

Book of Abstracts

National Conference on Siraf



اداره گیلستان و نشر



انجمن علمی باستان شناسی ایران



پژوهشکده هنر

In the name of God

Abstracts:
**National Conference on Cultural and
Artistic Heritage of Siraf on the
Persian Gulf**



2024

Measurement of Elemental Composition of Islamic Glasses of Siraf Excavated by Whitehouse: Collection of the National Museum of Iran

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Abstract

Sīrāf is one of the largest historical sites on the southern coast of Iran. In this historical site, extensive archaeological excavations were carried out by the British Institute of Persian Studies between 1966 and 1973 AD over seven seasons under the supervision of

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David Whitehouse. Currently, most of the glass artifacts and other excavated finds in Sīrāf are kept in the British Museum and the National Museum of Iran (Islamic section), and so far no laboratory studies have been performed on them. In this study, in collaboration with the National Museum of Iran, several glass objects in the collection of the National Museum of Iran that were suitable for sampling were subjected to elemental analysis using the micro-PIXE technique. This research aims to provide appropriate answers to the questions raised in this field using elemental analysis. The first fundamental question is to determine what raw materials were used to make glass products in the historical city of Sīrāf. Determining the flux materials used in these glasses is also of particular importance, as identifying the type of flux material can play a significant role in studying the trade and exchange of raw materials. Another question in this regard is to investigate the diversity of silica and flux resources and identify the colorants and decolorants used in the manufacturing process. The Micro-PIXE or “Particle Induced X-ray Emission in Micron-scale” analysis was performed with an Oxford Instruments microprobe system using the 3 MV Van de Graaff accelerators in Nuclear Science and Technology Research Institute(NSTRI). The samples were analyzed using a beam of 2.2MeV protons focused to a diameter of less than 10 μm . The beam current was in the range of 30 to 50 pA. Characteristic X-rays were detected using a Si (Li) detector with an active area of 60 mm² positioned at an angle of 135° relative to the incident beam direction and with an energy resolution of 150 eV for Fe-K α . Samples were scanned over a maximum area of 2.5 mm \times 2.5 mm, and digitized signals were recorded in the list mode using the OM-DAQ data

acquisition system. Moreover, the spectra were processed using the GUPIXWIN package to obtain the elemental composition of the glass objects. The results of this study indicate that all the analyzed glass samples from Sīrāf are classified into the silica-soda-lime glasses that plant ashes have been used as a flux in their production. The elemental composition results of these glasses also show that based on the raw materials used in their production, the glasses of this site are divided into several major groups, each of which has been produced with different raw materials.

Keywords: Islamic glass, Sīrāf, elemental analysis, micro-PIXE, silica-soda-lime glass.

Analyzing the Reasons for the Persistence of Siraf in the History of the Persian Gulf

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Abstract

Siraf is one of the most important historical ports of Iran in the Persian Gulf, which has played a great role in the growth and prosperity of this waterway. The historical period of Siraf, both in antiquity and during the Islamic era, shows a fluid management model that focuses on trade. And seafaring involves institutionalizing other discourses within itself. The goal of this research is to examine the causes and factors that led to Siraf's existence in the history of Iran and the Persian Gulf. The research has been done using descriptive-analytical methods and library studies. The results of the research show that the permanence, durability, and survival of Siraf in the collective memory of Iranians and the history of the Persian Gulf is rooted in a series of political, social, economic, and cultural factors

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that the dynamic management and tolerant outlook gave it stability over time.

Keywords: Persian Gulf, Siraf, Seafaring, Trade, Maritime Economy.

Similarities and Modifications in the Architecture of Siraf Mosques

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Abstract

Siraf is a historical city and port that owes its fame to Iranian maritime in the Persian Gulf from the Sassanid period to the end of the Saljuq period. This city was an important place from the economic and cultural point of view because firstly, it was the center of trade in the south of Iran, which played an important role in the development of trade. Secondly, from the cultural point of view, it had a substantial contribution to introducing Iran and Iranian culture to other places, including the south of the Indian subcontinent, and North Africa. Such a place, which was open to various activities, should have special architectural and urban spaces to achieve its role properly. The results of the seven excavation seasons of the British delegation between 1966 and 1972 showed fascinating results about the architectural and urban developments of this city, which have been published in the form of an independent report. The account is

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mainly dedicated to the Siraf's Jam'a Mosque in different periods and attempts to analyze them based on archaeological discoveries. Also, in another part of this report, the excavation results related to small mosques in different parts of the city are described. The important and noteworthy point in the report is the difference between the construction pattern of jam'a mosque, which is also located next to the coast of the Persian Gulf, and other small mosques in the city of Siraf. This means that the jam 'a mosque was built according to the style of other jam'a mosques of the early Islamic centuries, which exist in other central parts of Iran, while the small mosques in the neighborhoods of the city have a different pattern, which was probably indigenous. The architectural design of these small mosques is even different from the mosques in the central parts of Iran.

