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Maritime Trade in Ancient Tamilakam: Archaeological Evidence from the Sangam Age Indo-Roman Commerce

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Abstract

Ancient Tamilakam, the southernmost peninsular region of the Indian subcontinent during the Sangam Age, occupied a strategic position in the maritime trade networks linking the Mediterranean world, the Red Sea, the Persian Gulf, the eastern coast of Africa, and Southeast Asia. Archaeological investigations over the past century, supplemented by literary and epigraphic evidence from Tamil Sangam poetry, Greco-Roman geographical texts, and Tamil-Brahmi inscriptions, have produced a rich understanding of the Indo-Roman commerce that flourished during the early centuries of the Common Era. This article examines the maritime trade of ancient Tamilakam through an archaeological perspective, focusing on excavated sites, material culture, and the wider trade networks documented through diverse sources of evidence. Drawing on a critical literature review methodology, the study analyses peer-reviewed scholarship and archaeological reports published primarily between 2010 and 2025, supplemented by foundational earlier works. The analysis identifies four dimensions of the Tamilakam maritime trade system: the major port sites and their archaeological signatures, including Arikamedu, Pattanam, Korkai, Alagankulam, and Kaveripoompattinam; the artefact assemblages indicating long-distance exchange, including Roman amphorae, Mediterranean ceramics, beads, glass, and metalwork; the literary and epigraphic evidence corroborating archaeological findings; and the broader political economy and inter-regional connections of the Sangam world. The study draws on the work of Indian archaeologists including K. V. Soundara Rajan, Y. Subbarayalu, K. Rajan, and P. J. Cherian, alongside international scholars including Vimala Begley, Roberta Tomber, and others. The article concludes with implications for archaeological research, museum interpretation, and Indian historiography.

Keywords: Tamilakam, Sangam Age, Indo-Roman Trade, Maritime Archaeology, Arikamedu, Pattanam, Periplus, Ancient Commerce

INTRODUCTION

The southern tip of the Indian peninsula has been an important node in long-distance maritime exchange for over two millennia. During the period commonly designated as the Sangam Age, broadly the centuries between approximately 300 BCE and 300 CE, ancient Tamilakam, encompassing the territories of present-day Tamil Nadu, Kerala, and southern Karnataka and Andhra Pradesh, was the southern terminus of an extensive trade system that connected the Mediterranean world to the Indian Ocean and beyond.[1] Greco-Roman authors including the anonymous author of the Periplus Maris Erythraei, Ptolemy in his Geography, and Pliny the Elder in his Naturalis Historia documented the ports, products, and prices of this commerce.[2] Tamil Sangam poetry, including the Akananuru, Purananuru,

Pattuppattu, and other anthologies, preserves vivid imagery of port cities, foreign merchants, and the cosmopolitan life of coastal Tamilakam.[3] Tamil-Brahmi inscriptions, dated by paleographic and stratigraphic evidence to the same broad period, provide further corroborative evidence of trade-related activities.[4]

Archaeological investigation of this trade system began in earnest in the colonial period, with notable early excavations including Sir Mortimer Wheeler's 1945 work at Arikamedu near Puducherry, which established the Indo-Roman dating framework for South Indian coastal trade.[5] Subsequent decades have witnessed extensive archaeological investigation across the Tamilakam coastal landscape.[6] The work of Indian archaeologists at multiple institutions, including the Archaeological Survey of India, the Tamil Nadu State Department of Archaeology, the Kerala Council for Historical Research, the French School at Pondicherry, the Madurai Kamaraj University, the University of Madras, the University of Kerala, and several others, has substantially expanded the empirical base.[7] Key sites including Arikamedu, Pattanam, Korkai, Alagankulam, Kaveripoompattinam, and others have produced rich artefact assemblages including Roman amphorae fragments, Mediterranean fine wares, glass, metal objects, beads, and indigenous pottery types that together document an active and sustained trade system.[8]

Recent decades have produced substantial new evidence and significant reinterpretation. The Pattanam excavations in central Kerala, conducted under the leadership of the Kerala Council for Historical Research, have produced a particularly rich artefact assemblage that has reshaped understanding of the Indo-Roman trade.[9] The continuing investigations at Keeladi in Tamil Nadu, while focused on a more inland Sangam-period urban site, contribute substantively to understanding the broader Tamilakam economic and cultural landscape.[10] Reanalyses of older excavated material with newer scientific methods, including provenance analyses of ceramics and metalwork, have refined trade flow reconstructions.[11] The integration of literary, epigraphic, and archaeological evidence has continued to mature.

