



The Role of Monetary Networks in the Trade between India and the Roman Empire¹

GAUTAM BONDADA

gautam.bondada@gmail.com

Introduction

In 1786, a chance discovery of Roman coins in an agricultural field in south India provided the first tangible hints to connections between India and the Mediterranean region in antiquity (Turner 1989: 1, 71). In an interesting coincidence, as these ancient ties with the West were being recorded, new associations were being simultaneously forged with contemporary European trading companies in then undivided India. This situation depicts the long history of trade and communication between India and Europe.

In the first half of the twentieth century, archaeological excavations at the port-site of Arikamedu on the Coromandel Coast decisively established commercial links with the Roman Empire (Wheeler et al. 1946). Under the rubric of 'Indo-Roman trade', the study of these links took various avenues of focus ranging from identifying participants in the trade, items of exchange, technology and infrastructure that facilitated commerce and the role of political and religious factors in its organisation and conduct. It is now understood that the so-called 'Indo-Roman trade' in fact extended far beyond both India and the Roman-Byzantine Empires, connecting several "circuits" of local and regional trade from Africa to South-east Asia (Ray 1994: 189-90).²

One of the core aims of this article is to further the discussion on inter-regional connections with the aid of 'monetary geography' to explain the "spatial organisation of currency relations" (Cohen 1998: 3). It is argued here that economic integration of regions was a long process facilitated by monetary communication. Interaction between currencies as numerous and diverse as the regions they represented led to the formation of monetary networks. It is proposed that trade between the subcontinent and the Mediterranean was made possible



by the convergence of several monetary networks. The study of these networks therefore can provide a more nuanced understanding of the nature of interaction between India and the Hellenistic and Roman Empires which this exploratory discussion aims to cover.

The study of Roman coins from India

As the most abundant category of material evidence for ancient connections between the South Asian subcontinent and the Mediterranean, Roman coin finds from India have received wide scholarly attention. The majority of Roman coins discovered in India are the result of chance finds than systematic archaeological excavations (Turner 1989: 46-87). It is reasonable to argue therefore that despite an absence of written records about such discoveries prior to seventeenth-eighteenth centuries, the possibility of earlier finds need not be discounted.

During the nineteenth century, Roman coin collections grew in museums and among private hands across India. The latter included British administrators, some of whom served as diplomats to the States of Indian rulers thus providing them greater access to antiquities from the interiors of the country (Ray 2006: 17). Other professionals from Britain posted in India too built their private collections of locally recovered Roman coins in pursuit of a hobby (Prinsep 1832: 392-3).³ With access to European scholarship versed in the study of Greek and Roman material culture, Roman coin finds from India began to receive due attention (Elliot 1844). By early twentieth century, systematic approaches began to define their study resulting in commendable attempts at understanding chronology of trade between Rome and India (Sewell 1904).

The political reality of the time, however, outweighed any possibility of an unbiased approach to the subject. Colonial attitude and imperial tone were most prominent in the writings of Vincent Smith (1890), Mortimer Wheeler (1954) and E.H. Warmington (1928), among others, whose portrayal of India was that of a passive recipient seemingly lacking any agency in its own affairs while the Indo-Roman commerce was effectively carried out by the industrious Romans. In most of these writings, India constantly figures as a land experiencing an identity and cultural crisis which eagerly emulated the sophisticated culture of the West. These ideas influenced the then understanding of Roman coins recovered in India. It was opined that "[...] the Greeks deliberately established a Roman currency of Roman coins in Tamil districts"



(Warmington 1928: 278). The idea of sophisticated and superior West was created in the opposing image of the backward and dependent East. Elaborate explanations such as the following were also offered in interpreting the body of evidence from India.

[...] at first, the Romans sent out under Augustus and Tiberius very fine pure gold and silver coins but at the same time tried the effect of bad coins, for instance the plated examples of Gaius and Lucius, upon uncultured minds, and that after a little, perhaps under Caligula and Claudius [...], the Romans, moved by the admiration of the Indians (for example of the Raja of Ceylon in Pliny) for the better coins of constant weight, sent out silver and gold of the very best standard and with the stamps of Augustus' and Tiberius' reigns, or struck a new issue of coins of similar weight and stamp (in order to please the Indians who had learnt to admire them), ceasing to include bad coins. (Warmington 1928: 292)

Over the last century as several more Roman coins were discovered across the country in hoards or as solitary finds, evidence at the level of sites and regions is increasingly becoming available for study.⁴ The lack of common standards in the collection and presentation of data, however, poses the main challenge towards attempting a general analysis of evidence from within India. Nonetheless, growth in comparative studies dealing with Roman coin finds from different areas both within and outside the empire has enabled visualising patterns in trade and circulation of coins, and highlighted inter-regional and inter-cultural variations (Macdowall 1991, 1996; Lind 1991; Walburg 1991).