Keywords: Siraf, Jam'a mosque, Architecture, Archaeology

Siraf Port, the Center of Exchange of Knowledge and Culture

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Abstract

The name of Siraf, a historical port, has always been synonymous with the Persian Gulf. Its commercial significance and vital role in the development of Iran, particularly the Bushehr region, is well-documented by historians. Siraf held the distinction of being the most active port in the East and served as the gateway to China until Kish emerged as a competitor. The prosperity and growth of the pre-Islamic Siraf can be attributed to several factors. First of all, the security in trade fostered an environment conducive to economic development. Additionally, the presence of a secure anchorage for ships, a chain of settlements along the coast that could easily supply ships, and well-protected roads leading to Karan, Darabjerd, Najirom, Shiraz, and Firozabad, played a pivotal role. The blending of diverse ethnic groups practicing varying religions such as Zoroastrianism,

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Christianity, and Judaism, facilitated the exchange of ideas, culture, goods, and religious beliefs. Siraf's status as a cultural hub was primarily due to the flourishing domestic and international trade activities in the region. This research has further explored Siraf's historical importance as a center of cultural attraction. The study utilized text-based and descriptive-analytical methods to conduct the research. The findings highlight the significance of business transactions in attracting native, local, and regional elites. These groups, who served as cultural ambassadors, played a crucial role in the development and success of Siraf for several centuries.

Keywords: Siraf Port, Bushehr, Persian Gulf, Culture, China, India.

A Different Look at the Legacy of Siraf's Intangible Medical Culture

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Abstract

The Persian Gulf is one of the oldest regions in the world, whose ancient monuments are proof of the existence of civilization before the Anno Domini centuries and even before Elamie. The importance of this bay has been felt by all governments. Bandar Siraf is one of its former ports. An old port where merchants and sailors from this city used to go on far and wide trips to Africa, China, India, and other parts of the world. The historical features of Siraf port, apart from maritime trade and navigation, are the expansion of medical knowledge in Iran and its prominent role in transferring medical knowledge from India and other countries to Iran. Due to the trade of medicinal items, sea trade in Siraf, particularly during

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the Al-Buye era, was so vital that it was regarded as the Diliman government's treasury. Therefore, medicinal goods have been very important in the glamorous economy of Siraf, which has been able to trade alongside other expensive goods, such as silk, horses, food, and even slave trade; place itself and even become the treasury of the government. The article aims to deal with the heritage of the intangible culture of Siraf medicine in a descriptive-analytical way, with a different perspective, and analyze this spiritual heritage with a new perspective. The article tries to answer the following two basic questions: - What is the approach of Siraf Medical School? How many sections does it have? What impact has Siraf Medical School had on medical science? The findings show that Suleiman Sirafi has repeatedly talked about medicinal information from different regions in his travelogue. In his Periplus, he explained how to prepare Tibetan musk and other medical issues, especially the medical organizations in China and India. Both before Islam and in Islamic civilization, Siraf port was an important route for the passage of medicine into the country, and medical books, herbal medicines, and school ideas were transferred through Iranian merchants and Indian and Chinese ocean ships that docked in Siraf. Found. Siraf medicine needs to be divided into two parts. The role and position of Siraf in the transportation of medical drugs and medical knowledge. Siraf himself was the source of medicinal plants and doctors.

Keywords: Intangible Heritage of Siraf Medicine, Drug Transit, Medical Knowledge

Geoarchaeology and Water Resources of Siraf

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Abstract

Rock-cut reservoirs of Siraf are the unique cultural and archaeological evidence in this historical port, which are also known as the cemetery or rock-cut graves of Siraf, and it has been deeply studied and researched in this article. The greatness and wonder of these rock-cut reservoirs is due to the knowledge and intelligence of Siraf people in geosciences, hydrology, control, and direction of water. Such reservoirs are not seen in other places in Iran. The rainwater harvesting structures in the historical port of Siraf emphasize the management of water resources, which include water ponds, numerous water wells, various dams, and different reservoirs. Each of these structures, during the rains, works favorably in collecting rainwater and runoff. Two basic and important points in this article are: a) the secondary use of these reservoirs as “graves”, b) the method of implementing this secondary use and solutions to

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prevent the pollution of runoff and infiltrated water. Furthermore, by using aerial photographs on a scale of 1:3000, the number of water structures, including wells and reservoirs, has been accurately counted, and the reason for the carving such rock-cut reservoirs in Siraf to build water structures has also been investigated. In the study of the geoarchaeology of Siraf, by using earth sciences such as geology, hydrology, mineralogy, geophysics, and seismology, we can obtain valuable information about the historical port of Siraf and the method of water supply. We can also explain the reasons and processes for the social decline of Siraf in the context of natural events. These sciences together with the archaeological and historical studies can lead to new findings in the valuable history of Siraf.