Against this backdrop, the present article asks: what does archaeological evidence reveal about maritime trade in ancient Tamilakam, and how does this evidence integrate with literary and epigraphic sources to illuminate the Sangam-Age Indo-Roman commerce? Three subsidiary questions structure the inquiry.

- First, what are the major port sites and their archaeological signatures?
- Second, what artefact assemblages and material culture document the long-distance exchange?
- Third, how do archaeological findings integrate with literary and epigraphic sources, and what are the broader implications for understanding Sangam-Age political economy and connectivity?

The article makes three contributions: it synthesizes archaeological scholarship on Tamilakam maritime trade with attention to recent findings; it identifies four interlocking dimensions of the trade system; and it articulates implications for archaeological research, museum interpretation, and Indian historiography.

LITERATURE REVIEW

Foundational Archaeological Works

The foundational archaeological works on Tamilakam maritime trade extend back over a century. Early excavations at Arikamedu by French and British archaeologists in the 1930s and the systematic 1945 campaign led by Sir Mortimer Wheeler established the basic framework of Indo-Roman trade dating and material culture.[12] Wheeler's identification of imported Mediterranean amphorae, Italian fine wares including Arretine ware, glass vessels, and other Roman material at Arikamedu provided dramatic evidence of long-distance trade and stimulated subsequent generations of investigation.[13] The decades following Wheeler's work saw expanded investigation at multiple sites, with significant contributions by Indian archaeologists including K. V. Soundara Rajan, K. R. Srinivasan, K. K. Pillay, R. Champakalakshmi, and many others.[14]

Recent Excavations and Material Analysis

Recent decades have produced substantial new evidence. The Pattanam excavations in

Ernakulam district, Kerala, conducted under the directorship of P. J. Cherian and the Kerala Council for Historical Research between 2007 and 2015, produced one of the richest Indo-Roman artefact assemblages excavated in India, including thousands of Roman amphorae sherds, Mediterranean fine wares, glass and bead assemblages, and substantial indigenous material culture.[15] Reinvestigations at Arikamedu, including the work of Vimala Begley and her collaborators, refined the dating and stratigraphy of the site.[16] Excavations at Korkai in Thoothukudi district, the legendary Pandyan port mentioned in Sangam literature, have produced evidence of pearl industry and maritime activity. Investigations at Alagankulam in Ramanathapuram district, near the mouth of the Vaigai River, have produced ceramic and other evidence of long-distance trade. Continuing work at Keeladi by the Tamil Nadu State Department of Archaeology and the Archaeological Survey of India has produced material that, while not coastal, contributes to understanding the broader urban and economic landscape of Sangam Tamilakam.[17]

Greco-Roman Textual Sources

Greco-Roman texts provide indispensable complementary evidence for understanding ancient Tamilakam trade. The Periplus Maris Erythraei, an anonymous merchant's handbook of the mid-first century CE, describes ports along the Indian west and east coasts and the goods exchanged.[18] Ptolemy's Geography from the second century CE provides a more systematic geographical framework. Pliny the Elder, writing in the first century CE, comments on the volume of trade and the precious goods imported from India, lamenting the drain of Roman currency to the East.[19] Strabo, Periplus author, Ptolemy, and Pliny each provide distinctive vantages on the trade. The interpretive tradition handling these sources has been substantially developed in scholarship by Lionel Casson, J. Innes Miller, Federico De Romanis, and others, with continuing attention to the relationship between textual descriptions and archaeological evidence.[20]

Tamil Literary and Epigraphic Evidence

Tamil Sangam literature and Tamil-Brahmi inscriptions provide crucial indigenous perspectives on Tamilakam maritime trade.[21] Sangam poetry references major ports including Muziris (Muciri or Muciripattinam in the texts), Korkai, Kaveripoompattinam (Pumpuhar), Tondi, Marakkanam, Kaveriyumpattinam, and others. Poems describe the cosmopolitan character of port cities, the presence of Yavana (Greco-Roman) merchants, the variety of imported goods, and the indigenous products exchanged. Tamil-Brahmi inscriptions on cave walls, on potsherds (including the famous Pattanam graffiti), on stone slabs, and on coins provide further evidence of literacy, commercial activity, and the social organization of trade.[22] The work of Iravatham Mahadevan, Y. Subbarayalu, K. Rajan, R. Champakalakshmi, and others has been central to developing this evidence base.[23]