The spatial distribution of Roman coins in India is now fairly well-documented. Their dense concentration in southern India along the Krishna river valley and Coimbatore region is particularly well known. In contrast, Roman coin finds are extremely rare in the North up to the sites in Afghanistan and Pakistan where they tend to occur as deposits in Buddhist stupas (Suresh 2004: 175-7). This variation in distribution is perhaps the result of the different roles Roman coins played across the subcontinent. In the North, they were suggested to have served as bullion melted down by the Kushans to mint their gold coins (Sewell 1904: 596) and to avoid a competing foreign currency within their territory (Wheeler 1951: 363-4). These hypotheses, however, fail to address the role of Roman silver coins, the denarii, which are considered to have lent their name to the Kushan gold coins, the dinars. The long-held assumption about Roman gold in Kushan coins was conclusively dismissed upon trace element analysis of Roman aurei and Kushan dinars that showed a clear variation in the chemical profile



of gold used (Blet-Lemarquand 2006). Previously, a similar analysis of indigenous silver coins series, however, had confirmed a strong relationship between the Kshatrapa ruler Nahapana's coins and Roman silver coins struck under the rule of Augustus and Tiberius at the Lugdunum mint (Turner 1984: 131).

In south India, due to their extensive presence Roman coins came to be regarded as an established currency (Jackson 1913: 300; Warmington 1928: 278, 283). They have even been likened to U.S. Dollars of the contemporary times that are widely accepted and function as quasi-universal currency (Suresh 2004: 157). These views have been challenged on the grounds that the then social formation in the South did not support a monetised economy where coins represented money; instead they were commodities exchanged for tradeable items from the region (Gurukkal 2013: 198). This aligns well with the original supposition by M.J. Walhouse (1876: 239) about the association between Roman coin finds in the Coimbatore region and the rich local reserves of beryl. It is further supported by textual references to the export of gemstones from India (Casson 1989: 222).

Roman coin hoards have also been interpreted as potential markers of status and prestige in the local gift economy (Thapar 2012: 569). References to rewards of gold coins abound in the Sangam literature and lend weight to this view (Zvelebil 1986). However, the wide chronological range of this literary corpus (Abraham 2003: 211) prevents precise dating to ascertain their relevance for the period under study. In another suggestion, Roman coin hoards fulfilled the need for banking and served as a means to stock wealth by Indian merchants to use in their transactions (Falk 2015: 108). This hypothesis is untenable as it fails to explain how a large number of hoards meant for recurrent access survived into the present day. The latest hoard belongs from Weepagandla which cannot be dated beyond seventh century (Suresh 2004: 170) implying that none of the known hoards was accessed thereafter. Finally, the association of Roman coins with megalithic burial sites (Suresh 2004) on one hand and Krishna Valley sites with a strong visual presence of Buddhism (Padma & Barber 2008: 20) on the other, indicates the ability of Roman coins to enter economic, sacred and funerary contexts alike.

In his study, S. Suresh (2004: 40-58, 77-9) gave considerable space to the discussion on morphological features that could inform further upon local practices. These include countermarks, slashes, piercing, and appended loops that have been noted on coins from



several hoards. In approach, the analysis also incorporated a simultaneous discussion of other categories of material evidence including imitations of Roman artefacts that he labels 'pseudo-Roman' objects. More recently, Rebecca Darley extended extant knowledge by focusing upon Byzantine coins in India in her doctoral dissertation shedding light on the period between fourth and seventh centuries. Her study indicated ritual contexts of distribution and use of late Roman coins in India (Darley 2013: 283; 2015a: 60-84).

Another line of study deals with imitations of Roman coins known from both within the Roman Empire and India.⁵ Since the meanings that Roman coins and their imitations held across India relate to local practices, the study of Roman coins is therefore a simultaneous study of associated practices. Recent works have also begun to redress the gap in understanding collection practices involving Roman coins in India (Darley 2015b) and historiography of specific collections (Darley 2012; Jansari 2013).

Envisaging directions for ongoing and future research

As may be noted from the above discussion, initial works laid a strong foundation to the study of Roman finds from India. However, they also suffered from certain limitations due in part to relatively new and limited data in conjunction with the choice of theoretical framework and methodological approaches adopted to engage with processes of interaction and cultural change. For instance, visual and conceptual similarities between coinages have been oft-explained exclusively in terms of cultural influence and emulation. The premise holds true for the influence of one native coinage on another (Gupta 2010: 49). The use of portraiture in Kshatrapa (Shastri 1988: 60), Satavahana (Sarma 1980: 112), and Chera coins (Mitchiner 1998: 73; Mukherjee 2003: 4), or the close similarities between royal titles and weight standard used by the Kushans and the Romans (Sewell 1904: 591; MacDowall 1990: 63 ff.; Puri 1996: 249; Falk 2015: 107), have all been argued in a self-explanatory manner as imitations or products of inspiration. The nature of such inspiration and the implications have however barely been proffered.

Views regarding the native re-use of metal from Roman coins towards minting local coinages under the Kshatrapas (Turner 1984: 131) and the Kushans (Sewell 1904: 596; Sagar 1992: 188) too has similarly served to correlate Roman and Indian coinages without adequate attention, however, to the motives behind such connections



(Warmington 1928: 292-3). While the theoretical purchase of the concepts of 'influence' and 'emulation' to understand cultural contact cannot be denied, their potential has been overplayed. In consequence, processes that enable and constitute material changes which denote cultural change have earned little attention. The existing narrative of cultural interaction based on numismatic evidence therefore offers margin for alternative voices.