Keywords: Siraf, water extraction structure, ruck-cut reservoir, historical graves, geoarchaeology.

Maritime Trade between Siraf and China Based on the Comparative Study of the Chinese Ceramic Collection of the National Museum of Iran

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Abstract

The Persian Gulf has held a significant position in Maritime trade due to its geographical location and its position on the sea trade route between East Asia and East African ports. Traders have considered it as a crucial destination since ancient times. The maritime trade carried out on a large scale in this region has impacted economic and political developments both in the East and West. The archaeological remains of ports and populated cities along the coast of the Persian Gulf demonstrate the long-standing economic prosperity of the region. Commercial centres in the Persian Gulf have been relocated on several occasions throughout

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history, with evidence suggesting a shift from west to east. Such movements can be observed chronologically from the pre-Islamic era to the Islamic era, in the major ports of Obleh (Basra), Siraf, Kish and Hormuz (Jeron). The connectivity of the Persian Gulf with its extra-regional ports in East Africa, the Makran Sea, the Indian Ocean, the Far East and the coasts of China is evident through the aforementioned ports. Additionally, Siraf Port held an elevated position from the end of the Sassanid period until the fifth century AH. Written sources and archaeological findings further validate the direct connection between Persian Gulf ports and the Far East. The prevalence of Chinese-made glazed pottery in the Persian Gulf region and the western part of the Indian Ocean between the 8th and 19th centuries affirms this assertion. Moreover, written sources also corroborate this claim, as it is recorded in the Chronicles that the majority of Chinese ships en route to the Persian Gulf would discharge their cargo in Siraf before loading imported goods from Oman, Basra, and other neighbouring regions bound for the Far East. Among the items traded along the Far East trade route to the Persian Gulf were Celadon dishes. Celadon vessels are made from either terracotta combined with stone paste (stoneware) or porcelain and develop a range of green, blue-green and grey-green hues as a result of iron in the glaze during firing. The Chinese soil used to make celadon, known as celadon soil, contains kaolin, a hydrated aluminium silicate with a specific chemical composition. One port where this kind of pottery is produced is Siraf. This port is a significant and vital trading hub in the Persian Gulf, backed by written records and archaeological evidence. Until the 5th century AH, Bandar Siraf was the premier commercial centre in

the Persian Gulf. During archaeological excavations conducted by a joint group from Iran and England, led by David Whitehouse before the revolution, and independent excavations carried out by Esmaeili Jelodar in the 1980s, a significant amount of pottery was discovered. Some of these artefacts are currently housed in the National Museum, while the remainder were transported to England by the British delegation. This type of pottery will be the primary focus of this article. The article's primary objective is to establish the temporal scope, classification, and typology of the celadons discovered during the archaeological excavations at Siraf, housed in the National Museum of Iran, and to comparatively analyse them with their Chinese counterparts. Employing a historical approach and comparative methodology, the article delves into the origins of the celadon trade from the Far East to Siraf and its duration, dissecting the collected Celadons to uncover the answers.

Keywords: Siraf, Celadon, Far East, Maritime Trade, China, National Museum of Iran.

A Comparative Study of Stucco Decoration from Siraf: A Case Study of Stucco Decoration in the British Museum

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Abstract

Siraf is an ancient port city located in the Persian Gulf that prospered during the medieval period with maritime trade. Siraf had a special importance and commercial position among the ports of the Persian Gulf during the Sassanid and Islamic periods. Historians and geographers have reported about a prosperous city in the Islamic period. Archaeological surveys and excavations have provided valuable information about the urban spaces and architecture of the Sassanid and Islamic eras. A lot of stucco fragments have been discovered from the excavation of some mosques and houses in Siraf city. The stucco fragments are kept in the British Museum and the National Museum of Iran, but a few fragments have been studied. There are 102 fragments of stucco in the British Museum that are studied in this article. This research tended to introduce

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and analyze these findings in the context of the plaster art of the Islamic period in this historical city. The study method included secondary research with a descriptive–analytical approach. This research aims to answer the above fundamental questions: Which techniques have been used in making stucco fragments? What is the variation of stucco types at siraf. According to the studies three techniques are used for making stucco such as carving, molding, and applied techniques. Also Some parts are painted in red. The Stucco of this site is very diverse and includes plant, geometric, architectural motifs, and Kufic Inscriptions. The stucco fragments can be compared with stucco from Samarra, Naeen Mosque, Friday Mosque of Isfahan, Chal Tarkhan, Nishapur, Simareh Mosque, etc. Some of the motifs used on Siraf's stucco are similar to the stucco of Parthian and Sasanian sites such as Qale-Yazdgerd, Assur, Bishapur, Kish, and Ctesiphon.

Keywords: Siraf, Stucco, motif, technique, British Museum.