Research Gap

Despite the rich existing scholarship, integrative analyses that synthesize archaeological, literary, and epigraphic evidence within a single coherent framework remain comparatively rare. The integration of recent excavation findings with older syntheses, attention to less-studied port sites alongside major centres, and the broader political-economy framing of Sangam-Age commerce continue to provide productive areas for further work. The present article seeks to contribute to addressing these gaps.

METHODS

This study employs a critical literature review methodology with thematic synthesis, suitable for engaging an interdisciplinary historical and archaeological topic. The review proceeded through four stages. In the first stage, a structured search was conducted in JSTOR, Scopus, Web of Science, the L'Année Philologique, the Indian Citation Index, the Archaeological Survey of India publications database, and Google Scholar. Search terms combined Tamilakam, Sangam, Indo-Roman trade, Periplus, Arikamedu, Pattanam, Korkai, Kaveripoompattinam, Pumpuhar, Muziris, Yavana, Tamil-Brahmi, and related geographical and chronological terms. The window covered January 2010 to August 2025, with substantial earlier scholarship retained for foundational reference.

In the second stage, inclusion criteria specified peer-reviewed empirical archaeological publications, scholarly historical and philological works, and syntheses engaging with Tamilakam

maritime trade. Reports from the Archaeological Survey of India, the Tamil Nadu State Department of Archaeology, the Kerala Council for Historical Research, the French Institute at Pondicherry, and other institutional excavation reports were also reviewed. Exclusion criteria filtered out exclusively popular or journalistic treatments without scholarly framing, and non-peer-reviewed materials except for authoritative excavation reports. After title, abstract, and full-text screening, sixty-eight publications were retained.

In the third stage, supplementary materials were drawn from publicly available primary source translations including the Periplus Maris Erythraei in the editions of Wilfred Schoff and Lionel Casson, Pliny's Naturalis Historia, Ptolemy's Geography, and selected Tamil Sangam poems in scholarly translation. In the fourth stage, thematic synthesis generated four interlocking dimensions of the Tamilakam maritime trade system that structure the findings reported below. As a literature-based study using publicly available secondary materials, the research did not require formal ethics approval.

RESULTS

Major Port Sites and Their Archaeological Signatures

The first dimension concerns the major port sites of ancient Tamilakam and their archaeological signatures. Arikamedu, on the east coast of present-day Puducherry, has been the most extensively investigated of these sites since the 1930s and 1940s.[24] Excavations have revealed a substantial settlement with evidence of bead manufacturing, dyeing operations, and the sustained importation of Mediterranean ceramics including Italian sigillata, amphorae from various Mediterranean regions, glass vessels, and other foreign material. Pattanam, in central Kerala, has emerged as a particularly important site through the systematic excavations from 2007 to 2015, producing rich Roman amphorae assemblages alongside extensive indigenous material culture, including Tamil-Brahmi inscribed potsherds.[25] Pattanam is widely identified with the Muziris of the Periplus, although alternative identifications have been proposed.[26]

Korkai, the legendary Pandyan port on the Tamil Nadu southeast coast, has produced evidence of pearl industry activity consistent with Sangam literary references and Greco-Roman descriptions of pearl exports.[27] Alagankulam, near the Vaigai mouth in Ramanathapuram district, has yielded ceramic and other evidence of trade activity, including imported Mediterranean and indigenous pottery. Kaveripoompattinam (Pumpuhar) at the Kaveri delta in Tamil Nadu, the legendary port of the Chola kingdom celebrated in Tamil literary tradition including the Cilappatikaram, has been investigated through both terrestrial and underwater archaeology, with results indicating substantial coastal urban activity.[28] Other important sites include Marakkanam on the Tamil Nadu coast, Tondi (probably modern Adirampattinam region), the inland trading centre of Karur,[29] and various smaller coastal settlements that participated in the broader trade network.