It seems appropriate to discuss the theoretical strands drawn from multiple disciplines within social sciences that offer a range of means to organise, examine and interpret numismatic data. Based on the new possibilities, earlier hypotheses may be revisited in the light of data now available to reassess current understanding of the field. The *longue durée* approach of the Annales School of history writing is well-known and proved particularly relevant to the studies on the Mediterranean (Cameron 1993; Braudel 2002). The vantage point that the approach provides is crucial to observe larger processes and long-term trends that are difficult to capture in the study of brief episodes such as the 'Indo-Roman' trade. However brief in duration and precise in definition, events are viewed under this approach not in isolation but instead positioned within the larger chronological scale and context.

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A seamless narrative of historical interaction between the Indian Ocean region and the Mediterranean Sea remains wanting. Ancient commerce between India and the Roman Empire has been hitherto studied as an independent episode than as part of a sequence of events that shaped these interactions. This is despite scholastic awareness of the continuous relations maintained between cultures of the Mediterranean and those of India as reflected in ancient literature.⁶ The trend in earlier writings was to focus solely on the early centuries CE when commercial exchanges peaked as witnessed in archaeological and literary records (Doshi 1985; Begley & De Puma 1992; De Romanis & Tchernia 1997). With growing evidence and the use of diverse approaches to identifying and interpreting long-distance connections, these chronological barriers are increasingly giving way. Using the *longue durée* approach, different periods that precede and succeed the one under study can be consulted to recognise and demarcate the chronological limits of circulation of different coinages in India, including those from the Mediterranean.

In a similar manner, spatial approaches offer the breadth of perspective that is necessary not only to identify activity areas but to recognise patterns of conformity and divergence in the data. Locating



find-spots of Roman coins on a map is one way of mapping cultural geography of the time under study to answer questions such as which areas show their use, and by extension, the spatial bounds within which cultural change was effected and hence may be studied. It has been already argued that "mapping engenders new and meaningful relationships among otherwise disparate parts" (Corner 1999: 229). By adding contextual and taxonomic details drawn from archaeological and numismatic sources to spatial distribution of these coins, more robust thematic and chronological datasets can be generated. By repeating this process for different coinages, their inter-relationships and the role of specific sites where they recur in an identifiable pattern may be better understood.

Spatial analysis can also help test dominant hypotheses in the field, make them more precise or bring alternatives to the fore. The strong association between Buddhism and foreign trade is understood on the basis of the former's ideological support to trade (Ray 1988; 1994). The precise role of Buddhism in the actual conduct of trade, however, is not clear. A comparative study of the frequency, quantum and type of Mediterranean finds at 'Buddhist sites' against those from sites that fall outside the circuit of Buddhist practice would serve to provide insights into the geography of Mediterranean finds in India. The scope of analysis may be narrowed to observe site-specific trends in the data in studies of inter-site variability where the technique of 'spatial correlation'⁷ may be combined with empirical data on Roman coins. With the help of Geographic Information System (GIS) applications, the results obtained using these techniques may be graphically represented and studied against previous attempts at reconstructing ancient pathways of movement (Lahiri 1999; Chakrabarti 2001, 2005, 2007, 2010).

In dealing with material evidence, an object-centric approach is held useful for its acknowledgement of the capacity of objects to have an agency. This entails recognising the ability of objects to influence human behaviour and not remain as passive tools which merely conform to human behavioural practices (Gell 1998; Gosden 2005; Jones & Boivin 2010). As indicated in the previous research works, the multiple meanings that Roman coins could accrue in India is a clear indication of the multiple possibilities they could afford. These affordances (Gibson 1977; Li 2014: 1), when recognised by human agents, lead to material practices upon convergence of agency of the humans, of the object(s) and their immediate environment. In archaeological studies, these entities together have been defined as an assemblage



(Renfrew & Bahn 2001: 565) where the agency and identity of humans is considered to be 'embodied' in the objects (Hodder & Hutson 2003: 106-24).

The concept of embodiment, it is argued here, has served as a convenient shorthand to explain the presence of Roman coins in India, as say, prestige goods, currency, bullion etc. while the reasons that often 'act at a distance' (Latour 2005: 159-262) and afford the use of Roman coins in such a wide range of practices remains outside the remit of enquiry and understanding. In other words, while the above meanings and roles have been suggested, chiefly for Roman coins, most of these suggestions remain hypothetical and cannot carry weight unless demonstrated as in the case of their use as ornaments and in sacred contexts. What is being questioned about the Roman coin finds in India is not their versatility and adaptability but what accounts for it. How does a culture acknowledge, perceive, and assimilate foreign objects into familiar spaces, redefine them, and experience change in the process? The answer must lie neither entirely in the coins themselves and nor in their culturally specific meanings but instead sought in their usage which combine the affordances of coins with their cultural reception.

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By choosing to understand material assemblage to 'embody' or materially manifest the values espoused by their human owners, the role played by the constituents, such as coins, in opening up new possibilities and shaping cultural practices will remain unaccounted for. It is therefore considered more appropriate to understand assemblages as being characterised by "distributed agency"⁸ where the capacity to act and effect change is shared between the different constituent entities and not monopolised or dominated by either. Such a stance proffered by the actor-network theory (Latour 2005: 11) which situates the object under study within its operative network will be key to understand the situations at hand where the role of the actor, i.e. Mediterranean coinages in the present case, is radically indeterminate, its precise boundaries of function uncertain, and the range of different entities that it forms association with fluctuates.