Feasibility Study of Tourism Development in the Ancient Port of Siraf with a Focus on Implementing Tourism Development Plans in Global Ancient Sites

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Fatemeh Salehi³

Abstract

Siraf, during the Sassanid era, emerged as one of Iran's most prominent ports, becoming a pivotal hub for cultural exchanges with India, Basra, Africa, and China. At its peak, this port city was woven into a rich tapestry of intercultural connections, creating a unique urban fabric. Throughout history, Siraf functioned as a meeting point for diverse cultures, with individuals of varying religious beliefs coexisting harmoniously across different historical epochs. In today's society, Siraf is primarily known for its industrial

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character rather than its historical significance. This distinct identity stands in contrast to analogous global examples, such as Pompeii, Herculaneum, and Petra, where tourism focused on ancient sanctuaries has been firmly established. This research, by extracting principles of managing ancient regions globally and aligning them with theoretical structures, presents a model for developing tourism in the port of Siraf. The study is a mixed-methods study that employs logical reasoning, content analysis, and their application to a case study. Accordingly, the theoretical structure of tourism development in ancient regions has been formulated through relevant documents, articles, and books. In addition, this research presented several examples and strategies for developing tourism in the port of Siraf. The results of this study illustrate how ancient regions can play vital roles in attracting audiences and developing tourism in these areas, as well as, how the development and conservation of these areas are inextricably linked to the tourism factor. This study provides a framework for the tourism development of the port of Siraf, considering the rich layers of architecture and urban planning. The presented model in this research opens possibilities for researchers to rework strategies for managing historical artifacts and developing tourism in other ancient cities in Iran, in the form of active and passive strategies, under a process termed “Reuse”.

Keywords: Tourism Development, Ancient Architecture, Siraf, Urban Development, Indigenous Architecture.

Investigation of Darabgerd-Siraf Road Network Based on the Historical Texts and Archaeological Data

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Abstract

Siraf's port is one of the most important ports of Ardašir -Kōrra states in the network of communication routes as a commercial-economic center. Siraf with its multifaceted connections has been very important for Fars and other regions. One of the networks that connected Siraf port to the power-political centers is the Darabgerd-Siraf road network, which was described by Maqdisi. Moreover, this road connecting Darabgerd to the coastal areas of the Persian Gulf, this road network has placed Darabgerd in the role of an intermediary center for connecting the eastern regions of Iran with the coastal areas. By Investigating and studying the stations mentioned on the Darabgerd-Siraf road, this research tries

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to determine the time of establishment of the Siraf-Darabgerd road network as well as the effects that Darabgerd-Siraf road had on the stations of Darabgerd- Khusu- Karb- Joyom- Karian- Pariab-Korran and Siraf port. The methodological approach of this article is based on the Interpretivism-Constructivism paradigm. The present study examines the Darabgerd-Siraf road network through the study of written sources and information in geographers' reports as well as archeological data. Based on the investigations, the Darabgerd-Siraf route was used in the Sassanid era, probably due to the castles, caravanserais, and Sassanid remains in this area. Also, according to archeological investigations, the peak of settlements in the areas of Darabgerd, plain Karian-Harm (Larestan city) Fishvarr and Sede areas Khonj and Galleh-Dar (Mohr city), were in the Sassanid era. In the Middle Islamic period, by cross of the Hormuz- Lar-Shiraz Road, Siraf declined, and political conflicts of Garmsirat regions with the central city of Shiraz, so intermediary centers as well as the main network road of southern Fars state concentrated and expanded in the eastern regions. The pottery data of the Sassanid sites on the Darabgerd-Siraf road, especially the northern plains of the Persian Gulf, are similar to the coastal areas.

Keywords: Road Network, Siraf, Darabgerd, Sasanian-Islamic, Pottery.

Stucco Collection of Siraf at the National Museum of Iran

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Abstract

This article offers an in-depth analysis of the Siraf stucco collection at the National Museum of Iran. The collection is a result of joint excavations between Iran and England under the directorship of David Whitehouse from 1966 to 1973, comprising 83 frames and fragments, that were Iran's portion of the joint excavation, so they moved to the National Museum of Iran. The article delves into the origins of these artifacts, with a particular focus on the residential area (Site F) of Siraf, as well as other key sites such as the Great Mosque (site B), Palatial residence (Site K), and buildings in site M. The classification of the stuccoes into molded and carved groups is explored, shedding light on their historical and stylistic significance.

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Notably, the article draws attention to the potential link between the stuccoes and the prosperous era of Siraf during the 9th and 10th centuries CE. Furthermore, the article examines the cultural and artistic significance of the stucco pieces, highlighting their role as architectural decorations and grave coverings. The discussion also touches upon the stylistic evolution of the stucco, with the carved group being identified as older and potentially associated with the period of prosperity at Siraf. Additionally, the local style of the molded stucco is compared to examples from the Seljuk period, offering insights into the artistic influences and regional context of the stucco collection. The article aims to contribute to a deeper understanding of the historical, cultural, and artistic heritage of Siraf, enriching scholarly discourse on ancient Iranian civilizations and their enduring legacy in the field of art and architecture.

