses of metal coins by Scandinavian people during the Iron Age and Viking Period did include social functions such as the payment of dowries or *weregeld*, it is also true that financial transactions for trade items such as weapons, furs, or slaves also took place, especially in central places and market towns (Metcalf, 2016; Skre, 2012, 2017, 2020). Indeed, the fact that increased degrees of monetization in Scandinavia during the Viking Period (and potentially the Germanic Iron Age) seems to

have been connected with long-distance trading rather than state formation (Metcalf, 2016, p. 2; Skre, 2012, pp. 60–61) supports a trade focused model for the origins of money in Scandinavia.

The fact that many bronze ingots are found in buried caches and hoards is also consistent with both financial and social uses of money. While buried hoards may have represented bridewealth payments to secure access to farmland through marriage (*e.g.* Burström, 1993), another possibility is that they represented caches of financial wealth that were buried for protection during times of trouble. Indeed, the large number of Viking Period silver hoards found on the Island of Gotland has been connected to the Islands' centrality in many long-distance trade networks (Skre, 2012, p. 61). In a rural society such as Viking Gotland or Bronze Age Central Europe, the burial of wealth on one's farmland would have been a prudent way to secure wealth against theft or raiding. On the other hand, the sheer quantity of Bronze Age caches, the selective nature of the items deposited, together with the fact that many of them are deposited in places (for example bogs) where they would be difficult to retrieve suggests that their deposition may have served a variety of functions. This could include more political-economic purposes such as hedging against inflation or showing off one's wealth (Bradley, 1990; Kristiansen, 1998), as well as moral-economic purposes such as cementing connections to ancestors, gods, society, or the landscape (Fontijn, 2020). In all likelihood, it was a combination of both.

It is notable that in both the case studies discussed in this paper, the removal of wealth through deposition (either in burials or caches) was an important means of removing money from circulation. In California, for example, most archaeologically recovered shell beads come from burials. Burying shell wealth with the deceased was not only a representation of their prestige and status during life but also had the added effect of controlling inflation by removing money from circulation. In Bronze Age Europe, the deposition of wealth in caches and bogs would have had a similar effect, complementing the removal of metal from circulation due to the use of ware (Kristiansen, 1998). One significant difference between shell wealth and metal wealth, however, is that metal wealth can be melted down to remove it from the archaeological record, making caches and hoards, whether ritual or not, one of the few places where they would be found. Just as money can have both social and financial functions in its use, the deposition of money may thus also serve a variety of purposes.

Another possible limitation to the ideas presented here concerns the degree to which merchants would have been acting independently rather than at the request of elites who were the primary consumers of both bronze and shell. If merchants were acting on the behest of elites, perhaps one could see chartalist tendences in the origins of money through trade? For the North American case study, this is easy to address as we have ethnohistoric data to fill in the details. While shell bead production was indeed partially controlled by elites who sponsored shell workers in their crafts (Jeanne E. Arnold & Munns, 1994), it was foreigners from the Mojave Desert who conducted much of the long-distance trade in shells. The production and use of money was therefore not controlled by the elite of any one region and was instead a bottom-up and externally focused phenomenon. For Bronze Age Europe

the situation is less clear, but evidence from rock art and elite burials seems to suggest that elites themselves took part in many long-distance voyages, bringing back foreign concepts to their home regions. Recent research, however, suggests that the consumption of bronze was widespread by elites and commoners alike (Ialongo & Lago, 2024). This suggests that the Bronze Age metal economy was not only the prevue of elites and further suggests that the demand for bronze money was a process driven from the bottom-up.

A final line of criticism of exchange-based explanations for the origins of money has been raised by Graeber (2011a), who rejects traditional approaches to the commodity theory of money based on the lack of anthropological evidence for barter economies. While Graeber (2011a, b:75) acknowledges that some forms of money "may have originally emerged from barter between foreigners," he ultimately rejects external trade as an explanation for the emergence of financial money based on the assumed dangers inherent in international travel. According to Graeber, ancient merchants would have been loath to carry large amounts of cash with them due to the risk of theft, instead only carrying commodity goods which they knew were desired by distant trade partners. In both the examples presented here, however, the exact same commodities that were most desired across wide-ranging trade networks -shell beads and bronze- were also the commodities that eventually became used as financial money. The use of these commodities as money, therefore, would have had little impact on the perceived safety of traveling merchants, rendering Graeber's argument mute. As I have argued in this paper, the reason these commodities became used as money was precisely because they were widely desired and could thus be used by merchants to procure provisions and goods across multiple cultural and geographical boundaries.

Conclusion

The trade theory of money presents a bottom-up approach that sees money as developing from the independent activity of long-distance traders who crossed political and cultural boundaries during their travels. It differs from traditional commodity or metalist theories of money by focusing on the role of external rather than internal trade. In so doing it avoids the problem of the "myth of barter" by acknowledging that internal economies in traditional societies were often run on the basis of debt and reciprocity while highlighting the fact that such processes would break down during interactions with distant trade partners. In so doing it builds on the views of early scholars including Marx (1859, p. 223), Weber (1978, p. 673), Polanyi (1968, pp. 195, 201), and Bücher (1912, p. 68), who all saw the possibility of money emerging from long-distance and inter-regional exchange. A trade theory of money sees money as a "social technology" (Fauvelle, 2024, pp. 7–10) that was invented in multiple times and places in order to solve the problem of communication and exchange between strangers and across social boundaries.

Both of the case studies presented in this paper describe examples of the emergence of money in pre-state societies. In indigenous California, traditional knowledge and ethnohistoric documents paint a clear picture of the use of shell beads

as financial money in a wide range of commercial activities (J. E. Arnold, 2001; Jeanne E. Arnold & Munns, 1994; Fauvelle, 2024; L. H. Gamble, 2011; Lynn H. Gamble, 2020; Zappia, 2014). Californian shell bead money emerged in one of the most linguistically diverse regions of the world (Codding & Jones, 2013) and was used across a wide region of western North America by traders from diverse cultural boundaries (E. Smith & Fauvelle, 2015; Zappia, 2014). Likewise, the political economy of Bronze Age Western Europe was dependent on the long-distance movement of metals (Ling *et al*., 2014; Vandkilde, 2016b). There is wide agreement that bronze ingots started to be used as financial money during this period and helped finance interaction on a continental scale (Ialongo *et al*., 2021; Ialongo & Lago, 2021; Kuijpers & Popa, 2021; Lenerz-de Wilde, 1995; Rahmstorf, 2016; c.f. Rosenswig, 2024b). In both cases, commodities of intense inter-regional demand (shell beads and bronze ingots) came to be used as money due to the convenience of their use as a medium of exchange.

It should be clear from the case studies presented in this paper and elsewhere (Fauvelle, 2024; Rosenswig, 2024a, b) that money has emerged in different ways at multiple times and places throughout history. The development of money as a medium of exchange in pre-Columbian North America and Bronze Age Europe does not preclude its development as a unit of account in ancient Mesoamerica, Mesopotamia, Ancient Greece, or elsewhere. The fact that money is so ubiquitous today is almost certainly due to its central role in state finance and taxation, making chartalist explanations for the development of money critical for our understanding of world economic history. My goal in this paper has not been to disprove chartalist approaches to money but instead to explore how inter-regional trade could provide an alternative route to money in pre-state societies. The wide landscape of new types of money in our contemporary world should remind us that money is a broad and diverse topic that has taken many forms throughout our history. Hopefully, future research will continue to explore the many different pathways that ancient societies took in the development of money, long-distance trade systems, and economic complexity.

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