To understand the variety of meanings that Mediterranean coinage portrayed in India, they must be situated within the networks of their circulation and operation. While their circulation can be mapped on the basis of their find-spots, and quantified, their operational networks need to be identified in tandem with other coins and artefacts found in association. For this purpose, morphological analyses will need to



accompany spatial understanding of the data which includes not merely Mediterranean coinage but also those coins and artefacts that are found in their association. Each of these artefacts has its own networks which converge at the nodes represented by those find-spots where they are found together.

The formation of 'Monetary networks'

The conduct of trade between India and the Roman Empire was the result of processes that may be traced further back. These involved, among others, interaction between the monetary systems prevalent in different parts of India and the Mediterranean world. Such an interaction is witnessed in the negotiation between coinages in terms of their material medium, appearance, values and use. Similar negotiation is also found in the respective value of coins and alternative forms of money. These negotiations led to identifiable patterns of alignment taken as evidence to the formation of networks between diverse monetary systems. In this section seeks to demonstrate the role of monetary networks in Indo-Mediterranean interaction.

The definition of monetary networks is derived from the understanding of 'networks' as inter-relationships between entities. In the present case, these entities are identified as the different coinages under study. The role of the state and people as producers and users of coins is understood as a constant factor and not consciously evoked in the following discussion. Instead, attention is devoted to interaction and inter-relationship between different coinages based upon their contemporaneity and use within common spatial bounds as revealed by archaeological finds. Networks may be traced based on the overlaps in the characteristic features that define these coinages. Previously, Sitta von Reden (2010) illustrated monetary networks in western classical antiquity by using one such feature, namely, the weight standard of coins. Building upon this model, other characteristic features of coinages in India, both foreign and local, such as iconography, legends, and choice of metal besides weight standard will be explored to study their mutual interaction. The role of 'tradition' i.e. the "conscious engagement of current actions with past actions" (Osborne 2008: 1) in defining these features is crucial. In numismatics, the study of 'coinage tradition' is a standard tool to understand development of coinage within a given culture or region (Cribb 2005: 1).

Following the first known coins minted in western Asia Minor in late seventh century BCE and their subsequent spread under Persian rule,



coinage was adopted by several Greek city-states during sixth century BCE (Meadows 2014: 170). Roughly during 500-331 BCE, northwestern portions of the Indian subcontinent came under Achaemenid rule. Around the same time, earliest form of coinage appeared in the Indian subcontinent in the form of silver bars that were slightly bent and punched with symbols (Horesh & Kim 2011: 292). Those recovered from Taxila (in present-day Pakistan) were identified as struck on the Persian standard representing double sigloi or staters (Allan 1936: xvi). Close parallels to the bent bars of northwestern India were discovered in the Nush-i-Jan hoard from Iran dated the seventh century BCE without punch-marks that predate the Indian evidence (Stronach 1969: 15-6). Based on similar examples later noted from the Mir Zakah hoard in Afghanistan (Bivar 1971: 101), a pathway of cultural influence from Iran to Pakistan via Afghanistan was suggested to indicate the transition of Persian currency to Indian coinage (Dhavalikar 1975: 335).

The needs of state expenditure encouraged monetisation among Greek cities (Howgego 1995: 19) which began to mint coins on respective local standards of weight (Von Reden 2010: 65). More than 115 mints are known from Greece around the first quarter of fifth century BCE (ibid: 71). Commercial links and political relations between cities, in the main, seemed to influence the choice of specific weight standards adopted by Greek cities for their principal coin to make their currencies more easily exchangeable (ibid: 65). Sitta von Reden (2010: 65-91) identifies common weight standards as a marker of monetary networks. Each weight standard has a principal coin in which monetary transactions were conducted. There were smaller denominations which were reckoned against this principal coin. Following Robert Tye (2009: 116), it is maintained that 'weight systems' offer a more useful index in understanding ancient economies than 'weight standards'. While weight standards are helpful to identify the basic set of denominations in a monetary system, a weight system makes it possible to study interlinkages between diverse weight standards and their denominations through mathematical means.

In India proper, punch-marked coinage was first minted in the sixth century BCE (Gupta 2010: 8-19). They are so called due to the symbols punched upon them identified as bankers' marks (Gupta & Hardaker 2014: 19). In contrast with Greek coins, also in silver and punched with symbols, freshly minted punch-marked coins bore several symbols on the obverse and continued to receive punches on the reverse during their circulation. In both cases, these symbols are



understood to certify adherence to the accepted standards of metal purity and weight that varied across states (Gupta 2010: 11; Crosby & Lang 1964 cit. in Von Reden 2010: 19). In some cases, these symbols also denote their civic and regional affiliations (Gupta 2010: 12). Punch-marked coins continued to be issued under the hegemonic rule of Magadha and later under the Mauryan Empire (322-185 BCE). Several hoards of punch-marked coins have been reported from across the country (Gupta 1955; Srivastava 2012), including south India where these coins predate other local coins (Gupta 2010: 53-68). Their continuous use in India is recorded up to at least the second-third centuries CE (ibid: 20). They left a legacy that provided the model for succeeding series of indigenous coins.