Keywords: Siraf, Molded Stucco, Carved Stucco. Samara C Style, Seljuk period.

A Study on the Alloy Composition of Metallic Archaeological Finds from Siraf

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Abstract

The port of Siraf in the Persian Gulf stands as one of Iran's most significant archaeological sites, flourishing from the Sasanian to the early Islamic period. Given the historical expanse and geographical location of this site, conducting archaeological and archaeometric studies on different materials obtained from it holds paramount importance. Consequently, this research undertakes the preliminary metallurgical investigation of some metallic archaeological finds. The metal samples selected for study are metal objects obtained from the Whitehouse archaeological excavations and are now kept in the National Museum of Iran. For this purpose, twelve

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objects of various shapes and fragments were chosen to gain a better understanding of the alloy compositions used in this region. Chemical analysis of the samples was carried out using scanning electron microscopy equipped with an energy-dispersive X-ray spectrometer (SEM-EDS). Elemental analysis revealed the use of a variety of alloys in artifact manufacturing. Iron was detected in one of the studied objects. In addition, various copper alloys, including brass (Cu-Zn), bronze (Cu-Sn), and quaternary alloy of Cu-Sn-Zn-Pb, were identified for different artifacts. Metallic finds including a decorative strip, exhibited the use of a nickel-bearing alloy, specifically a ternary alloy of Cu-Zn-Ni. Furthermore, other alloys, including a combination of lead and tin (Pb-Sn), silver, gold, and copper (Ag-Au-Cu), as well as copper, lead, and silver (Cu-Pb-Ag), were identified in the objects. The diversity of alloy types discovered in the metallic finds from Siraf points to distinct metallurgical technologies, serving as evidence of the historical significance of this harbor as a center for maritime trade in a variety of commodities. In other words, the variety of the alloy composition, aside from indicating metalworking at this site, could be attributed to the importation of different goods into this historical area. However, the study of more metal objects can contribute to a clearer understanding of this matter in the future.

Keywords: Siraf, Metallic finds, Archaeometallurgy, Alloy composition, SEM-EDS.

**The Position of Siraf and Neyshabur as the Two
Main Centers of Trade Between Iran and China
at the Beginning of Islam; a Documentary and
Archaeological Study**

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Abstract

The initiation of commercial interactions and cultural communication did not occur abruptly or at a particular moment in time. Indeed, the advancement of human society can be attributed to the evolution of communication, spanning from prehistoric eras to the present day. Commercial interaction has been a vital factor in the interactions between human cultures, serving both the essential purpose of fulfilling basic living requirements and the broader objective of meeting economic needs, pursuing profit, and asserting dominance.

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The road network and associated infrastructures play a pivotal role in facilitating business transactions. During the Islamic era, commercial connectivity between Iran and China was facilitated through both maritime and overland routes. The land path commonly referred to as the Silk Road, also known as the Great Khorasan Road, spanned from northeastern China to Iran. The land route encompassed various significant centers and cities, with particular emphasis placed on the city of Neyshabur as the most prominent among them. One additional mode of communication that facilitated interaction between Iran and China was maritime trade, particularly through the Persian Gulf. Notably, the Siraf port played a pivotal role in this regard. Numerous scholarly investigations have been conducted on the commercial exchanges between Iran and China, spanning from the Sassanid era to the present day. The primary focus of these studies revolves around maritime trade, alongside research about the archaeological excavations conducted at Bandar Siraf. This article aims to conduct a comparative historical analysis of the documents from two prominent centers that connected the Islamic world to China. The primary objective of this essay is to elucidate the potential opportunities and obstacles associated with the utilization of both land and marine routes for facilitating trade between Iran and China. The present study's methodology relies on the integration of data and textual sources, using historical and geographical sources as well as relevant archaeological artifacts. The presence of commercial activity has been substantiated through the archaeological excavations conducted by the American Archaeological Mission in Neyshabor, as well as the collaborative efforts of Iran and England in Siraf. The findings of the study suggest

the presence of two prominent trading entities or broadcasting trade hubs in Neyshabur and Siraf. To a certain extent, these two cities facilitated the commercial interconnection between the eastern and western regions. This can be seen as Iran's control over key trade routes and the establishment of a worldwide economic alliance. These two cities served as the primary commerce hubs for Iran and China, acting as the main base of traders and as a pricing center for various commercial items. Additionally, one of these cities also had a broadcasting firm. The cities of Siraf and Neyshabur played significant roles in facilitating international trade during the early Islamic centuries. These cities served as crucial nodes along both the land and sea routes, connecting various regions and enabling the exchange of goods and ideas.

Keywords: Siraf, Neyshabur, international trade, early Islamic centuries, land route, sea route.