Artefact Assemblages and Long-Distance Exchange

The second dimension concerns the artefact assemblages that document long-distance exchange. Roman amphorae, large ceramic containers used to transport wine, olive oil, and garum (a fish sauce), are perhaps the most diagnostic foreign artefact category at Tamilakam coastal sites. Studies of amphorae fragments by Roberta Tomber and others have refined the typology and chronology of Mediterranean shipments to South India, identifying amphorae from Italy, the Aegean, Egypt, and other Mediterranean regions.[30] Italian Arretine ware, Eastern Sigillata, and Roman glass vessels constitute additional foreign ceramic and glass classes.[31] Roman coins of varying denominations, including silver denarii and gold aurei, have been recovered at multiple sites and analysed for chronological and economic implications by numismatic specialists.[32]

Indigenous artefacts associated with the trade include the Northern Black Polished Ware (NBPW), Rouletted Ware, and various distinctive South Indian ceramics. Bead manufacturing, attested most clearly at Arikamedu, produced glass, semi-precious stone, and other beads that traveled in both directions of the trade network.[33] Metalwork including bronze and copper objects, lamps of distinctive Roman and indigenous forms, ironwork, and gold and silver ornaments contribute additional material evidence. Textile evidence is more elusive due to preservation conditions, but textile-related implements and documentary references support the importance of cotton and other textile exports. Spices, particularly black pepper, are described as major Tamilakam exports in Greco-Roman texts but

leave more limited direct archaeological signatures, although evidence of pepper has been recovered in shipwreck contexts and at Mediterranean entrepôts.[34]

Literary and Epigraphic Corroboration

The third dimension concerns the integration of literary and epigraphic evidence with archaeological findings. The Periplus Maris Erythraei describes a system of ports, sailing seasons (the predictable monsoon winds enabling the so-called Hippalus route), products, and prices that aligns substantially with archaeological evidence.[35] The text mentions Muziris, Nelcynda, and other ports on the Tamilakam coast, with descriptions of imports including wine, copper, lead, glass, coral, gold and silver coin, and exports including pepper, malabathrum, pearls, ivory, fine textiles, and tortoise shell.[36] Pliny's lament about the Roman currency drain to India is paralleled by Roman coin hoards in South India.[37] Ptolemy's geographical descriptions, while sometimes diverging from precise location identification, provide a coherent framework for the major ports.

Tamil-Brahmi inscriptions corroborate the literary evidence in important ways. The Pattanam graffiti, including potsherds inscribed with names and references suggesting commercial activity, provides direct evidence of literacy and identification at the port.[38] Tamil-Brahmi inscriptions in cave shelters along trade routes, in coin contexts, and at urban sites further extend the evidence base.[39] The Yavanas mentioned in Sangam poetry, identified as foreign (Greco-Roman) merchants present in Tamilakam ports, are consistent with the diverse foreign material recovered archaeologically. The integration of archaeological, literary, and epigraphic evidence produces a coherent picture in broad outline, while specific identifications and chronological details continue to be refined through ongoing scholarship.

Political Economy and Inter-Regional Connections

The fourth dimension concerns the broader political economy and inter-regional connections of the Sangam world. The Tamilakam ports operated within a political landscape dominated by the Chera, Chola, and Pandya kingdoms, with smaller chieftaincies and tribal polities also exerting regional influence.[40] The maritime trade was an important component of state revenue, supplied luxury goods to ruling elites, and supported urbanization in coastal centres. The trade also linked Tamilakam to the broader Indian Ocean world, including the western coast of the Indian subcontinent (with Bharukaccha, modern Bharuch, as a major node), Sri Lanka, the Maldives, the East African coast, the Persian Gulf, the Red Sea, and Southeast Asia.[41]

The Indo-Roman trade was complemented by Indo-Southeast Asian exchange networks, evidence of which has been recovered both in Tamilakam contexts and at sites across Southeast Asia, supporting cross-regional analyses by scholars including Ian Glover, Berenice Bellina, and others.[42] Indian merchant communities established presence in the Persian Gulf, the Red Sea, and Southeast Asian sites, while foreign merchant communities, particularly Yavana merchants, were present in Tamilakam ports.[43] The political economy of the Sangam Age was therefore not a closed regional system but an active node within a hemispheric exchange network whose archaeological, literary, and epigraphic traces continue to be productively investigated.[44]

DISCUSSION

The findings carry several important implications. Theoretically, they support an integrative archaeological framework that combines material culture analysis, literary evidence, epigraphic data, and political-economy interpretation rather than treating these as separate evidentiary streams. The four dimensions identified, port sites and their archaeological signatures, artefact assemblages and exchange evidence, literary and epigraphic corroboration, and broader political economy and inter-regional connections, are mutually reinforcing rather than separable. Comprehensive understanding of any one dimension requires engagement with the others.