In the fifth and fourth centuries BCE, the principal coinage of Athens was composed of silver and majority of it produced as tetradrachms (Burnett 1998a: 3).⁹ By mid-fifth century BCE, Athenian coins minted on the Attic standard came to dominate the Aegean backed by deliberate state policies that forbade its allies from minting their own coins. The success of these policies may be inferred from the high demand for Athenian coins indicated by their imitations in Egypt and Babylonia in fourth century BCE (Von Reden 2010: 69; Howgego 1995: 51). Writing in the same century, Xenophon alluded to the wide acceptability of Athenian coins (cit. in Von Reden 2010: 69) making them a profitable 'commodity' (Rowan 2013) thus underlining their power to penetrate distant markets. Consequently, states resorted to 'bi-monetarism' in order to reap benefits from Athenian coins without abandoning local weight standards which governed daily transactions. Macedonia, for instance, continued to mint coins on local standards for domestic circulation but also on the Attic standard for external transactions (Von Reden 2010: 81). The potential remit of these transactions would soon touch the borders of then India.

Alexander's (the Great) expedition into Asia in fourth century BCE resulted in certain important changes that set the tone for further developments in the region. Following the successful Battles of Gaugamela (331 BCE) and Hydaspes (326 BCE), the Macedonian Empire came to extend as far as the northwestern territories of India. Within the former Achaemenid territories, where Greek coins circulated as bullion alongside the local gold darics and silver sigloi (Howgego 1995: 46-8; Cribb 2003: 19), Alexander and his successors actively brought about monetisation (Kroll 2008: 14). By introducing silver coins on attic standard alongside a double daric without discontinuing the civic coinage (Howgego 1995: 51), Alexander effectively integrated the local



markets to his empire. In monetary terms, a vast stretch had thus emerged extending from the Mediterranean to the borders of India in which the attic standard held sway.

The Seleucid state upon inheriting the eastern provinces of the Macedonian Empire largely continued the measures initiated by Alexander (Aperghis 2004: 213-46). Strong relations between the political elite of Mauryan and Seleucid Empires appear to have developed on the basis of matrimony, diplomatic and gift exchanges (Thapar 2003: 177). Around mid-third century BCE, the Seleucid provinces of Bactria and Parthia asserted their independence. They continued to strike coins on the attic standard (MacDowall 2007: 237-8). Regular threats from Scythian nomadic groups caused Hellenistic inroads into India (Bopearachchi 1993:7) crossing the Hindukush mountain range of Himalayas which had served as the border agreed between the Seleucid and Mauryan Empires (Schmidt 1995: 18). This led to protracted engagement with the Shungas who were in the process of consolidating their position upon deposing the Mauryas (Thapar 2003: 210). The simultaneous re-emergence of tribal or clan-based polities (ibid) reflects the situation in the region characterised by both political instability and fresh opportunities. The entry of Greeks into India may be understood in this light.

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Indo-Greek coinage is credited for introducing India to the die-striking technique, use of monograms, legends, and representation of the king and deity (ibid: 216). The prevalence of an alternative system of coinage in India, however, occasioned certain changes to the Indo-Greek coins to make them acceptable for circulation. On the core Hellenistic model of coinage, therefore, Indian elements were introduced. These included the depiction of Indian religious symbols and deities and inscription of bilingual legends that accommodated Prakrit (inscribed in Kharoshthi, and more rarely, Brahmi script) on coins that were previously exclusively Greek. The attempts to introduce the 'attic standard', however, proved unsuccessful. The Indian weight standard and the square shape of Mauryan coins i.e. 'karshapanas' were therefore adopted for issuing Indo-Greek coins. By methodical use of visual vocabulary and weight standard, Indo-Greek coins were thus adapted for use in India. In effect, these measures shaped a hybrid model which lay at the intersection of Hellenic and Indian systems of coinage that were Hellenistic in style but largely oriented towards India in purpose.



The assimilative character of Indo-Greek coins is paralleled by similar trends witnessed in epigraphic and textual sources that indicate active political measures to participate in local systems. In these attempts, Ray (1988: 316-7) has identified religion as a crucial point of entry into joining 'trading diasporas' thus highlighting the intersection between networks of faith and networks of trade. Royal patronage to religious structures and practices beyond the limits of one's kingdom was not uncommon in early Indian history (Parry 2008). The Indo-Greeks appear to have followed this tradition as seen in the Besnagar pillar inscription in central India. The inscription conveys that Heliodorus, envoy of the Indo-Greek ruler Antialkidas to the local ruler, was a devout follower of Indian deity Vasudeva (Thapar 2003: 216). Such acts of conspicuous piety continued with time as noted in the donation inscriptions by 'yavanas'¹⁰ in the Buddhist rock-cut caves in western Deccan (Ray 1988: 317). These examples illustrate the systematic use of religion towards secular ends. Such attempts to integrate proved successful as reflected in the recognition and accordance of a high position to the yavanas in the Brahmanical social order. Textual references to yavana participation in rituals of kingship and royal wedding ceremonies (ibid: 321) equally prove their elevated social standing.

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Seen in the light of these ancillary sources of information, it may be argued that the Indo-Greek coins were carefully designed political tools to achieve economic ends. Their efficacy is attested by both direct and indirect forms of evidence. The former is indicated by their continued circulation in markets and presence in coin hoards belonging to later periods. The latter is demonstrated by the changes witnessed in contemporary coinages. The coincidence between the entry of Greeks into India and the emergence of tribal polities in the region has been previously mentioned. Numismatic evidence indicates that while these polities largely issued coins in copper on their respective weight standards, some of them also struck silver hemi-drachms similar to those by the Indo-Greeks (Gupta 2010: 47).