A Description of the Shells Found in the Ancient Excavations of Siraf

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Abbas Motarjem³

David S. Reese⁴

Abstract

The use of marine shells on the Iranian plateau has a long history, dating back to the Upper Paleolithic period. For thousands of years, shells have been utilized as decorative items and objects that have been associated with superstitious and sometimes religious beliefs. The ancient port of Siraf, which was located near the sea and had a port status, utilized marine shells and shark and stingray vertebrae.

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Beads of this type have been discovered in archaeological and ethnoarchaeological settings since the third millennium BC. It is important to note that the indigenous people of some parts of the coast of Bushehr still use these vertebrae beads as hair decorations or as decorations for men's turbans. Some of the shells in Siraf come from the trade between Siraf and the western coasts of the Indian Ocean and the Gulf of Kutch. It appears that the people of Siraf were not particularly interested in the Persian Gulf shells, as very few shells have been discovered from this ancient port. This article is the result of the study of 10 shark vertebrae and 15 shells and production waste that were excavated by a joint Iranian-British team led by Dr. Whitehouse during the years 1967 to 1974. The main question of the present research is the reason for the existence of marine shells with a biological origin in the Indian Ocean and the Gulf of Kutch, as well as the use and purpose of shark vertebrae beads in this commercial port. The main goal of this research is the typology of the shells and their use in the port of Siraf. The approach of the article is historical and the method of analysis is comparative-comparative. The preliminary results of the article showed that, based on the marine taxonomy obtained from the Whitehouse excavation, some of them have a biological origin in the Indian Ocean. In general, the shells used in this place were the result of trade with the regions of India and Sri Lanka. The presence of *Turbinella pyrum* shells is an obvious sign of this trade. Also, the presence of shark vertebrae beads probably had a use such as backgammon beads or pendants. These shells were used for a variety of purposes, including decoration, adornment, and trade. One of the most common uses of marine shells in Siraf was for decoration.

Shells were used to make beads, pendants, and other ornaments. These ornaments were often worn by people as jewelry or used to decorate clothing and other objects. Marine shells were also used for adornment in Siraf and other decorative items. These items were often used in religious or ceremonial contexts. In addition to their decorative and adorning uses, marine shells were also used for trade in Siraf. Shells were traded from Siraf to other parts of the Persian Gulf and the Indian Ocean. This trade helped to connect Siraf to other cultures and economies. The results of the present research provide new insights into the use of marine shells in the ancient city of Siraf. The research shows that the shells found in Siraf were the result of trade with the Indian Ocean and the Gulf of Kutch. This trade helped to bring new materials and ideas to Siraf. The research also suggests that shark vertebrae beads were used as backgammon beads or pendants in Siraf. This is a new finding that provides new information about the material culture of Siraf.

Keywords: Siraf, Typology, trade, Shell, Shark Vertebrae Bead

Gravestones of Siraf in the Louvre and British Museum

Kazem Omid¹

Abstract

Siraf was the place of rich traders and merchants for successive centuries. Although the amount of their wealth can be understood from historical reports and archaeological evidence, especially the remains of the Lir Valley, little evidence of their name has been obtained through archaeological findings. The gravestones in the British Museum and the Louvre are good examples, where the names and symbols of the deceased are engraved on them. During the years 1891 and 1913 AD, these gravestones were transferred to the British Museum and the Louvre, at the same time as the prosperity of the Antique market in transferring cultural objects from Iran. The reports presented about Siraf and the display of these gravestones in these museums became the reason for more travelers as well as European

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archaeologists to visit there subsequently. These gravestones are considered to be the first examples of box gravestones that both of them have the name of the deceased, date of death and Quranic verses. Research and studying them can provide more Information about the names and emblems of deceased people, and the style and spread of the construction pattern of these gravestones. This short research, which aims to introduce and review them, shows that the research of Siraf box gravestones is important from two aspects, on the one hand, it increases our knowledge by studying the early models, the form and the arrays carved on them, and on the other hand, according to the text of the inscriptions, especially the names of deceased persons and the date of death carved on them, it provides significant information about the text and style. It provides inscriptions and names and emblems of deceased people, both of which can provide more angles of the style and spread of their construction and sculpting patterns. The gravestone in The British Museum belongs to Abdul Rahim bin Muhammad bin ... Abu Ali, who died in 991 AD, and the gravestone in The Louvre Museum belongs to Abi Nasr Ibn Al-Hasan, who died in 1133 AD.

Keywords: Persian Gulf, Siraf, Lir Valley, Cultural Evidence, Box Gravestone.