For archaeological research, the findings suggest several priorities. Continued excavation, with attention to less-studied port sites and to the inland hinterlands that supplied trade goods and absorbed imports, would expand the empirical base. Provenance studies of imported ceramics, metalwork, and other materials using modern scientific methods including isotopic analysis, neutron activation analysis, and lead isotope studies would refine trade flow reconstructions. Underwater archaeology along the

Tamilakam coast and adjacent waters would extend the evidence base into shipwreck contexts that are likely to preserve material rarely recovered on land sites. Reanalysis of existing collections held in museum and institutional repositories, using techniques unavailable at the time of original excavation, could yield substantial new insights.

For museum interpretation, the findings emphasize the importance of integrated presentations that combine archaeological material with literary, epigraphic, and broader contextual sources. Museum displays of Tamilakam maritime trade material at the Government Museum in Chennai, the Pondicherry Museum, the Pattanam Excavation Centre, the Indian Museum in Kolkata, and other institutions can engage public audiences with the cosmopolitan and economically dynamic character of the Sangam-Age coast. Digital and virtual reconstructions of port sites, trade networks, and material culture offer further interpretive possibilities.

For Indian historiography, the findings support continued attention to the long durations of Indian Ocean exchange and the deep history of Indian connectivity with the wider world. The Sangam-Age trade demonstrates that South Indian engagement with Mediterranean, West Asian, African, and Southeast Asian commercial networks substantially predates the colonial period and constitutes a foundational dimension of Indian historical experience. Integration of Tamilakam trade evidence into broader Indian history teaching, both at school and university levels, would address a frequent gap in narrative coverage that has historically focused more on northern Indian developments.

Several limitations of the present analysis warrant acknowledgment. As a literature-based study, the analysis depends on the quality and coverage of available scholarship, which remains uneven across port sites and archaeological topics. Variation in excavation methodology, dating frameworks, and reporting standards across decades complicates direct comparison. Ongoing investigations including new excavations and reanalyses mean that some findings will require updating as evidence accumulates. The voices of indigenous and descendant communities, while reflected in some recent scholarship, are not fully represented through secondary sources alone.

CONCLUSION

This article has examined the maritime trade of ancient Tamilakam through an archaeological perspective, with attention to the Sangam-Age Indo-Roman commerce and its broader hemispheric connections. Drawing on archaeological reports, literary translations, epigraphic evidence, and synthetic scholarship, the analysis identified four interlocking dimensions: the major port sites and their archaeological signatures including Arikamedu, Pattanam, Korkai, Alagankulam, and Kaveripoompattinam; the artefact assemblages documenting long-distance exchange including Roman amphorae, fine wares, glass, beads, and metalwork; the integration of archaeological evidence with literary and epigraphic sources; and the broader political economy and inter-regional connections of the Sangam world.

Three broader conclusions follow. First, ancient Tamilakam was a substantively cosmopolitan and economically dynamic region that operated as an active node in a hemispheric maritime exchange network during the Sangam Age. Second, robust understanding of this trade requires the integration of archaeological, literary, and epigraphic evidence within a coherent interpretive framework, drawing on the deep traditions of Indian and international scholarship. Third, continued investigation, both through new excavation and through the reanalysis of existing material with modern methods, promises to refine understanding of one of the most important early phases of Indian maritime history.

Several directions for future research are warranted. Continued excavation and survey at port sites and in their hinterlands would expand the empirical base. Scientific provenance analyses of imported and indigenous materials would refine trade flow reconstructions. Underwater archaeology along the Tamilakam coast offers significant potential for adding shipwreck and submerged settlement evidence. Comparative studies linking Tamilakam findings with contemporary sites in Sri Lanka, Southeast Asia, the Red Sea, and East Africa would clarify the broader hemispheric context. Integration of recent findings into school and university history curricula would support better public understanding of this important period. By advancing such an agenda, archaeological scholarship can continue its productive contribution to one of the most exciting frontiers of early Indian history.

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