It is probable that while copper coins sufficed for most local transactions, the silver issues specifically facilitated monetary interaction with the Indo-Greek kingdom. These developments are particularly important when seen in the light of other contemporary coinages that continued to be modelled after punch-marked coins. Cases in point are coinage of the Shunga dynasty in the north and that of local dynasts in the Eran-Vidisha region of central India. However, gradual changes are visible in the Shunga coins, some of which now have a legend (Gupta 2010: 43). The hold of tradition in defining coinage may also be seen



in the change in the shape of Indo-Greek coins from round to square to resemble the karshapanas issued by the Mauryas.

Political authority gradually shifted from the Indo-Greeks to the Scythian invaders through matrimony (Senior & MacDonald 1998: 55-6). The Indo-Scythians were followed by the Indo-Parthians. Their respective coinages show conformity with Indo-Greek coins and added further variety to coin types (Senior 2000: 143). Dated to the last half of first century BCE, the Paratarajas continued to mint di-drachms, drachmas, hemi-drachms and quarter drachms (Pieper 2013: 75). The next stage of monetary interaction between the subcontinent and the Mediterranean is marked by the strong association between Kushan and Roman coinage.

The monetary history of Rome differs from that of Greek city-states. Early forms of Roman money dated to late fourth century BCE constituted stamped bronze bars called *aes signatum* (Harl 1996: 24) which seemed to have been used for making external payments than for domestic exchanges (Von Reden 2010: 48). Since the sixth century BCE, Greek cities in Sicily and Southern Italy used silver coinage to transact with the Greek cities. Two centuries later, non-Greek cities of the region are said to model their coins on Greek coinage (*ibid*). At the same time, Rome began to cast *aes grave*, heavy bronze coins with legends in Greek for use in Campania (Harl 1996: 24). If these trends may be read against developments in Hellenic commerce discussed above, it would imply that the growing demand for Greek coinage began to influence regional commerce and money in Italy. In third century BCE, with the capture of Campanian cities by Rome, the Roman Republic inherited the fiscal responsibilities of the region which were traditionally met using Greek silver coins (*ibid*: 26). This served as the background to mint Hellenic-style silver di-drachmae stamped with a legend indicating Roman authority (*ibid*: 25).

The adoption of silver coins in its monetary system did not eliminate the need for bronze coinage. On the contrary, their production on different weight standards in different places (Von Reden 2010: 50) seems to indicate Rome's direct engagement with multiple local markets using the locally accepted medium. This was accompanied by centralised minting of silver coins in Rome (*ibid*) evidently meant for transactions in Campania and the Hellenic sphere of commerce. More than "to announce her entrance into the concert of civilized powers" (Harl 1996: 25), developments that shaped Roman money therefore seem to resonate with practical economic needs of the time. Just as



the political expansion of Rome made new demands on its economy warranting monetary changes, so did these changes create the situation for further political and economic expansion of the Roman Republic. By the first century BCE, the denarii had eliminated most rival coinages and the silver coinages of the Roman provinces in the eastern Mediterranean were adapted to the existing monetary system (Harl 1996: 34, 38-72; 97-124).

Around the same time, the Kushans were actively shaping an empire that incorporated parts of eastern Iran, Chinese and Soviet Central Asia, Afghanistan, Pakistan and India (Thorley 1979: 181). The vastness of their empire necessitated a coinage with diverse regional types that represented local deities, scripts, and weight standards. This is in tune with similar measures previously taken by the Indo-Greeks. The Kushan regional types, however, were also systematically linked together by coins issued for general circulation across the empire (MacDowall 2002: 165-9). These integrative efforts to achieve monetary cohesion and the use of royal titles similar to those used by the Roman emperors have been viewed as deliberate measures to create a unifying image of the Kushan ruler in the lines of the Roman example (MacDowall 2002: 165). The similarity in royal titles has also been regarded to indicate political aspirations of the Kushans to achieve an exalted status similar to the Roman and Chinese emperors (Falk 2015: 107). A more direct connection between the Roman and Kushan empires, however, is seen in the common weight standard of their gold coinages. Although it has been argued that this does not indicate an economic connection between them due to chronological reasons, the recent attempt at "Reconstructing Kushan chronology" musters evidence that points to the contrary. (ibid)

In parallel with monetary ties that bound dynasties in India with the Mediterranean polities, similar ties among the regional polities within India were also negotiated time and again. The resemblance in style and coin types between the Yaudheya and Kushan coins (Gupta 2010: 47) may be assessed in the light of integrative processes witnessed among other coinages as part of a tradition.

The rule of Kushans in northern India was paralleled by the rule of the Western Kshatrapas and Satavahanas in western India and the Deccan respectively. Monetary interaction between the two kingdoms is indicated by mutual counter-striking of each other's coins (Shastri 1998: 40). While this confirms their rivalry to control the Western coast ports that enabled ties with the Mediterranean (Margabandhu



1985), they also convey the common values of these coinages (Jha 2003: 87). Furthermore, the adoption of portraiture in Satavahana coinage soon upon the introduction of portrait-type coins by the Western Kshatrapas strongly argues towards their mutual monetary ties. This is also attested by the finds of coins and coin-moulds of the latter in the interiors of the former's territory (Jha & Rajgor 1994: 73). Interestingly, there is also contemporary evidence for the issue of portrait-style coins further south. While this may seem unrelated, a combined review of numismatic evidence from the period reveals otherwise. The deliberate incorporation of a common feature among different coinages around the same time indicates certain common requirements. These requirements concern access to silver.