Studying the Plant Motifs of Siraf Plasters with its Influence from the Sassanid Period; Case study: Bishapur Plasters

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Abstract

The role of plant materials is abundantly seen in the plasters obtained from Sassanid places; these plant motifs, which are abstractions from nature, are executed with a decorative and symbolic purpose. The commercial and economic developments in the ancient port of Siraf during the Sassanid period caused the designs used in the Sassanid plasters to reach Siraf as well; Therefore, plant, motifs in Siraf's plaster, with a slight change, were executed in the same way as Sassanid motifs. Siraf's plasterwork, like Sassanid plasterwork, has a symbolic and naturalistic approach, and the artist has executed these plant motifs with a completely naturalistic view. The current

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research aims to investigate the plant patterns of Siraf plasters and compare and match them with the plant patterns of Bishapur plasters. The question of this research is as follows: what are the similarities and differences between Siraf and Bishapur plant plasters? The research method in this research is descriptive-analytical and uses library-documentary sources. This research aims to prove the hypothesis that the plant motifs of Siraf plasters were strongly and significantly influenced by Sassanid plasters, especially Bishapur plasters. The results of this research show that the role of artichoke leaf, pine fruit, cypress tree, and palm tree is common in Siraf and Bishapur plasters. Among the motifs that were mentioned, the artichoke leaf motif is more similar to other motifs in the plaster of both cities. Generally, motifs are executed by repeating the form and similar composition.

Keywords: Sassanid, Bishapur, Siraf, Plaster, Plant Motifs.

The Influence of Iranian-Arabian Features on Glass Vessels and Glazed Ceramic Jars Related to Siraf in the Sassanid Period

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Negar Najibi²

Abstract

According to the evidence of archeological documents related to the Sassanid and the early Islamic period, the trade of Islamic glass vessels and glazed ceramic jars from the Middle East and the Western Indian Ocean to the eastern end of the ancient world to the Japanese archipelago was carried out through Siraf port. Glazed ceramic jars represent the first and only known examples of exports from the Middle East to East Asia during the Sassanid period. In previous studies, the influence of East Asian art is often emphasized, and the role of Iranian-Arabian features has been ignored. The aim

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is to study the influence of Iranian-Arabian features on Siraf glass vessels and glazed ceramic jars in this era. By presenting an overview of the products of usual glass vessels and glazed ceramic jars in the Sassanid period, the question is: What effects have the features had on the decorations of glass vessels and glazed ceramic jars in this era? The research method in this article is historical-analytical and the data collection method is the documentary method. The research shows that most glazed glass and ceramic jars have a thumb grip handle, and often the body is covered with decorative patterns of geometric motifs and a bunch of grapes shows a symbolic aspect, and their opening is round, and Iranian-Arabian elements are emphasized more. Based on the color and glazing technique of the broken pieces of the products discovered in Siraf, it was found that blue Cobalt was used in the designs of glass vessels and glazed ceramic jars, which were discovered in Basra city. Therefore, the role of common Iranian-Arabian elements such as embossing and carving in the production of Siraf glass vessels and glazed ceramic jars has been neglected.

Keywords: The Sasanian era, Siraf, Glass Vessels, Glazed Ceramic, Iranian-Arabian Components.

The Transfer of Irano-Islamic Culture to China; a Comparative Study of Tombstones Found in the Port of Quanzhou in China and the Port of Siraf in Iran

Fatemeh Shahidifar¹

Mehdi Azarian²

Abstract

Although the coasts of the Persian Gulf and the southern coasts of China are thousands of miles apart, in the distant past, these two regions communicated with each other by Sea routes using boats and merchant ships which have led to economic, social, and cultural interactions across the Indian Ocean. Muslim merchants, from the Persian Gulf traded with the different parts of the Indian Ocean, especially the southern coasts of China, where Islamic culture had penetrated; these merchants can be considered as heirs to the symbols and culture of Iran-Islamic culture. They, intentionally or unintentionally, have transported this culture as well as their merchandise to distant regions. One of the most important ports

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in this trade route is Quanzhou in southern China. Quanzhou, at a certain period, was a mixture of Chinese and Irano-Islamic culture. One category of evidence relating to this heterogeneous mixture is tombstones. Most of Quanzhou's tombstones belong to Iranian Muslims. These tombstones provide a prominent example of cultural assimilation. This article seeks to investigate the Impact of Irano-Islamic society and its material culture on lands with which they had commercial relations (southern coasts of China). This is done through the comparative study of medieval tombstones from the coastal cities of Siraf in Iran and Quanzhou in China. The tombstones in the port of Siraf are a combination of Iranian and Islamic art, while in the tombstones of Quanzhou, we see a combination of Irano-Islamic art with Chinese art. It can be said that what we see in the tombstones of Quanzhou are enhanced versions of those found in Siraf. This article begins with a historical review of the port city of Siraf in southern Iran and the port of Quanzhou in southern China, and then examines the culture of Muslims and tries to understand how the interaction between two cultures can be seen through tombstones found in Siraf and Quanzhou, and then examines how foreign culture is accepted in a quite different locality.

Keywords: Quanzhou, Siraf, Inscription, Tombstone, Iranian Islamic Culture, China, Southern Coasts.

Siraf Port; One of the Major Centers for Producing Incised through Slipwares during the Early Islamic Centuries

Mitra Shateri¹

Abstract

When, for the first time in the Islamic world, Sarre excavated the ancient city of Samara and found a type of pottery that he called Sgraffito, it was not thought that such a large amount would be achieved by subsequent excavations in Islamic lands. Today, researchers from the Islamic era are well aware that one of the most common species found in Islamic sites from different regions is incised through slipware or sgraffito. In the early centuries after Islam, the main production centers of pottery were the same as before Islam, and the teachings and experiences of pre-Islamic potters played a major role in the development and flourishing of pottery. Areas such as Jorjan, Nishapur, Susa, and Siraf can be considered among these centers. The production center of Siraf as an important and ancient port, was a bridge between East and West and played an

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essential role in the exchange of cultural and artistic items. Besides items such as precious gems, ivory, pearls, and other items such as pottery, (especially the type of incised through slipware or Sgraffito) can be seen that the vast amount achieved in the excavations of this center indicates the importance of this species. The present study aims to clarify the history of production and manufacturing of this valuable ceramic type and better understand the role of Siraf as a major production center in Iran during the 3rd and 4th centuries A.H. The study aims to determine the types of ceramics produced in Siraf, in what forms, and during what periods. The data used in this research were obtained through library and field research, and the research method used was descriptive-analytical. The results of the study show that most of the ceramics obtained from Siraf were of the role-playing type in the incised through slipware or Sgraffito, accompanied by splashed glaze. In the 3rd and 4th centuries A.H., the production of these ceramics was mainly focused on open forms, such as bowls and plates.

Keywords: Siraf port, Archaeological Studies, Incised through Slipware, Sgraffito.

The Effect of Climate on the Urban Space of Siraf in the Early Islamic Centuries (Case Study: Noble Houses)

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Nasrollah Ebrahimi²

Abstract

Throughout history, humans have always wanted to have a shelter to live in, and this need and desire became the beginning of building and architecture. It was necessary to build a shelter and a building, dealing with the surrounding nature. The design and construction of architectural spaces are always influenced by nature, climate, and geographical location, and we can see this influence even in the materials used in the construction of architectural buildings. The historical port of Siraf is located on the northern coast of the Persian Gulf in Bushehr province and 38 km from Kangan port. Geographically and climatically, Siraf is considered a hot and humid area. The Zagros mountains, which are stretched from the Iranian

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plateau to the sea, end at Bandar Siraf; As a result, it creates a strip one kilometer wide by the sea. The restrictive location of Siraf between the mountains and the sea has made it impossible for this city to expand. The main goal of the current research is to investigate the climate of Siraf and the influence of this phenomenon on the architecture and design of noble residential buildings in Siraf, in the early Islamic centuries. In this research, we are looking for an answer to the question of how the climatic and geographical conditions have affected the architecture of Siraf. The theoretical framework of this research is based on the idea of framing culture by climate. The methodology is based on spatial analysis. Also, the method of interpretation will be analytical-descriptive. The researchers have used field and library studies. The authors of the article believe that the architectural spaces of the early Islamic centuries at Siraf were affected by the climate and geographical location, so the architects started to construct buildings by considering factors such as the sun's radiation, wind direction, and the position of the mountains and the sea to use the regional and environmental potential for buildings.

Keywords: Siraf, climate, architecture, early Islamic centuries, noble houses.

The Introduction and Analysis of the Ivory Findings of Siraf in the National Museum of Iran

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Karam Mirzaee²

Abstract

Siraf and its historic port had a strong presence in the trade and maritime commerce of the late Sassanid and early Islamic period. Siraf, in addition to the main centers of Iran's hinterland, has sea connections with other ports of the Persian Gulf and its trans-regional ports on the coasts of the Indian Ocean, East Africa, India, and China, and important goods such as oud, amber, camphor, bamboo, precious stones, ivory, ebony, all kinds of spices and textiles are both exported and imported. Apart from the written sources, this subject can also be traced through archaeological findings. As an example, we can mention the ivory objects among the archaeological findings of the historical port of Siraf, whose material is imported from Africa or India. These ivory objects were found in the joint excavation

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of Iran and England under the supervision of David Whitehouse between 1966 and 1974 and are now kept in the National Museum of Iran. In this article, the comparative method of study with a historical approach is used to review the findings. The Siraf ivory objects are compared with ivory objects from other regions such as Neishabur, Qasr Abu Nasr, Fostat, Samarra, and Cairo. 28 samples of ivory objects were examined in this research, including spindles, game boards, and parts of bowls. The presence of semi-finished ivory objects in the data indicates the existence of an ivory carving industry in this region.

Keywords: Ivory, Ivory objects, game boards, archaeology of Siraf, National Museum of Iran.