The decline of the Mauryan State and the consequent halt in the supply of silver punch-marked coins (karshapanas) that were used in trans-regional transactions across India led to paucity of silver (Bhandare 1999: 55). The Western Kshatrapas met this shortage initially by a heavy use of Indo-Greek coins which commonly circulated in their markets. Further demand was met by the issue of Kshatrapa silver coins which were designed to resemble the Indo-Greek coins that were well-familiar within their territory (Jha & Rajgor 1994: 24-5). This resemblance was achieved by depicting the bust of the king on one side similar to Indo-Greek coins while placing their royal emblem on the other to mark their political identity. Metallurgical analysis indicates that these coins were struck from the silver obtained from Roman coins (Turner 1984: 131). Through the conflicted borders between the Kshatrapa and Satavahana kingdoms and the former's intrusions into the latter's territory, the Kshatrapa portrait-style coins are understood to have gained familiarity in the Deccan that prompted the Satavahanas to introduce a similar coin-type with portraiture and their dynastic emblem (Bhandare 1999: 56).

The adoption of portraiture, however, appears to have provided an additional advantage – the integration of Roman coins into the monetary systems of the Kshatrapas and the Satavahanas, thus creating a monetary network. Contemporary Kshatrapa inscriptions at Nasik provide the exchange-rate between Karshapanas and gold coins (Senart 1905: 82). The former usually identified with the punch-marked coins may be understood as the Kshatrapa silver coinage that served the same purpose but conceptually referred to their precursor. In the absence of any alternative possibility, and the numerous finds of Roman gold coins (aurei), the so-mentioned gold coins are identified with them. Similarly, the presence of punch-marks upon Roman coins



discovered in Satavahana sites indicates that these coins came to be regarded as the earlier karshapanas.

The evidence for the extension of local notions and values of money upon Roman coins is furthered by their imitations. For instance, ancient forgeries of lead coins with silver-coating (Suresh 2004: 47) denote successful incorporation of Roman coins into the monetary system of the Satavahanas. The monetary links forged between Kshatrapa and Satavahana coinage led to overcoming barriers posed by the different coinage traditions they inherited based on Indo-Greek versus PMC models. Through such measures as counter-marking and adoption of silver coinage of a comparable weight standard (Bhandare 1999; 2006: 84), the two coinages achieved a cohesive monetary system in the region. By accommodating Roman coins in this monetary system, a monetary network had thus emerged that linked the Mediterranean with India.

This network however does not seem confined to Western India and the Deccan but rather extended further south where the portrait-style silver coins of the Cheras appear in aberrance to the established style of coinage. The monetary tradition in the region reveals connections with the Deccan as indicated by the shift to coinage from a local monetary system based on globules. These coins were stylistically similar to punch-marked coins which have also been discovered from the region (Mitchiner 1998: 66-7). The incorporation of portraiture on their coins by Chera rulers with a legend in Brahmi on the top (ibid: 75-6) indicates the continuation of monetary tradition of the region that shaped in tune with developments in the Deccan. While the Chera portrait coins have been argued to have been inspired by Roman coins (Mitchiner 1998: 73) which are abundantly found in their territory (Turner 1989), the parallels in the monetary practices with those followed in the Deccan and the simultaneous adoption of portraiture in coins clearly point towards a deliberate and systematic move towards a commonly recognisable form of money. In this way, 'portraiture' on coins serves as a marker to trace monetary networks. Since this type of Chera coins are rare in number it is suggested that these special issues were perhaps introduced as part of official measures to introducing the use of Roman coins in the region as money that could take the role earlier associated with the punch-marked coins in interactions with Deccan and more northerly regions.

The above discussion has so far been confined to coinage. However, in the ancient world, coins served as one among several forms of



money. The definition of money is based on shared agreement in the value and acceptability of specific medium/media in which to conduct transactions. It therefore tends to vary in time and between places. Specifically in the Indian context, a range of items including paddy, salt, almonds, and cowry shells have served as money. The Sangam literature of South India alludes to the first two items for local transactions (Subrahmanian 1966: 232). Between the eighth and the eighteenth centuries BCE, rice and cowries both circulated as currency in Kashmir (Heimann 1980: 67), paralleled by cowries and almonds in Gujarat (Scharfe 1989: 147). The wide-spread glass microbeads termed 'Indo-Pacific beads' which are reckoned to have originated in India might also have served similar purpose. The earliest dated finds come from the site of Arikamedu in India and are distributed from Japan to South Africa between third and fourteenth centuries CE. (Katsuhiko & Gupta 2000; Francis 1990) This view is based on comparable examples belonging to later period from Madagascar connected with the Indian Ocean trade network.

The range of low or relatively low-value media of exchange in daily transactions as noted above is attributed to the high demand for liquid cash in India. Indeed, this is demonstrable since early on; for instance, the proto-coinage globules in base-metal in South India spread far wider than those in precious metal indicating the demand for small change over higher denominations and simultaneously establishing their significance in the monetary integration of the region. In the long run and within the broader narrative that addresses the subcontinent, however, the high demand for liquid cash could be met neither by copper which has a high utilitarian value, nor by the insufficient resources of gold and silver that were prone to hoarding and hence constantly valued high (Heimann 1980: 56).

The role of cowries as a sustained medium of monetary exchange in India may be understood in this context. A survey of their use reveals their chronological and spatial relevance to the monetary networks and they are also able to demonstrate the connection with coinage systems thus truly serving to illustrate networks among diverse forms of money. Early use of cowries as currency is indicated in Mahidhara's commentary on Vajasaneyi-Samhita of Yajur Veda (Scharfe 1989: 147). The same was true for Bengal at least since the Mauryan times (Heimann 1980: 62). Transactions using cowries were noticed in central India by Fa-Hien (337-422 CE) (Sircar 1968: 279), and later attested by Hiuen-Tsang (602-664 CE) (Scharfe 1989: 147), both Chinese Buddhist monks whose travelogues provide important infor-



mation on ancient India. From then until the nineteenth century, a system of exchange was in place delineating values against the number of cowries and ratios in which cowries may be exchanged with metallic currency. The reason for such a long lasting monetary role played by cowries is perhaps due to the relative permanency and stability they afforded against diverse metallic currencies with variable composition and values. This is found to be particularly true for the Gupta period when cowries in the rural areas seem to have provided greater stability in comparison to coinage in the cities that underwent steady debasement (Heimann 1980: 56-59, 67).

Conclusion

The primary objective of this article was to study the nature of Roman coin finds from India and to reveal and contextualise the long history of monetary interaction between India and the Mediterranean. Some of the key findings include understanding the causal role of political measures in spearheading monetary connections. While the importance of weight standards in forming monetary networks is duly acknowledged, the present analysis demonstrates that other elements of coinage which constitute the visual composition also play a crucial role. The role of local portrait coins in this process seems to warrant due recognition as crucial nodal points that provided foreign coins the means to access local markets which were hitherto out of their reach due to cultural barriers which impeded their reception as money. In the deliberate creation of a coin-type that lay at the intersection of the Mediterranean and Indic coin traditions, a conceptual bridge between local and foreign coin types was achieved through which different polities created the conditions necessary for encouraging commercial ties with the Mediterranean.

In that sense, portrait coins represent the foundation upon which Indo-Mediterranean trade could be conducted and sustained over a long time. Their interpretation as mere emulation of foreign coins therefore no longer seems justified and warrants revision. The call for revision does not, however, disregard these 'hybrid' coins to be imitative of the foreign coins under study. Instead, the argument made here is about the character and purpose of imitation. The similitude with Hellenistic and Roman coins achieved within local coin types in the present study indicates a deliberate choice driven by economic opportunities and political enterprise. Imitation was thus a pragmatic measure and not a mere reflection of indigenous admiration towards the



exotic. Roman coins from India therefore are evidence not only to India's foreign commerce in antiquity but simultaneously one of the means to understand cultural transformation in the subcontinent.

Endnotes

¹ This exploratory piece is part of my doctoral research. I am grateful to Dr. Vandana Joshi and Prof. Michael Mann for providing me this opportunity. Dr. Shailendra Bhandare kindly verified the authenticity of some online sources I cite. I especially thank my friend Narendra Killada for the stimulating discussions on methods in social science research. Any errors are my own.

² Gupta, Sunil. 2005. The Bay of Bengal Interaction Sphere (1000 BC - AD 500). *Bulletin of the Indo-Pacific Prehistory Association*, 25, pp. 21-30, <http://journals.lib.washington.edu/index.php/BIPPA/article/view/11911/10537> [retrieved 09.02.15].

³ E.g. English Civil Surgeon Dr. Robert Tytler's cabinet collection in Allahabad later gifted to the East India Company museum in London, see (Prinsep 1832: 392-3).

⁴ Gupta (1965, 1984), Raman (1992), Rajan (1994), Sastry (1995), Rajgor (1995); Site publications: Gupta (1965) for Akkenpalle, Hill (1898) for Pudukottai, Sridhar et al (2011: 23-118) for Budinatham.

⁵ For an elaborate bibliography, see 'Imitations of Roman coins' accessible at http://esty.ancients.info/imit/M_Peter_Survey_Text-1.pdf

⁶ Strabo (II.5.12) comments about the increase in the number of vessels sailing from the Egyptian port Myos Hormos to India to around 120 per annum compared to the few under the Ptolemies.

⁷ It qualifies relationship between objects of analysis based on their locational proximity to each other where it is assumed that closer the objects, stronger their association and further apart they are, weaker their association.

⁸ Callon, Michel. 2005. Why virtualism paves the way to political impotence: a reply to Daniel Miller's critique of *The Laws of the Markets*. *Economic Sociology: European Electronic Newsletter*, 6 (2), pp. 3-20, <http://econsoc.mpifg.de/archive/esfeb05.pdf> [retrieved 15.03.15]

⁹ A tetradrachm is worth four drachmas each weighing 4.3 grams.

¹⁰ Yavanas or those from Yona are understood to represent the Ionians i.e. those from the Greek island of Ionia, see Ray 1988: 312.

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